

Sculpture in the Augmented Sphere

MARA-JOHANNA KÖLMEL

SCULPTURE IN THE AUGMENTED SPHERE

Reflections at the Intersection of Corporeality,
Plasticity, and Monumentality

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ABSTRACT

Sculpture in the Augmented Sphere explores the profound impact of digital technologies on the field of sculpture since the 1950s. If artists now model their sculptures based on AI, through custom-made software, or with digital prototyping technologies, how should the notion of sculpture itself be rethought? How are the digital, physical, material, and immaterial bound together in the artists' work? How do these relationships advance and transform existing discourses on plasticity, corporeality, and monumentality? How do these altered regimes reflect upon us, including how our bodies enter the work and how materiality is used to convey form?

In recent years, a number of conceptual vocabularies have been coined to describe the dynamics of digital objects in virtual and screen-based surroundings. Art history, however, has largely overlooked sculptures created using digital means.

Through the works of Morehshin Allahyari, Alice Channer, and Sterling Crispin, as well as an inter-generational group of artists, this book examines how plasticity, corporeality, and monumentality have been transformed by the digital. Selected works are placed within art-historical, technological, and philosophical contexts, reimagining a new form of augmented sculptural objecthood intertwined with networked digital technology.

In its re-evaluation of the sculptural, the publication introduces concepts such as more-than-human corporeality, digital plasticity, and nomadic monumentality. By amplifying the contributions of marginalized groups, including female-identified, BAME, and LGBTQ+ artists, it broadens the discourse on sculpture and technology across historical and contemporary dimensions.

Sculpture in the Augmented Sphere connects research perspectives on sculpture and digital media, highlighting how the understanding of the sculptural has evolved into the (post-) digital age.

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INTRODUCTION: SCULPTURE IN THE AUGMENTED SPHERE

The arts have not escaped the manifold effects of digital technology on our lives. In particular, what we might consider sculpture now often involves the use of digital technologies. This book examines how these digital technologies are configuring our understanding of sculpture and the sculptural act. It is based on the premise that digital technology has fundamentally expanded, transformed, and augmented sculpture. While we are seeing the impact of this development in art studios and exhibition spaces worldwide, no systematic art-historical investigation of this change has yet been undertaken. The aim of this research is thus to contribute to the discussions on sculpture and the sculptural in the (post-)digital age through systematic, historical, and interdisciplinary analysis. *Sculpture in the Augmented Sphere: Reflections at the Intersection of Corporeality, Plasticity, and Monumentality* examines and perhaps even partly rethinks the sculptural in relation to our technological present.¹

Sculptural works of Alice Channer (born 1977 in Oxford, United Kingdom), Sterling Crispin (born 1985 in Maui, Hawaii, USA) and Morehshin Allahyari (born 1985 in Tehran, Iran) provide the case studies for this research. These three artists use digital technologies not only as a means of artistic production or as material resources but also as prompts for reflection on technology's impact on human and non-human environments. Through a close reading of the works chosen for this study, I aim to show how the digital has altered the sculptural categories of plasticity, corporeality, and monumentality. Each section focuses on one artistic practice. Selected works are systematically positioned in art-historical, technological, and philosophical contexts. These works speak to a time in which the encompassing digitalization of our world has rendered common distinctions between the virtual and the real, the digital and the analogue, and the material and the immaterial ever more elusive. Instead of obscuring how their works are produced, Channer, Crispin, and Allahyari consciously foreground the technological, material, and cultural registers, networks, and processes from which their works emerge. They even make them part of the works' final presentation.

1 These observations have also been formulated and explored in conjunction with the conference panel 'Voyage to the virtual: Sculpture in the (post-)digital age', which I organized for the twenty-ninth International Sculpture Conference, *The Multifaceted Maker*, at Portland Art Museum, Portland, Oregon, 12–15 October 2019. Speakers on the panel were Sophie Kahn, Michael Rees, and Jose Luis Garcia del Castillo Lopez. The themes of this book are also reflected in the concept for the online symposium *The Sculptural in the Post-Digital Age* organized with Ursula Ströbele at Zentralinstitut für Kunstgeschichte in Munich, 26–27 May 2021. Buket Altinoba, Idis Hartmann, Elizabeth Johnson, Verena Kuni, Ursula Ströbele, Karin Sander, Michael Rottmann, Alexandra Weigand, and I contributed to the symposium, later published as Mara-Johanna Kölmel and Ursula Ströbel (eds.), *The Sculptural in the (Post-)Digital Age* (Berlin: De Gruyter, 2023).

The plastic arts have traditionally comprised the physical manipulation of a plastic medium by moulding or modelling. Today, however, artists like Channer, Crispin, and Allahyari are able to create sculptures with 3D technologies before transferring them into the physical realm. If artists now model their sculptures based on algorithms, in custom-made software, or with digital prototyping technologies, the notion – in fact the act – of sculpture itself has to be fundamentally rethought. But as carefully conducted iconographic–material analysis and close observation of the works’ production cycles will reveal, the technologies in question do not usher in an entirely ‘new’ mode of artistic production. Rather, Channer, Crispin, and Allahyari interweave state-of-the-art technology with ancient sculptural approaches, combining digital and analogue techniques. They fuse the outsourced with the hand-produced, the mechanical with the human-made, the synthetic with the organic, the human with the non-human. Through the careful examination of the three different artistic positions as examples, the book attempts to conceptualize a novel type of ‘augmented’ sculptural object. This sculptural objecthood embeds networked digital technology and merges it with traditional sculpture-making techniques. Such sculptural objects reflect their coded production processes and how human and non-human environments collapse into one. The sculptures reveal technology’s impact on materials and on human and non-human bodies. The artists’ works thus allude to a recent turn in object-making that fundamentally questions previous definitions of sculpture and sculptural categories. At first glance, it may therefore seem surprising that the three artists emphasize the connection of their work to sculpture: Allahyari refers to her work as ‘sculptures’; Crispin intuitively references *the sculptural canon* throughout his oeuvre; and Channer insists that she works with sculpture.²

The expanding field of sculpture

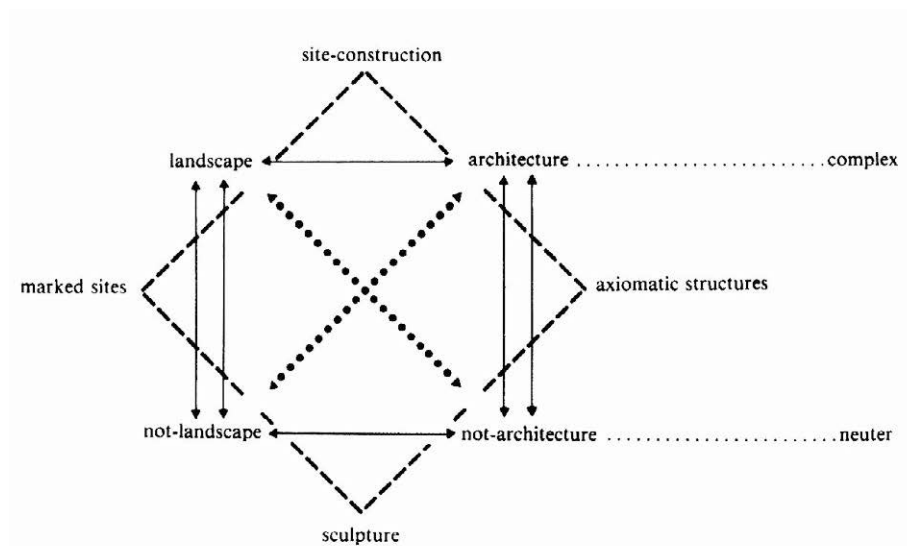
Throughout its history, the category of sculpture has maintained a problematic yet strangely compelling status. From the Renaissance until the eighteenth century, sculpture was defined in relation to the ‘superior’ arts such as painting, a two-dimensional art, and architecture, the three-dimensional art.³ In the wake of Lessing’s reflections on medium specificity in the *Laocoön*, sculpture was described as the art whose essence lay in plastic form, whereas that of painting lay in changing visual appearance.⁴ In modernity, painting continued to be perceived as the artistic medium that corresponded more fully with a modern mindset and

2 Sabine B. Vogel shares a similar observation following interviews conducted with artists such as Karla Black, Asta Gröting, Agathe Fleury, Sakshi Gupta, Alicja Kwade, Angelika Loderer, Serge Alain Nitegeka, Donna Ong, and Hans Schabus. They prefer the terminology of sculpture over installation and cannot refrain from using it. See Sabine B. Vogel, ‘Die Grenzenlosigkeit der Skulptur’ [The boundlessness of sculpture], *Kunstforum International* 229 (2014), 31.

3 See Jon Wood, David Hulks, and Alex Potts (eds.), *Modern Sculpture Reader* (Leeds: Henry Moore Institute/Los Angeles: Getty Publications, 2012), XV.

4 See Gotthold Ephraim Lessing, *Laocoön: An Essay on the Limits of Painting and Poetry*, tr. Ellen Frothingham (London: Longman, Brown, Green, and Longmans, 1853).

sensibility, as Charles Baudelaire famously argued in his text 'Pourquoi la sculpture est ennuyeuse' ('Why sculpture is boring'). If sculpture appeared until the nineteenth century as relatively monolithic, static, figurative, vertical – an autonomous object made out of inert, durable, and lasting materials – critics of modern sculpture started to document its increasingly porous state. Modern sculpture absorbed its pedestal (Rodin).⁵ It disintegrated its mass and weight through light (Brancusi).⁶ It extended its forms, embraced spatiality, and freed itself from the fixation on the figurative (Salmon, Boccioni, Hepworth). It emancipated itself from material and mass, appeared weightless and thereby negated sculpture's monolithic appearance (Gego).⁷ Modern sculpture inverted the site-related logic of the monument so profoundly tied to sculpture's past and became siteless.⁸ Signalling sculpture's eventual dissolution, modernist sculpture explored the non-sculptural and, with it, the gradual shift from sculpture to installation. A new development closely associated with minimalism entered the art discourse in the late 1960s: Minimalist sculpture was now viewed as sharing the space with the viewer while responding to and examining its own specific location and context (Smithson, Morris, Serra, Andre, Irwin). This tendency situated somewhere between landscape art, sculpture, and architecture presumed an embodied subject to activate and complete the artistic work (Asher, Acconci, Nauman, Graham).



1 | Rosalind Krauss, *Sculpture in the Expanded Field*, 1979. From R. Krauss, 'Sculpture in the expanded field', *October* 8 (Spring 1979), 37.

5 See Rosalind Krauss, 'Sculpture in the expanded field', *October* 8 (1979), 34. doi: 10.2307/778224.

6 See Carola Giedion-Welcker, *Contemporary Sculpture: An Evolution in Volume and Space*, tr. Mary Hottinger-Mackie and Sonja Marjasch (London: Faber & Faber, 1956), XIII.

7 See Giedion-Welcker, *Contemporary Sculpture: An Evolution in Volume and Space*, XIV.

8 See Krauss, 'Sculpture in the expanded field', 33.

Rosalind Krauss is most renowned for proposing a theoretical framework that delineates a conceptual departure from rigid notions of sculpture, redirecting focus towards the sculptural as a methodological and structural approach.⁹ In her essay 'Sculpture in the expanded field', Krauss describes sculpture as a 'historically determined' rather than 'universal category'.¹⁰ In her critique, she turns away from her teacher, Clement Greenberg, and his media-specific and essentialist concept of sculpture towards a more structural understanding of the sculptural.¹¹ As Ursula Ströbele and Martina Dobbe highlight, Krauss replaces an essentialist definition that defines sculpture according to its positive characteristics (such as, *pace* Greenberg, its three-dimensionality) with a negative definition. Krauss famously recorded her structural approach in the essay's accompanying diagram, where sculpture unfolds between the poles of 'architecture' and its negation in 'non-architecture' and 'landscape' and 'non-landscape' (fig. 1).

It remains unclear why Krauss chose precisely these four demarcations for her field (as opposed to, for example, the body, as Joe Scanlan highlights in his critique of her text).¹² In Krauss's conception, the sculptural is 'no longer organized around the definition of a given medium on the grounds of material, or, for that matter, the perception of material. It is organized instead through the universe of terms that are felt to be in opposition within a cultural situation'.¹³ The sculptural acts are a specific approach emphasizing features such as plasticity, spatiality, iconicity, and temporality. Hence, the isolated and autonomous sculptural object became less significant, with sculpture now perceived more as an environment composed of a multitude of media. As such, the 'sculptural', as a term freed from specific traditional and sculpture-specific characteristics, can be fruitful in reassessing the sculptural phenomena discussed within this book.

Under the influence of diverse artistic practices such as happenings, assemblages, process art, performance art, land art, film, and architecture, installation art emerged as a result of the expansive diversification of mediums already anticipated by modernist sculpture.¹⁴ However, the term 'installation art' did not gain momentum until the mid-1990s and 2000s.¹⁵ As a hybrid discipline, installation art has since been defined to account for a viewing subject that physically enters a work of art.¹⁶ Thereby, not only the viewer but the particular site of

9 Krauss does not use the word 'sculptural' in her essay, but formulates this shift between the lines. See Krauss, 'Sculpture in the expanded field', 33 et seq.

10 Krauss, 'Sculpture in the expanded field', 33.

11 See Martina Dobbe and Ursula Ströbele (eds.), *Gegenstand: Skulptur* [Object: Sculpture] (Paderborn: Wilhelm Fink Verlag, 2020), 3.

12 See Joe Scanlan, 'Wanderers in the expanded field', in Spyros Papapetros and Julian Rose (eds.), *Retracing the Expanded Field: Encounters Between Art and Architecture* (Cambridge, Massachusetts: MIT Press, 2014), 226–227.

13 Krauss, 'Sculpture in the expanded field', 43.

14 See Erika Suderburg, *Space, Site, Intervention: Situating Installation Art* (Minneapolis, Minnesota: University of Minnesota Press, 2000), 2.

15 See Claire Bishop, *Installation Art* (London: Tate Publishing, 2005), 6.

16 See Bishop, *Installation Art*; Suderburg, *Space, Site, Intervention*; Nicolas de Oliveira, Nicola Oxley, Michael Petry, and Michael Archer, *Installation Art*, 2nd edn (London: Thames and Hudson, 1996).

the installation becomes an essential part of the contents of the work itself.¹⁷ By facilitating an aesthetic encounter between viewer, work, and place, installation art not only reflects its mode of reception and production. It also examines the ideological, sociopolitical, and institutional frameworks that support and exhibit the work of art and thus offers a critique of the practice of art-making within or outside the institution.¹⁸ Mark Rosenthal concludes that installation art speaks through a multiplicity of objects, images, and experiences.¹⁹ He posits that it is best understood as an assemblage emphasizing a quotidian, at times transient, type of engagement.²⁰ In this context, one may also consider the definition of installation art in the anthology *Blurring the Boundaries: Installation Art 1969–1996*. Its authors argue that rather than representing a multitude of experiences, installation art has the potential to become real experience.²¹ The philosopher Juliane Rebentisch further refines the definition of this sense of experience. For Rebentisch, installation art describes an 'aesthetic situation [which] is characterized by neither a precedence of the subject over the object nor by an overwhelming power exercised by the objects.'²² The author concludes that the aesthetic of installations is a 'sculptural praxis that has become self-reflexive.'²³ In polemical words, Mark Rosenthal consequently ennobles installation art – not unlike painting in the Renaissance *paragone* debate – as the appropriate art form for rendering the substance and truth of our time:²⁴

With this unframed form of art sharing the space with the viewer and being as authentic as any other space in the viewer's experience, we have reached a pinnacle in art's evolution towards the accurate depiction of space, time and the world.... Through this physical convergence and the use of commonplace materials, it can, also, potentially comment on the human condition in a way that is profoundly effective because it is replete with the substance of life. Moreover, by engaging the surrounding space in this intimate fashion, an installation can speak to and about that specific space, to ponder its physical and theoretical being – its identity.²⁵

While installation art critically and accurately reflected the 'bombardment of data that shaped the mature phase of the information society' of the 1990s, sculpture appeared to be something one might still occasionally encounter – yet without its having any real discursive currency.²⁶

17 See Suderburg, *Space, Site, Intervention*, 5.

18 See Suderburg, *Space, Site, Intervention*, 5; Oliveira et al., *Installation Art*, 124.

19 See Mark Rosenthal, *Understanding Installation Art: From Duchamp to Holzer* (Munich: Prestel, 2003), 24.

20 Rosenthal, *Understanding Installation Art*, 24–25.

21 See Ronald J. Onorato and Hugh M. Davies, *Blurring the Boundaries: Installation Art 1969–1996*, (San Diego: Museum of Contemporary Art, San Diego, 1999), 13, exhibition catalogue.

22 Juliane Rebentisch, *Aesthetics of Installation Art* (Berlin: Sternberg Press, 2012), 62.

23 Rebentisch, *Aesthetics of Installation Art*, 246.

24 For the *paragone* debate as it arose in Renaissance Italy, see Leaatrice Mendelsohn, *Paragoni: Benedetto Varchi's 'Due Lezzioni' and Cinquecento Art Theory* (Ann Arbor, Michigan: UMI Research Press, 1982); Claire Farago, *Leonardo Da Vinci's 'Paragone': A Critical Interpretation with a New Edition of the Text in the Codex Urbino* (Leiden: Brill, 1992).

25 Rosenthal, *Understanding Installation Art*, 27.

26 Massimiliano Gioni, 'Ask the Dust', in Richard Flood, Laura Hoptman, Massimiliano Gioni, and Trevor

Since the beginning of the 2000s, sculpture has experienced a comeback in art-historical debates. This resurgence, perhaps in direct response to sculpture's marginalization in the discussions of installation art in the 1990s, stems from a new conceptualization of sculpture as no longer merely statuesque, permanent, and anthropomorphic but increasingly also unmonumental, ephemeral, and immaterial.²⁷ This new breadth of conception finds expression in complex material arrangements, expansive spatial formats, the performative, and the inclusion of virtual, dematerialized or informational space. The spheres of sculpture and everyday life increasingly merge while the notion of sculpture broadens.²⁸ The German research networks *Theorie der Skulptur* ('Theory of sculpture') and *Virtualisierung von Skulptur: Rekonstruktion, Präsentation, Installation* ('Virtualizing sculpture – reconstruction, presentation, installation') have played a significant role in this rethinking of sculpture, and their contributions have been collected in a number of publications.²⁹ Additional publications of note include the book series *Inquiries into Contemporary Sculpture* edited by Mary Ceruti and Ruba Katrib and published by New York's SculptureCenter, as well as the conference series and publications titled *Sculpture Unlimited*, edited by Eva Grubinger and Jörg Heiser.³⁰ Furthermore, the German *Kunstforum International*, *Unbegrenzte Skulptur: Ein Überblick über das Skulpturale heute* ('Unlimited sculpture: A survey of the sculptural today'), the anthology *Vitamin 3-D: New Perspectives in Sculpture and Installation*, the publication *Skulptur: Zwischen Realität und Virtualität* ('Sculpture: Between reality and virtuality'), as well as the exhibition catalogues *Lens-Based Sculpture*, *The Uncertainty of Objects and Ideas: Recent Sculpture*, *Negative Space: Trajectories of Sculpture in the 20th and 21st Centuries*, *Moment. Monument: Aspekte zeitgenössischer Skulptur/Aspects of contemporary sculpture* and *Future Bodies from a Recent Past* should be mentioned in this context.³¹

Smith (eds.), *Unmonumental: The Object in the 21st Century*, reprint edn (London: Phaidon Press, 2012), 65, exhibition catalogue.

27 See for example Mara-Johanna Kölmel und Ursula Ströbele, *The Sculptural in the (Post-)Digital Age* (Berlin: De Gruyter, 2023); Richard Flood, Laura Hoptman, Massimiliano Gioni, and Trevor Smith (eds.), *Unmonumental: The Object in the 21st Century*, reprint edn (London: Phaidon Press, 2012), exhibition catalogue; Ursula Ströbele (ed.), *24h Skulptur: Notes on Time Sculptures*, bilingual edn (Berlin: Distanz Publishing, 2015); Eva Grubinger et al. (eds.), *Sculpture Unlimited 2: Materiality in Times of Immateriality* (Berlin: Sternberg Press, 2015).

28 Vogel, 'Die Grenzenlosigkeit der Skulptur' [The boundlessness of sculpture], 29.

29 See Martina Dobbe et al., 'Theorie der Skulptur: Projekt' [Theory of sculpture: Project], website (date unknown), <https://theoriederskulptur.de/projekt/>, accessed 29 November 2024; Manfred Bogen, Jens Schröter, and Gundolf Winter, 'DFG – GEPRIS – Virtualisierung von Skulptur: Rekonstruktion, Präsentation, Installation' [DFG—GEPRIS—Virtualization of sculpture: Reconstruction, presentation, installation], DFG project website (date unknown), <https://gepris.dfg.de/gepris/projekt/5365644?context=projekt&task=kshowDetail&id=5365644&>, accessed 11 December 2024.

30 See Mary Ceruti and Ruba Katrib (eds.), *Where Is Production? Inquiries into Contemporary Sculpture* (London: Black Dog Publishing, 2017); Mary Ceruti and Ruba Katrib (eds.), *How Does It Feel? Inquiries Into Contemporary Sculpture* (London: Black Dog Publishing, 2016), Mary Ceruti and Ruba Katrib (eds.), *What About Power?: Inquiries into Contemporary Sculpture* (London: Black Dog Publishing, 2015); Eva Grubinger et al. (eds.), *Sculpture Unlimited* (Berlin: Sternberg Press, 2011); Grubinger et al. (eds.), *Sculpture Unlimited 2*.

31 See Patrizia Dander (ed.), *Future Bodies from a Recent Past Sculpture, Technology, and the Body since the*

A common theme of these publications is that sculpture has become a malleable, heterogeneous, and accommodating category – and that this shift suggests not a crisis of the medium but its ‘state of being’.³² At the same time, this development shows that contemporary reflections and expansions of historical concepts of sculpture are necessary in order to understand a somewhat anachronistic return to sculpture by a young generation of artists. Indeed, as art historian Ursula Ströbele observes, contemporary works can ‘be described and made understandable with parameters specific to the genre. These include multiple viewpoints or a clear overview, three-dimensionality, space, surface, texture, *Durata* i. e. durability, statuary versus fleetingness, movement, etc. This existing vocabulary allows an approach to, or perhaps even understanding of a work, as in the best case, it opens new viewing perspectives.’³³

In terms of discussing precursors of digital technology in the context of sculpture, the exhibition and accompanying catalogue *Lens-Based Sculpture* offers important insights. It places ‘sculpture in a new contemporary relationship to the reality of photography and film.’³⁴ The publication reflects increasing research into the importance of photography in the historiography of sculpture and an interest in how photography alters sculptural aesthetics. Arguing that without the use of photography and film, the ‘temporalization’, ‘conceptualization’, ‘relocation’ and ‘vivification’ of sculpture would not have been possible, *Lens-Based Sculpture* nevertheless falls short of expanding its reflection towards the implications of the photographic image for 3D capturing technology such as 3D scanning or printing.³⁵ Patrizia Bello’s book *Sculptural Photographs*, too, explores how sculpture has provided a model for conceptualizing photography. Much like *Lens-Based Sculpture*, Bello focuses on photographs of sculptures, and the declared goal of her research is to explore how ‘photography’s changing materialities shape the meaning of images.’³⁶ The emphasis lies here on the image and not the object. The starting point is not the sculptural work itself, but its conceptualization

1950s (München: Deutscher Kunstverlag, 2022), exhibition catalogue; Konrad Bitterli, Lynn Kost, and Andrea Lutz (eds.), *Moment. Monument: Aspekte zeitgenössischer Skulptur/Aspects of Contemporary Sculpture* (Köln: Snoeck Verlagsgesellschaft, 2021), exhibition catalogue; Peter Weibel (ed.), *Negative Space: Trajectories of Sculpture in the 20th and 21st Centuries* (Cambridge, Massachusetts: MIT Press, 2021), exhibition catalogue; *Kunstforum* 229 (2014); Adriano Pedrosa, Laura Hoptman, and Jens Hoffmann, *Vitamin 3-D: New Perspectives in Sculpture and Installation* (London: Phaidon Press, 2009); Johanna Burton and Anne Ellegood (eds.), *The Uncertainty of Objects and Ideas: Recent Sculpture* (New York: Hirshhorn Museum & Sculpture Garden, 2007), exhibition catalogue; Bogomir Ecker, Raimund Kummer, Angela Lammert et al. (eds.), *Lens-Based Sculpture: Die Veränderung der Skulptur durch die Fotografie / The Transformation of Sculpture Through Photography* (Cologne: König, 2014), exhibition catalogue; Christian Spies, Jens Schröter, and Gundolf Winter (eds.), *Skulptur: Zwischen Realität und Virtualität* [Sculpture: Between reality and virtuality] (Munich: Wilhelm Fink Verlag, 2006).

32 Johanna Burton, ‘Sculpture: Not-not-not (or, pretty air)’, in Burton and Ellegood (eds.), *The Uncertainty of Objects and Ideas*, 13.

33 Ursula Ströbele, ‘Notes on sculpture: Conversation between Ursula Ströbele and Andreas Greiner’, in Dobbe and Ströbele (eds.), *Gegenstand: Skulptur* [Object: Sculpture], 17.

34 Herbert Molderings, ‘Introduction’, in Ecker, Kummert, Lammert et al. (eds.), *Lens-Based Sculpture*, 12.

35 Herbert Molderings, ‘Introduction’, 17.

36 See book blurb of author Patrizia Di Bello, *Sculptural Photographs: From the Calotype to Digital Technologies* (London: Bloomsbury Visual Arts, 2018).

through the lens of photography. In this process, however, the fundamental transformation of sculpture through digital, virtual sculptural objects or works conceived with 3D printing and scanning technology remains still largely unconsidered. This is surprising considering that the fundamental delimitation of sculpture as a category has been the subject of theoretical discussion since the beginning of the twentieth century, if not earlier. Despite the eruption of medium specificity in sculpture under the influence of various activities, substantial theory that expands such reflections towards sculpture's transformation through the digital has advanced surprisingly little.

While the above publications take the form of exhibition catalogues, broad artist surveys, or collections of essays, they leave considerable room for more in-depth investigation. Given the role computers have played as an artistic medium since the 1950s, the conception, production, and reception of contemporary (post-)digital sculpture remain insufficiently explored. Moreover, it is crucial to examine the historical lineage and precursors of the technologies employed, noting that CNC (computer numerical control) technologies were introduced in the 1960s, with significant precursors dating back to earlier centuries, such as photosculpture in the France of the 1850s.³⁷ Notably, artists such as Barry X Ball (born 1955 in Pasadena, California, USA), Claudia Hart (born 1955 in New York, New York, USA), Michael Rees (born 1958 in Kansas City, Missouri, USA), and Karin Sander (born 1957 in Bensberg, Germany) have used 3D scanning and printing processes since the 1990s and 2000s.

The absence of comprehensive research perspectives in this field served as a focal point for the symposium and subsequent anthology *The Sculptural in the (Post-)Digital Age*, co-edited with Ursula Ströbele.³⁸ Although it predates this book, it has been significantly shaped by the research undertaken for *Sculpture in the Augmented Sphere*. The anthology brings together international and trans-historical research perspectives to examine how digital technologies reshape the understanding of sculpture and the sculptural. Organized into four sections, the contributions in the anthology focus on sculptural phenomena and their transformation through digital technologies. Adopting a trans-historical and interdisciplinary approach, the authors engage in discussions that challenge and broaden traditional perspectives on sculpture. Concurrently, they strive to develop and refine methodological approaches that comprehensively address sculptural phenomena previously discussed in isolated discourses. This approach facilitates tracking shifts and expansions in sculptural discourse in the (post)-digital age.

The curator and art critic Jack Burnham was one of the first and most prolific writers to assess the connection between sculpture and technology. In his book *Beyond Modern Sculpture: The Effects of Science and Technology on the Sculpture of this Century*, he argued for a shift in sculptural production from 'the direct shaping of matter' to a concern for organiz-

37 See George Younkin and Erling Hesla, 'Origin of numerical control [history]', *IEEE Industry Applications Magazine* 14 (2008), 10–12, doi: 10.1109/MIAS.2008.927525; J. Francis Reintjes, *Numerical Control: Making a New Technology* (New York, New York: Oxford University Press, 1991); François Willème, 'Photosculpture', *The British Journal of Photography* 11, no. 243 (1864), 539–540.

38 Kölmel and Ströbele (eds.), *The Sculptural in the (Post-Digital) Age*; see also note 1, above.

ing quantities of 'energy and information'.³⁹ Moving *Beyond Modern Sculpture*, as the title of his book suggested, Burnham argued for a shift from objects to systems – in essence, introducing systems aesthetics. Burnham's landmark essay 'Systems esthetics', published in the same year, developed a systems viewpoint 'focused on the creation of stable, ongoing relationships between organic and non-organic systems'.⁴⁰ Although he did not directly include digital works, he was one of the first thinkers to connect the idea of open, organic models of ecosystems with cybernetic, technological ones, thus prefiguring many of today's concerns.

Today, virtual, augmented, and digital realities allow viewers to have immersive-sensory experiences. The active simulation of materials, surfaces, and textures opens up a wide array of possibilities for materializing digital sculptures through the use of various materials, surface treatments, and 3D printing techniques.⁴¹ Endless digital possibilities collide with the limitations of materials and physical laws. The DFG-funded research project *Virtualisierung von Skulptur: Rekonstruktion, Präsentation, Installation* ('Virtualizing sculpture: Reconstruction, presentation, installation'; 2002–2009) at the University of Siegen under the direction of Manfred Bogen, Jens Schröter, and Gundolf Winter can be credited with one of the very few systematic efforts to assess how these shifts pertain to the field of sculpture. The project's goal was to collaboratively virtualize Gianlorenzo Bernini's sculptural group in the Villa Borghese (Rome) using 3D scanning technologies. The scanning of these in the virtually reconstructed Villa Borghese raised questions at the intersection of art history, image theory, media studies, and computer science. Of the research outputs resulting from this project, the anthology *Skulptur: Zwischen Realität und Virtualität* ('Sculpture: Between reality and virtuality') marks one of the most comprehensive contributions to the pictorial quality of three-dimensional, sculptural objects. 'Virtuality' is understood in the anthology as the detachment of a logical structure from a material object. With new possibilities of digital coding and operationalization, virtuality inevitably leads to a changed notion of sculpture, the authors argue.⁴² The possibilities of digital image media thus result in new categories of perception, viewer positions, and spatial connotations, which call for an expansion of the image concept detached from the 'paradigm of the composed panel painting'.⁴³ According to Gundolf Winter, sculpture's expansion, diversity of views, variable positioning in space, and installation relationship with the viewer provides a suitable comparison for the virtual image phenomena.⁴⁴ The various contributions to the anthology thus interrogate the picto-

39 Jack Burnham, *Beyond Modern Sculpture: The Effects of Science and Technology on the Sculpture of This Century*, 3rd edn (New York, New York: George Braziller, 1973), 396.

40 Jack Burnham, 'Systems esthetics', *Artforum* 7, no. 1 (September 1968), 31.

41 On this topic, see also Mara-Johanna Kölmel and Tina Sauerländer, 'Sculpting visions: Sculpture in the post digital age', exhibition proposal accompanying an exhibition with the same title, 2022 (unpublished).

42 Christian Spies, Jens Schröter, and Gundolf Winter, 'Vorwort' [Foreword], in Spies, Schröter, and Winter (eds.), *Skulptur: Zwischen Realität und Virtualität* [Sculpture: Between reality and virtuality], 7.

43 Jens Schröter, 'Wie man Skulpturen rendern soll: Zur Geschichte der transplanen Reproduktion' [How one is supposed to render sculptures: On the history of transplanar reproduction], in Spies, Schröter, and Winter (eds.), *Skulptur: Zwischen Realität und Virtualität* [Sculpture: Between reality and virtuality], 238.

44 See Gundolf Winter, 'Medium Skulptur: Zwischen Körper und Bild' [The medium of sculpture: Between

rial quality of sculpture. On the one hand, they employ scientific considerations, developed through a dialogue with the medium of sculpture, to describe and analyse the spatial forms of the virtual environment.⁴⁵ On the other hand, their goal is to conceptualize the new parameters of the virtual as they affect traditional sculpture, which is increasingly placed between a real object and a virtual form of representation.⁴⁶ Beginning with Bernini's altarpiece in Castel Gandolfo and his *Apollo and Daphne*, Giambologna's *raptus* group and baroque sculpture, through François Willème's photosculpture and eighteenth-century phantasmagoria, to Judd's and Morris's minimal art, the book addresses sculpture's marginalized status in discourses on the *image* and in particularly novel image phenomena of virtual spatial images.⁴⁷ Once again, sculpture is conceptualized from the perspective of the image, as though sculpture were still inferior to it.

Surprisingly, the anthology ends with a discussion of minimalist artistic works, thereby ignoring the broad field of digital sculpture that had already emerged in New Media art and discourse in the 1990s. This is the inherent contradiction of the anthology: While attempting to assess and re-evaluate the (virtually) spatial, it missed an opportunity to examine works by artists such as Charles Csuri (1922–2022, born in West Virginia, USA), Robert Mallery (1917–1997, born in Toledo, Ohio, USA), Lillian Schwartz (1927–2024, born in Cincinnati, Ohio, USA), Claudia Hart, Karin Sander, Michael Rees, and Barry X Ball – all of whom were already working with sculptural vocabularies in the digital or virtual sphere, some as early as the 1960s.⁴⁸

Among relevant publications in the field, one should also highlight important overviews of the transformation of sculptural objects through 3D technology, such as Mahmoud Farag's *Materials and Processes of Contemporary Sculpture*, Lucy Johnston's *Digital Handmade*, Jonathan Openshaw's *Postdigital Artisans*, Ron Labaco's *Out of Hand*, and Ann Marie Shillito's *Digital Crafts*.⁴⁹ Situated at the intersection of design, architecture, decorative arts, and

body and image], in Spies, Schröter, and Winter (eds.), *Skulptur: Zwischen Realität und Virtualität* [Sculpture: Between reality and virtuality], in particular 69–74.

45 See, for example, Lambert Wiesing, 'Virtualität und Widerstreit' [Virtuality and conflict], in Spies, Schröter, and Winter (eds.), *Skulptur: Zwischen Realität und Virtualität* [Sculpture: Between reality and virtuality], 179–190.

46 See, for example, Christian Spies, 'Formen skulpturaler Bildlichkeit: Spezifisches Objekt zwischen Skulptur und virtuellem Objekt' [Forms of sculptural image-ness: Specific object between sculpture and virtual object], in Spies, Schröter, and Winter (eds.), *Skulptur: Zwischen Realität und Virtualität* [Sculpture: Between reality and virtuality], 75–100.

47 See Spies, Schröter, and Winter, 'Vorwort' [Foreword], 7.

48 Robert Mallery and Charles Csuri began creating sculptures using plotters and milling machines in the 1960s. Lillian Schwartz began working on computer-programmed sculptures in 1972. Michael Rees and Barry X Ball started working with digital sculpture in the 1990s, and Claudia Hart in the early 2000s.

49 Mahmoud Farag, *Materials and Processes of Contemporary Sculpture* (Newcastle-upon-Tyne: Cambridge Scholars Publishing, 2020); Lucy Johnston, *Digital Handmade: Craftsmanship in the New Industrial Revolution*, 2nd edn (London: Thames and Hudson, 2017); Jonathan Openshaw, *Postdigital Artisans: Craftsmanship with a New Aesthetic in Fashion, Art, Design and Architecture* (Amsterdam: Frame Publishers, 2015); Ronald Labaco (ed.), *Out of Hand: Materializing the Postdigital* (London: Black Dog Publishing, 2013), exhibition catalogue; Ann Marie Shillito, *Digital Crafts: Industrial Technologies for Applied Artists and Designer Makers* (London: A&C Black Visual Arts, 2013).

applied arts, these publications align with the growing research on prototyping technologies and digitally driven materialization processes at applied art schools globally. Examples include Ruth Schnell and Wolfgang Fiel's research project *Bits to Pieces* at the University of Applied Arts in Vienna and the *Bilderfahrzeuge* project *Metadata*, a collaboration between the Aby Warburg Institute and Central Saint Martins in London.⁵⁰ Such research endeavours, however, do not specifically relate to sculptural discourse or ground their work in historical trajectories of sculpture. Instead serving as comprehensive overviews, they tend to concentrate on the current technological state within their respective fields or offer do-it-yourself advice to practitioners, lacking systematic, historical examinations that contextualize these innovations within the broader history and theory of sculpture.

Shifting sculptural grounds

Yet when the artists profiled in this book use 3D technologies for sculptural exploration, generating plasticity through processes like image capture, analysis, and data recombination, there is still a critical need to reassess the specific materiality, corporeality, plasticity, and monumentality of their works within the historical frameworks of sculptural discourse. This reassessment also considers recent technological advancements and recognizes a lineage of artists using similar approaches over the past six decades.

Corporeality demands three-dimensionality and is thus historically linked to sculptural discourse.⁵¹ The history of sculpture and its focus on the body therefore offer an ideal starting point for this book. Its first part, *Corporeality: Sculptural bodies of the twenty-first century*, sheds light on how recent sculptural works, through the use of 3D technologies, construct and identify corporeality. This section examines the works of Alice Channer alongside those

50 Wolfgang Fiel and Ruth Schnell (eds.), *Bits to Pieces* (Vienna: University of Applied Arts Vienna, 2013), exhibition catalogue; Johannes von Müller (ed.), *Metadata. How We Relate to Images* (London: Lethaby Gallery/Central Saint Martins, 2018), exhibition catalogue.

51 For an overview on discourse on the human body, see Julika Funk and Cornelia Brück (eds.), *Körper-Konzepte* [Body concepts] (Tübingen: Gunter Narr Verlag, 1999); Michel Feher, Ramona Naddaff, and Nadia Tazi (eds.), *Fragments for a History of the Human Body, Part One* (New York, New York: Zone, 1989); Martin Kemp, *Spectacular Bodies: The Art and Science of the Human Body from Leonardo to Now* (London: Hayward Gallery, 2000), exhibition catalogue; Maaïke Bleeker, Steven De Belder, Kaat Debo, Luk Van den Dries, and Kurt Vanhoutte (eds.), *Bodycheck: Relocating the Body in Contemporary Performing Art* (Amsterdam: Brill, 2002); Marina Schneede, *Mit Haut und Haaren: Der Körper in der zeitgenössischen Kunst* [With skin and hair: The body in contemporary art] (Cologne: DuMont, 2002); Matthew Craske, *The Silent Rhetoric of the Body: A History of Monumental Sculpture and Commemorative Art in England, 1720–1770* (New Haven, Connecticut: Yale University Press, 2008); Marianne Karabelnik (ed.), *Stripped Bare: The Body Revealed in Contemporary Art*, rev. edn (London: Merrell Publishers, 2004); Corinne J. Saunders, Ulrika Maude, and Jane Macnaughton (eds.), *The Body and the Arts* (Basingstoke: Palgrave Macmillan, 2009); Linda Kalof and William F. Bynum (eds.), *A Cultural History of the Human Body in the Renaissance* (Oxford: Berg, 2010); Daniel H. Garrison (ed.), *A Cultural History of the Human Body in Antiquity* (London: Continuum, 2014); Ivan Crozier (ed.), *A Cultural History of the Human Body in the Modern Age* (London: Bloomsbury Academic, 2014).

of Alisa Barenboym (born 1982 in Moscow, Russia), Juliette Bonneviot (born 1983 in Paris, France), Pamela Rosenkranz (born 1979 in Altdorf, Switzerland), and Marguerite Humeau (born 1986 in Cholet, France). The conceptualization of corporeality is contextualized within significant historical moments in modern sculpture, spanning from the 1960s' 'eccentric abstractions' to the 1990s' post-human productions. The body – albeit not necessarily a human one – features centrally in the works of Channer and her peers. In Channer's works, human limbs morph into CNC-milled and aluminium-cast snake bodies, while concrete transforms through 3D scanning and printing into rock formations that revert to a human scale. Radically stretched digital prints on flowing crêpe de Chine suggest skin. The artist quite literally stretches bodies beyond a merely human reference point. Channer and her peers navigate a porous terrain where bodies and materials shape-shift through digital technologies, challenging conventional perceptions. Reminding us that sculpture historically negotiates the physical realm, their oeuvre encourages spectators to rethink corporeality through the all-encompassing influence of our technologized context and in light of humanity's effect on its surrounding surfaces and biological forms.

In recent artistic production, digital technologies not only shape novel bodies but also introduce a different form of plasticity. The negotiation of plasticity, historically associated with sculptural discourse and defined as a phenomenon of malleability and mutability, now unfolds in the digital realm. Such virtual plasticity doubles up with a physical counterpart – a body – when materializing their works via digital prototyping technologies. Artists like Sterling Crispin, Oliver Laric (born 1981 in Innsbruck, Austria), Jon Rafman (born 1981 in Montreal, Canada), Quayola (born 1982 in Rome, Italy), and Zach Blas (born 1981 in Point Pleasant, New Jersey, USA) create sculptures based on facial recognition algorithms, surveillance software, or prototyping technologies, where code is rethought as artistic material and mutable matter. When Sterling Crispin employs face recognition, face detection, and genetic algorithms to produce his *Data-Masks*, his sculptural work intends to visualize the otherwise invisible plasticity of the technological system surrounding us, exploring the uncanny surveillance architectures of our moment and its constantly evolving codes. Taking that work as a starting point, the second part of this book – *Plasticity: Contagious codes and algorithmic visions* – traces the emergence of a digital plasticity in recent sculptural production. This progression encompasses modern sculpture's agential approach to materiality, the mutability and materiality of code in discourses on early genetic algorithms and algorithmic art, and the transition to 1990s parametric architecture and digital sculpture. Digital plasticity thereby expands from a merely formal-aesthetic discourse as historically negotiated in art history towards a visual examination of current sociopolitical transformations. The artistic patterns identified in the works by Crispin and his peer group thereby become the visual indicator of the otherwise invisible plasticity of the technological system, the uncanny architecture of our moment and its evolving codes.

Plasticity and corporeality – as markers for painful, suppressed, and diasporic memories – also feature centrally in Morehshin Allahyari's work. Allahyari uses digital sculptural technologies to reveal the problematic power structures inscribed into plastic and monumental forms. In her works combining 3D scanned and printed sculptures with video essays,

virtual reality, the internet, and at times performance, memories assume an aesthetic form. This intermedial yet sculptural approach enables her to establish commemorative structures that bring attention to the trajectories of those forgotten, erased, and left behind. The final part of this study, *Monumentality: Sculpting memories between monuments and archives*, examines Allahyari's mythological appropriations, alongside works of her colleagues Shirin Fahimi (born 1988 in Tehran, Iran), Amitis Motevalli (born 1969 in Tehran, Iran) and Nooshin Rostami (born 1986 in Shahroud, Iran), as a diasporic memory practice with a distinct sculptural embodiment in both actual and virtual space. Like an older generation of artists, including Skawennati (born 1969 in Kahnawà:ke, Quebec, Canada), Lynn Hershman Leeson (born 1941 in Cleveland, Ohio, USA), and Claudia Hart, these contemporary artists engage with the sculptural codes of monuments to propose novel ways to make and mark a space for painful, suppressed, and/or forgotten memory. Highlighting parallels and discontinuities with past and current debates on monuments and their relationship to historical trajectories of archives, this section illustrates how a recent generation of artists builds on and reconfigures previous art-historical discussions. The sculptural matrix remains a crucial reference point throughout. Fixating memories and stories in sculptural modes, embodying them in a designated form and site, prompts a discussion of Allahyari's and her peers' work not only in the context of digital, diasporic, and generative archives but, notably, in relation to monuments. By rethinking the function of sculpture as a monument, especially in the context of its expansion via 3D technologies, augmented and virtual reality, and the internet, this final section explores a novel intermedial and nomadic monumentality.

Sculpture after the Digital

In the works discussed in this book digital technology becomes more than a mere tool to achieve formal refinement and complex sculptural shapes as, for example, a number of sculptors including Tony Cragg (born 1949 in Liverpool, United Kingdom) or Barry X Ball have emphasized.⁵² It is used neither to recreate lost sculptures nor revisit so-called masterpieces of the Western sculptural canon from the perspective of a romanticizing notion of an artistic maker.⁵³ Instead, the sculptural objects examined here confront contemporary

52 See Dan Golden, 'Tony Cragg', *Curator* blog (6 September 2016), <https://curator.site/interviews/2016/9/6/tony-cragg>, accessed 11 December 2024; Jörg Heiser, Jed Morse, Kasper König, Bettina Pousttchi, and Rachel de Joode, 'Sculpture in the age of digital production: Excerpt from Nasher Prize Dialogues Berlin 2017' [video], *Nasher Sculpture Center* website (2017), <https://www.nashersculpturecenter.org/read-watch/articles/article/id/106>, transcript available at <https://www.nashersculpturecenter.org/Portals/0/Documents/Learn/Research/ConferenceVariableStates/PDFS/Transcript.pdf?ver=2019-02-19-091528-560>, accessed 12 December 2024; Paul Laster, 'Remastering masterworks: A conversation with Barry X Ball', *Sculpture Magazine* blog (9 March 2020), <https://sculpturemagazine.art/remastering-masterworks-a-conversation-with-barry-x-ball/>, accessed 10 December 2024.

53 See in this context Anders Rådén and Matt Smith, 'Umberto Boccioni: Recreating the lost sculptures', *Estorick Collection* exhibitions website (September 2019), <https://www.estorickcollection.com/exhibit>

challenges amidst climate change (Alice Channer), all-encompassing surveillance (Sterling Crispin), and xenophobia and Islamophobia (Morehshin Allahyari). In an age famously characterized by the post-medium, post-media, post-digital, post-internet, or post-human – apparently by a general post-ness – sculpture appears to be making a comeback. Or perhaps it has never been truly absent. Is sculpture the fossil of a dematerialized past or rather a monument to an unevenly distributed future?

While numerous conceptual vocabularies have been coined to describe the dynamics of ‘media objects’ or ‘digital objects’ in virtual surroundings (which are as real as they have real impacts), theoretical approaches under the heading of an ‘aesthetics of the digital’ tend to discuss such developments from the perspective of image-theoretical and screen-based phenomena.⁵⁴ Reminiscent of the *paragone* debates during the Renaissance, where sculpture was defined in relation to the ‘superior’ arts such as painting and architecture, the digital image still marks the locus of theoretical reflections on digitality. While such publications discuss works with a sculptural presence, sculptural discourse is not considered an important reference point for such arguments.⁵⁵ Countering such assumptions, this study argues that it is essential to reflect on the implication of such ‘media change’ in the context of sculptural discourses by departing from the physical object and its production modes. The 3D printer as a sculptural tool is a good example of this change. Three-dimensional images translated into binary codes are then rendered into printed, physical form and can be experienced haptically.

If artists now model their sculptures based on AI, through custom-made software, or with digital prototyping technologies, how should the notion of plasticity be rethought? When sculptures easily circulate as files online and can be 3D printed at any time, what happens to sculptural concepts of monumentality and site-specificity? How are notions of the body, corporeality, and the spectator altered by objects that can be experienced both in physical and virtual surroundings? Do these works bring forth different conceptions of corporeality, plasticity, and monumentality that, in turn, may speak to the condition of our objects beyond the visual arts? These are only some of the questions that this study addresses.

Today, most aspects of the everyday are mediated by digital parameters. Digital technologies have inscribed themselves in our lives. ‘Being digital’ has become our default condition

tions/boccioni-recreating-the-lost-sculptures, accessed 13 December 2024; Glasgow School of Art, ‘Visuale ising Laocoön’, *GSA Archives and Collections* website (25 January 2019), <https://gsaarchives.net/2019/01/visualising-laocoon/>, accessed 12 December 2024.

54 For the discourse on the aesthetics of the digital, see Claudia Giannetti, *Ästhetik des Digitalen: Ein intermediärer Beitrag zu Wissenschaft, Medien- und Kunstsystem* [The aesthetics of the digital: An intermediary contribution to science, media, and art system] (Vienna: Springer, 2004); Katja Kwastek, *Aesthetics of Interaction in Digital Art*, reprint edn (Cambridge, Massachusetts: MIT Press, 2015).

55 See Wolf Lieser, *The World of Digital Art* (Potsdam: Ullmann Publishing, 2010); Sean Cubitt, Paul Thomas, Zhang Ga, Brogan Bunt, and Darren Tofts, *Relive: Media Art Histories* (Cambridge, Massachusetts: MIT Press, 2013); Sean Cubitt and Roger F. Malina, *The Practice of Light: A Genealogy of Visual Technologies from Prints to Pixels* (Cambridge, Massachusetts: MIT Press, 2014); Christiane Paul, *A Companion to Digital Art* (Malden, Massachusetts: John Wiley & Sons, 2016).

as much as 'being online'. While this development can be traced within the scientific and technological developments of the information age, it is only in recent years that the focus of artistic and critical discourse has distanced itself from notions such as New Media, Digital Art, or Net Art as discrete entities of culture. What has emerged instead is a discussion about a conscious reconfiguration of *all* culture through the digital. In an attempt to define the period after the initial upheaval of digital technologies, scholars have come to term our era 'post-digital'. As Florian Cramer points out the prefix 'post-' in this context is understood not in the sense of a Hegelian idea of progress, as in postmodernism or post-history.⁵⁶ Instead, the term refers to a cultural shift of the digital and the internet in Heideggerian terms, from an event to being. Therefore it does not denote an end of the digital but rather describes a persistent mutation. The post-digital describes a state in which the logic of the digital realm is inseparably linked to our existence and has brought forth a digital mindset.⁵⁷

In 2000, the American composer Kim Cascone used the term 'post-digital' to describe an aesthetics of glitches in electronic music, presenting a contrasting stance to the strict perfectionism of high fidelity. Instead of paying tribute to the notion of technological progress inherent in the 'New' of New Media, Cascone directed attention towards the productive moments of failure in digital technology: 'glitches, bugs, applications errors, system crashes'.⁵⁸ According to Cascone, these moments focus the attention on the medium, its autonomy independent of human control, and the potentialities extant beyond the normal functions and uses of software.⁵⁹ Two years prior, Nicholas Negroponte, founder and chairman emeritus of the MIT Media Lab, expressed a similar sentiment in his well-known statement: 'Face it! The digital revolution is over.'⁶⁰ Negroponte, however, was not declaring the end of the digital age; rather, he was trying to describe a world that is completely permeated by digital technology and in which 'like air and drinking water, being digital will be noticed only by its absence, not its presence.'⁶¹ Cascone and Negroponte, rather than extolling technological progress as something novel or potentially subversive, as it had been characterized in a significant portion of the discourse in the 1990s, were expressing a disillusionment with the novelty and subverting capacity of New Media. Their writings encapsulated a transformation in the conversations about digital technology, signalling the conclusion of the revolutionary phase of the digital age that had largely defined the discourse on digital technology in the 1990s.

56 See Florian Cramer, 'What Is "Post-Digital"?', *A Peer-Reviewed Journal About Post-Digital Research* 3, no. 1 (1 June 2014), 13, doi: 10.7146/aprja.v3i1.116068.

57 For a comprehensive overview of the discourse on the post-digital, see also Mara-Johanna Kölmel and Denise Sumi, '(Post-)Digitalität in den Künsten' [(Post-)Digitality in the arts], in Johannes Crückeberg et al. (eds.), *Handbuch Kulturpolitik* [Handbook of cultural politics] (Wiesbaden: Springer, 2024), 285–298; Kölmel and Ströbele, 'Introduction', in Kölmel and Ströbele (eds.), *The Sculptural in the (Post-)Digital Age*, 15–20.

58 Kim Cascone, 'The aesthetics of failure: "Post-digital" tendencies in contemporary computer music', *Computer Music Journal* 24, no. 4 (2000), 16.

59 Cascone, 'The aesthetics of failure', 17.

60 Nicholas Negroponte, 'Beyond digital', *Wired* 6, no. 12 (December 1998), reproduced at <https://web.media.mit.edu/~nicholas/Wired/WIRED6-12.html>, accessed 13 December 2024.

61 Negroponte, 'Beyond digital'.

In 2006, the artist Marisa Olson (born 1977 in Augsburg, Germany) coined the term 'post-internet' to characterize her artistic approach of 'making art *after* being online'.⁶² Her performances, texts, and songs incorporated materials sourced from the internet, which she then assembled offline.⁶³ Departing from conventional Net Art aesthetics, the aesthetic of her work drew inspiration from the everyday, a realm that had long held sway on the internet. Simultaneously, Olson's statement highlighted the perceived boundary between the time she spent online and offline.⁶⁴

However, with the advent of internet-enabled smartphones, the prefix 'post-' no longer carries the same connotation as it did for Olson, signifying a point in time after being online. Today, it refers to a *continuous* 'internet state of mind – to think in the fashion of the network', as the result of a 'complete embeddedness in a ubiquitous network culture'.⁶⁵ This postulate, articulated primarily in London, Berlin, and New York under the banner of post-internet art, is a call for nuanced examination of the effects of digital internet culture. In contrast to Net Art, post-internet art places equal importance on the material and immaterial, physical and digital, idea and object, and form and content.⁶⁶ It therefore has the potential to go beyond the superficial adoption by writers, curators or gallerists as shorthand for contemporary art that is inspired by the internet. Consequently, and not paradoxically, it is due to their roots in online visual cultures that post-internet artists acknowledge the material history of their employed artistic media and the networks they exist within. Artist Mel Alexenberg (born 1937 in New York City, USA) foresaw this development in his 2011 book *The Future of Art in a Postdigital Age*, referring to a post-digital era where 'cyberspace and real space', 'embodied media and mixed reality', and 'high tech and high touch experiences' coexist.⁶⁷ In the post-digital age, digital and networked technology are constantly and underlyingly present. They have become a 'meta-medium' and 'production paradigm' (following Kerstin Stakemeier).⁶⁸

Discussions on the post-digital must also acknowledge the important contributions by Alessandro Ludovico's reflections on publishing as well as the more recent *Postdigital Research* issue of *A Peer-Reviewed Journal About (APRJA)* and the *Postdigital* editions 1 and 2

62 Marisa Olson quoted in Lauren Cornell, 'Net results: Closing the gap between art and life online', *Time Out New York* (9 February 2006), 69.

63 Regine [pseud.], 'Interview with Marisa Olson', *We Make Money Not Art* blog (28 March 2008), https://we-make-money-not-art.com/how_does_one_become_marisa/, accessed 13 December 2024.

64 See Michael Connor, 'What's postinternet got to do with net art', *Rhizome Online* blog (1 November 2013), <https://rhizome.org/editorial/2013/nov/1/postinternet/>, accessed 11 December 2024.

65 Karen Archey and Robin Peckham, 'Art post-internet', *UCCA Center for Contemporary Art* exhibitions website (February 2014), <https://ucca.org.cn/en/exhibition/art-Post-Internet/>, accessed 10 December 2024.

66 See Artie Vierkant, 'The image object post-internet', *JstChillin.org* internet art archive (2010), <http://jstchillin.org/artie/vierkant.html>, accessed 16 December 2024.

67 Mel Alexenberg, *The Future of Art in a Postdigital Age: From Hellenistic to Hebraic Consciousness* (Bristol: Intellect Books, 2011), 10.

68 Kerstin Stakemeier, 'Prothetische Produktionen: Die Kunst Digitaler Körper: Über "Speculations on Anonymous Materials" im Fridericianum, Kassel' [Prosthetic production: The art of digital bodies: On 'Speculations on anonymous materials' at the Fridericianum in Kassel], *Texte zur Kunst* 93 (March 2014), 168.

of the German *Kunstforum International*.⁶⁹ The heterogeneous contributions to post-digital and post-internet discourse intersect in the observation that the digital has configured all aspects of cultural life, leading to the end of the novelty of the 'new' media and its subversive potential. In this sense, the digital is not to be understood as a medium, but as a mode of configuration, which consequently does not lead to a subordination of existing media, but rather their hybrid transformation. Over the past decade, numerous exhibitions and publications have been dedicated to capturing this altered state of mind through an examination of the visual arts in the age of the internet.⁷⁰ These contributions offer an important backdrop to this study. Expanding upon the important debates around New Media and Net Art of the late 1980s and 1990s, they address the fundamental transformation of contemporary art by considering the impact of networked and computer technology within established institutional and mainstream contexts. They do so, however, without focusing on sculptural debates or categories.

My approach implies a post-digital perspective, while also recognizing that discussions around post-internet or the post-digital have brief lifespans and that maintaining a clear distinction between digital and post-digital is not always feasible. In this context, parallels are also drawn to important discussions in the 2000s that used the terms 'post-media' and 'post-medium'. In Rosalind Krauss's concept of the post-medium, the proliferation of art forms with heterogeneous materials and conventions of making (including installation art/ assemblage, happening, installation, performance, etc.) endangered the status of specific mediums such as painting or sculpture. According to Krauss, this led to the overthrow of traditional understandings of a medium.⁷¹ Krauss targeted Clement Greenberg's drive towards purity of art forms in which the medium was made (medium-)specific 'by brute positivism: painting is flat; sculpture is three-dimensional and freestanding like an object; drawing is the cursive tracing of edges and boundaries as opposed to painting's access to colour and penumbra. Greenberg's specificity is empirically tied to a physical substance.'⁷² Rather than

69 See Cascone, 'The aesthetics of failure'; Alessandro Ludovico, *Post-Digital Print: The Mutation of Publishing Since 1894*, 2nd edn (Eindhoven: Onomatopée, 2013); Franz Thalmair, 'Postdigital 1. Allgegenwart und Unsichtbarkeit eines Phänomens' [Postdigital 1: Omnipresence and invisibility of a phenomenon], *Kunstforum International* 242 (2016), 38–53; Florian Cramer, 'What is "post-digital"?', *A Peer-Reviewed Journal About Post-Digital Research* 3, no. 1 (1 June 2014), doi: 10.7146/aprja.v3i1.116068.

70 See Marie-France Rafael, *Passing Images: Art in the Post-Digital Age* (Berlin: Floating Opera Press, 2022); Eva Respini, *Art in the Age of the Internet, 1989 to Today* (New Haven, Connecticut: Yale University Press, 2018); Susanne Pfeffer (ed.), *Speculations on Anonymous Material* (London: König, 2018), exhibition catalogue; Nicolas Bourriaud (ed.), *Crash Test: La Revolution Moleculaire* [Crash test: The molecular revolution] (Montpellier: La Panadee, 2018); Franz Thalmair, 'Postdigital 1'; Melissa Gronlund, *Contemporary Art and Digital Culture* (London: Routledge, 2016); Omar Kholeif, Emily Butler, and Seamus McCormack (eds.), *Electronic Superhighway: From Experiments in Art and Technology to Art after the Internet* (London: Whitechapel Gallery, 2016), exhibition catalogue; Omar Kholeif (ed.), *You Are Here: Art After the Internet* (Manchester: Cornerhouse Publications, 2015); Gene McHugh and Domenico Quaranta, *Post Internet* (Brescia: Link Editions, 2012).

71 Rosalind Krauss, *Under Blue Cup* (Cambridge, Massachusetts: MIT Press, 2011), 16 onwards.

72 Krauss, *Under Blue Cup*, 7.

breaking with the idea of medium, she argued for its refinement as a 'set of conventions derived from (but not identical to) the material conditions of a given technical support'.⁷³ Krauss contrasted her notion of post-medium with practices that in her eyes succeeded by introducing a more complex notion of the medium.⁷⁴ By introducing the concept of 'differential specificity', Krauss sought to preserve the specific by reconciling the need for the material and technical distinctiveness of a particular medium with the formal and conceptual diversity inherent in artistic expression.⁷⁵

Krauss's concept of the post-medium has a different origin than the term 'post-media' introduced by Peter Weibel and Lev Manovich. While Greenberg's and Krauss's understanding of medium can be traced back to the English translation of Aristotle's *Poetics*, in which the notion of artistic means of expression was translated with the word 'medium', the notion of media in Weibel and Manovich's concept goes back to Isaac Newton's theory of the ether as an all-encompassing, invisible mass.⁷⁶ This theory forms the basis for mass media theories by Friedrich Kittler, Marshall McLuhan, and others. Drawing from these traditions, Manovich and Weibel aimed to describe the state of affairs after the encompassing impact of the (mass) media on artistic practice.

Manovich contends that the emergence of post-media aesthetics stems from artists adopting mass media technologies for artistic expression (whether in photography, film, radio art, video art, or digital art), including mass media's tools of production, storage, and distribution.⁷⁷ According to Peter Weibel, the developments described by Krauss and Manovich culminated in the digital revolution of the 1980s and 1990s – the convergence of all media under the universal medium, the computer. Weibel calls this a post-media state. In contrast to the unification envisioned by Manovich and Weibel, Krauss's post-medium state, however, described an era marked by the complete divergence of artistic modes of expression.⁷⁸

When Weibel concludes that 'under the influence of the media... [painting and sculpture] came to be regarded as such, i.e. as non-technological old media,' he dissolves the once distinct notions of a medium as a means of artistic expression and media as communication

73 Rosalind Krauss, 'Reinventing the Medium', *Critical Inquiry* 25, no. 2 (1999), 296.

74 Krauss ennobles the artists Marcel Broodthaers, William Kentridge, James Coleman, Sophie Calle, Ed Ruscha, Christian Marclay, and Harun Farocki as the new 'knights of the medium'; see Krauss, *Under Blue Cup*, 20.

75 'For in order to sustain artistic practice, a medium must be a supportive structure, generative of a set of conventions, some of which, in assuming the medium itself as their subject, will be wholly "specific" to it, thus producing an experience of their own necessity.' Krauss, *A Voyage on the North Sea: Art in the Age of the Post-Medium Condition* (New York: Thames and Hudson, 2000), 26.

76 See Florian Cramer, 'Nach dem Koitus oder nach dem Tod? Zur Begriffsverwirrung von "postdigital", "Post-Internet" und "Post-Media"' [After coitus or after death? On the terminological confusion of 'post-digital', 'post-internet', and 'post-media'], *Kunstforum International* 242 (2016), 60.

77 See Manovich, Lev, 'Postmedia aesthetics', in Marsha Kinder and Tara McPherson (eds.), *Transmedia Frictions* (Berkeley, California: University of California Press, 2014), 34–44, doi: 10.1525/9780520957695-006; Peter Weibel, 'The post-media condition', *Mute* online magazine (19 March 2012), <http://www.metamute.org/editorial/lab/post-media-condition>, accessed 16 December 2024.

78 See Rosalind Krauss, *A Voyage on the North Sea*; for the author's characterization of the post-medium condition via installation art see Rosalind E. Krauss, *Under Blue Cup*.

channel.⁷⁹ In his conception, due to the universal impact of media neither sculpture, painting, nor photography can therefore be thought to be 'outside' or beyond the media experience: 'Consequently, this state of current art practice is best referred to as the post-media condition, because no single medium is dominant any longer; instead, all of the different media influence and determine each other.'⁸⁰ Like Weibel, Lev Manovich saw the computer as the universal tool under which all other media converge.⁸¹ Lauding the 'New Media' as the transformative force for the 'Old Media', Manovich's post-media aesthetics propose to abandon the idea of medium once and for all. He argues for its replacement by different aesthetic criteria: new concepts, metaphors, and operations of a computer and network era, to construct a language of New Media based on information theory.⁸²

My reflections further expand on these debates with a focus on sculpture. By building upon these critical discussions, the sculptural approaches examined here demonstrate how digital processes are deeply embedded in contemporary art practices, aligning with the broader dissolution of medium boundaries described in both Krauss's post-medium condition and Weibel's post-media state. As digital technologies have transitioned from the periphery of our society to the core of our daily lives, the focal point of artistic and critical discourse has indeed experienced significant shifts. Art and culture, integrating digital technologies into their realms of reflection, are no longer confined to distinct categories. Today, a post-digital mindset goes beyond addressing merely the technology-driven expansion of reality. Feminist and decolonial approaches have played a vital role in envisioning digital technology inclusively, constructing alternative infrastructures, and providing open-source toolkits for self-organized action. This mindset now encompasses critical, political, polyphonic, or subversive perspectives.

The works of artists featured in this volume, such as Morehshin Allahyari, Nooshin Rostami, Amitis Motevalli, Shirin Fahimi, and Skawennati, illustrate how debates on post-digitality can no longer be subsumed under the sovereignty of Western media discourse. In this context, a post-digital mindset becomes a gesture toward decolonizing digital space, acknowledging that technology is far from neutral and is influenced by its surrounding contexts.⁸³

Such a gesture makes it even more crucial for sculptural discourse to inquire into the ways digital technologies shape the very objects and matter surrounding us, considering its profound historical connection to questions of materiality, corporeality, monumentality, and plasticity. *Sculpture in the Augmented Sphere* offers a distinct focus within both post-digital and New Media debates while simultaneously contributing new knowledge to sculptural discourses in the field of art history.

To understand the paucity of digitality research within the field of sculpture, it is crucial to recognize the discursive divide that in the past separated 'Duchamp-Land' and 'Tu-

79 Weibel, 'The post-media condition'.

80 Weibel, 'The post-media condition'.

81 See Manovich, 'Postmedia aesthetics', 38 onwards.

82 Manovich, 'Postmedia aesthetics', 36 onwards.

83 In this context see also Kölmel and Ströbele (eds.), *The Sculptural in the (Post-)Digital Age*, 19–20.

ring-Land.’⁸⁴ Manovich uses these two terms to highlight the contrast between the conceptual, idea-driven tradition in art that follows the legacy of Marcel Duchamp and the realm of art shaped by digital technologies, algorithms, and computational logic, where artistic expression is deeply intertwined with code, data, and interactive systems. He sees these traditions as two separate territories within the art world, where one is dominated by ideas and critical theory (Duchamp-Land), while the other is dominated by computational logic and digital tools (Turing-Land). Manovich’s analysis suggests that these two ‘lands’ often operate in isolation from each other, contributing to the discursive divide between traditional and digital art practices.⁸⁵ Scholars such as Caitlin Jones, Melissa Gronlund, Edward Shanken, Domenico Quaranta, and Brian Droitcour have dedicated in-depth studies to this discursive division.⁸⁶ According to Shanken this divide stems from ‘mainstream’ contemporary art’s insufficient understanding of ‘the scientific and technological mechanisms of new media, the critical discourses that theorize their implications, the interdisciplinary artistic practices that are co-extensive with them’ as well as a reluctance towards ‘its technological form of immateriality.’⁸⁷ Web-based art, emerging in the 1990s, challenged established art institutions like museums and galleries, as well as the traditional role of the artist in the creative process. Art critic Caitlin Jones emphasizes and offers further elaboration on New Media’s isolation from the mainstream contemporary art world.⁸⁸

Categorizations like ‘Duchamp-Land’ and ‘Turing-Land’ have certainly not contributed to building bridges between these divisions that continue to reverberate in contemporary discussions. In their haste to demarcate digital art from more traditional forms of objects, discourses on so-called New Media may also have contributed to the absence of any systematic, art-historical examinations of sculptural objects and categories that are deeply imbued with the digital:

One needs to distinguish between art that uses digital technologies as a tool for the production of a more traditional art object – such as a photograph, print, or sculpture; and the digital-born art that employs these technologies as a tool for the creation of a less material, software-based form that utilizes the digital medium’s inherent characteristics, such as its participatory and generative features.⁸⁹

84 See Lev Manovich, *The Language of New Media* (Cambridge, Massachusetts: MIT Press, 2001), especially chapters 1–3, where he discusses media theory and computational art in relation to traditional art forms.

85 Manovich, ‘Postmedia aesthetics’.

86 For studies on this divide see for example Caitlin Jones, ‘My art world is bigger than your art world’, *The Believer* online (1 January 2006), <https://www.thebeliever.net/my-art-world-is-bigger-than-your-art-world/>, accessed 12 December 2024; Edward A. Shanken, *Art and Electronic Media* (London: Phaidon Press, 2009); McHugh and Quaranta, *Post Internet*; Gronlund, *Contemporary Art and Digital Culture*; Brian Droitcour, ‘The perils of post-internet art’, *Art in America* blog (29 October 2014), <https://www.artnews.com/art-in-america/features/the-perils-of-post-internet-art-63040/>, accessed 11 December 2024; Edward A. Shanken, ‘Contemporary art and New Media: Digital divide or hybrid discourse?’, in Christiane Paul, *A Companion to Digital Art* (Malden, Massachusetts: John Wiley & Sons, 2016), 463–481.

87 Shanken, ‘Contemporary art and New Media’, 463.

88 Jones, ‘My art world is bigger than your art world’.

89 Paul, *A Companion to Digital Art*, 2.

In her anthology *A Companion to Digital Art*, Christiane Paul reiterates the mantra that echoed through the three editions of her seminal book *Digital Art*.⁹⁰ With her concept of neomateriality, Paul has offered an interesting framework from which some reflections in this study depart. Neomateriality 'describes the embeddedness of the digital in objects, images, and structure we encounter on a daily basis and the way we understand ourselves in relationship to them'.⁹¹ Paul sees this condition mirrored in 'objects or artworks that 1) use embedded networked technologies, reflecting back their surrounding human and non-human environment; 2) reveal their own coded materiality as part of their form, thereby becoming themselves a residue of digital processes; 3) reflect the way in which digital machines and processes (seemingly autonomously) perceive us and our world'.⁹² Paul demonstrates her argument using the work of Sterling Crispin among others, without, however, taking into account a longer trajectory of historical sculptural discourse preceding Crispin. Just as recent reflections on contemporary sculpture exclude deeper reflections on the technological conception, production, and reception of contemporary post-digital sculpture, in their consideration of digital objects discourses on New Media and digital art also have neglected extensive sculptural discourses that could help shed new light on the transformation of corporeality, plasticity, and monumentality. It is therefore not surprising that studies on neither contemporary sculpture nor digital art have observed the gaping abyss that exists between the discourses on sculptural and digital objects.

This study unfolds precisely at the junction of these artificially separated fields of inquiry. It focuses on a younger generation of artists that uses digital technologies as a tool to produce more traditional sculptural objects, while also making 'computable art that is created, stored, and distributed via digital technologies, [using] the features of these technologies as a medium'.⁹³ The impetus for this research is driven by the recognition that these discourses still too often run in parallel, whereas sculpture and New Media could be brought together under the umbrella of the post-digital.

Sculpture in the Augmented Sphere highlights how our augmented reality has infiltrated the realms of sculpture and explores how historical sculptural concepts gain newfound significance in the digital era. The works and practices chosen for this book are discussed as examples signifying the need for a larger and overdue investigation into contemporary sculptural discourse. At the same time, the discussion of digitally infused works in sculptural terms allows for a change in perspective amidst trendy 'post-' debates. In-depth iconographic analysis of the works in question, examination of production processes based on visits to production sites, and several interviews with artists allow for a more thorough investigation than the majority of surveys published up to this point.

90 Christiane Paul, *Digital Art*, 3rd edn (London: Thames and Hudson, 2015); Christiane Paul, *Digital Art*, rev. and exp. edn (London: Thames and Hudson, 2008); Christiane Paul, *Digital Art* (London: Thames and Hudson, 2003).

91 Christiane Paul, 'From immateriality to neomateriality: Art and the conditions of digital materiality', *ISEA 2015: Proceedings of the 21st International Symposium on Electronic Art* (2015), 552.

92 Paul, 'From immateriality to neomateriality', 553.

93 Paul, *A Companion to Digital Art*, 2

Following the etymology of augmented, which stems from the Latin word *augere* ('to increase, make big, enlarge, and enrich' or 'to become more severe', the book's title *Sculpture in the Augmented Sphere* conveys two fundamental aims. First, as a systematic, interdisciplinary and historical dialogue, the text aims to further develop, enlarge, and enrich the artistic investigations of sculptural discourse amid emerging digital processes. To achieve this goal, this study introduces fresh frameworks for sculptural discourse: more-than-human corporeality, digital plasticity, and nomadic monumentality. Secondly, it hopes to help establish a field of research on the sculptural in the (post-)digital age and advance reflections on sculpture for our technological present.

The concept of an augmented sphere, which will be explored in detail in the book's conclusion, provides a fitting term. It allows us to extend Krauss's sculptural field towards a multi-dimensional sphere that no longer unfolds solely on a two-dimensional and demarcated field confined by the two poles of landscape and architecture. In geometry, a sphere is defined as the collection of all points in three-dimensional space that lie the same distance (the radius) from a specified point (the centre). Alternatively, it can be visualized as the result of rotating a circle about one of its diameters. While the components and properties of a sphere are akin to those of a circle, they manifest in three-dimensional space. Spheres, by extension, invite parallels to the globe and symbolize our collective world, representing the Earth we share.

In his monumental *Spheres* trilogy, the philosopher Peter Sloterdijk traces the different forms of spherical conditions of life through three figures of thought: bubbles, globes, and foams. These define different and yet corresponding means of spaces of coexistence conceived of in terms of inside, outside, and the traffic in between. While his first book from the series conceptualizes the idea of life bursting forth from a bubble, a type of micro-sphere, the other two volumes expand to the idea of the world as a macro-sphere.⁹⁴ In these contemporary social and cultural networks we find ourselves living in a complex sea of fragmentary yet contiguous and plural spheres, a 'foam'.⁹⁵ Throughout his trilogy Sloterdijk employs examples from the visual arts and culture including works by Hieronymus Bosch, Kazimir Malevich, and the designers of Renaissance garden grottoes and eighteenth-century French four-poster beds. These enable Sloterdijk to conceptualize the sphere as a fundamental tool for studying the ways in which life and being together have been conceived. Sloterdijk's notion of the sphere, rather than Krauss's field, may speak more accurately to the concerns of our contemporary world and the role of art – or more specifically, sculpture – within a given nexus of thought.

Again, if artists now model their sculptures with software, how can we make sense of their works' plasticity, materiality, and corporeality? How are concepts of monumentality and site-specificity altered when sculptures easily circulate as files online and can be 3D

94 See Peter Sloterdijk, *Globes: Spheres II: Macrospherology*, tr. Wieland Hoban (South Pasadena, California: Semiotexte, 2014).

95 Peter Sloterdijk, *Foams: Spheres III: Plural Spherology*, tr. Wieland Hoban (South Pasadena, California: Semiotexte, 2016).

printed at any time? As recent sculptural objects emerge from the surfaces of our computer desktops into three-dimensional space, do they convey a condensed reading of our contemporary? What do these works reveal about the plasticity of our apparatuses of surveillance, or the transformation of corporeality in times of environmental change, and the need for monumentality for those forgotten, erased and left behind?

This book understands the sphere as a multi-axis matrix in which life unfolds and becomes the subject of artistic and sculptural form. By discussing contemporary sculptural production as an integral part of our contemporary sphere and architecture of power, I will seek to answer the above questions while exploring what makes the sculptural so familiar and yet invisible, so apparently neutral and yet fully political.



2 | Alice Channer, *Mechanoreceptor, Icicles*, 2016; lost wax cast and PVC-dipped aluminium, titanium, electropolished stainless steel, stainless steel wire, sheet stainless steel, stainless steel cables, fixings; dimensions slightly variable. Installation view, Eastside Projects, *Production Show: Prototyping/Discovering/Analysing*, Birmingham, 2016.

1

CORPOREALITY: SCULPTURAL BODIES OF THE TWENTY-FIRST CENTURY

I am red hot, baking. But I haven't broken a single drip of sweat. My skin is cracking perhaps from the rough work that I've been doing all winter, or perhaps from the high heat, or maybe it even stretches back to when I was printed in 3D. Which came after my birth but also before it. A techno-liminal state. I am beyond time and therefore age. And soon you will be freshly skinned. The glamour of associated thinking. A human arm pulls me out of the industrial oven. Am I sentient?¹

Fer Boyd's fictional description from the perspective of one of the 3D printed and aluminium-cast limbs in Alice Channer's work *Mechanoreceptor, Icicles* (2016; fig. 2) anticipates and mirrors the thematic preoccupations explored in the initial section of this study. The London-based artist Alice Channer interweaves manual with industrial processes, state-of-the-art technology with ancient craft techniques, and synthetic with organic materials. Bodily references and dimensions are constantly present in her work. Her oeuvre thereby negotiates a porous terrain on which bodies as much as materials shape-shift, metamorphose, and gain agency. Human hands and machine arms leave traces on the surfaces of her objects, indicating their production processes between virtual and analogue worlds.

Through its focus on Alice Channer's work, this first part offers a more general investigation of the particular bodies that contemporary sculptural practices educe. It examines Channer's works as exemplifying a changing understanding of corporeality in recent object-making. Channer, born in 1977 in Oxford, studied Fine Art at the Goldsmiths College of Art and then Sculpture at the Royal College of Art, training under Elizabeth Price, winner of the Turner Prize. Channer's practice moves between future-oriented technologies and sculptural acquisitions of the past. It internalizes a multitude of industrial histories, art-historical references, and time periods. This strange fluidity not only connects to the creation of the works but equally foregrounds her play with bodily scale. Questions of corporeality and materiality deeply permeate Channer's sculptural process.

Channer's creation process shares features with the practices of contemporary artists of the same generation based in Berlin, Paris, New York, and London. In works by Alisa Baremboym, Juliette Bonneviot, Pamela Rosenkranz, and Marguerite Humeau, synthetic and natural materials of familiar and exotic origins likewise interweave. The encounter between hardware and software is similar to the encounter between the anthropomorphic and the

1 Fer Boyd, 'Detouched', in Alice Channer, Gavin Wade, and Fer Boyd (eds.), *Skinned/Detouched* (Birmingham: Eastside Projects, Motto Books, 2018), 6.

artificial, the inanimate and the animate, the human and the technoid, or the digital and the manual. In their object constellations, bodies appear exhumed from the industrial remnants of an epoch characterized by our destructive impact on the world's atmosphere, surface, and biological forms. Ecological and technological questions are intricately intertwined with concerns related to corporeality. The first part of this volume therefore posits that Channer and artists of her generation are challenging and reconfiguring culturally conditioned expectations of the body and its representation. Contemporary object-making thereby becomes the location for an important renegotiation of physicality.

Corporeality demands three-dimensionality and is thus historically linked to sculptural discourse. The history of sculpture and its focus on the body offers an ideal backdrop for examining how more recent artworks construct and identify corporeality. To that end, this chapter interrogates Channer's and her peers' depictions of bodies and their artistic conceptualization of corporeality in relation to significant historical moments in the history of sculpture. This look back in time may initially appear as a striking antithesis to the contemporaneity of Channer's and her peers' productions. Channer and her contemporaries aesthetically and conceptually allude to a constant renegotiation of corporeality in sculptural theory and practice, which also links to essential questions regarding authorship, material agency, the dissolution of material hierarchies, the physical state of materials as well as debates on the beautiful and the ugly. The art-historical positioning of their works on a diachronic axis towards the body's past sculptural representation, however, allows us to identify a vital symbiosis that runs through their conceptualization of corporeality. How do industrial and manual processes constitute bodies in works by Channer and her peers? How does their understanding of corporeality incorporate and alter art-historical discourses on the body and its representation? How are these discourses reflected back on us and on the way our bodies enter the work? Such questions around corporeality, process, and materiality determine the first part of this study.

Chapter 1.1 ('Bodies in 2.5D') first traces the specific condition of corporeality in Channer's works. It examines the works' aesthetic features and production cycles between the digital and physical worlds to develop a nuanced understanding of how bodies are depicted and conceptualized in her works. Channer scans bodies in three dimensions; digitizes and fictionalizes them; stretches, prints, materializes, casts, and folds them. Amplified by the titles of her works, such as *Body Full*, *Warm Metal Body*, *Backbone*, or *Burial*, their resemblance to a living circulatory system coalesces with a truly inanimate and dead dramaturgy, reenacting sculpture's century-old confrontation with our own finitude and eventual death. The chapter continues by identifying an ongoing dialogue between corporeality and death, a dialogue that runs through Channer's but also her contemporaries' sculptural forms.

Their works thereby refer to a long sculptural tradition that is deeply linked to the representation of the human form and originates in antique burial cultures. As a substitute for the living, sculpture relativized a body's mortality through the use of solid materials. While the chapter draws parallels to an art-historical trajectory of the representation of the body and its decay, it also shows how decisively Channer's and her peers' works depart from tra-

ditions deeply linked to the representation of the vertical *human* form. Rethinking the logic of sculpture and death, one wonders which bodies Channer and her colleagues' works commemorate.

In their deep engagement with the materials and production cycles of our time, the physical condition of the artists' recent objects strongly calls into question today's realities. Their works speak of how deeply entwined technologies, materials, and bodies are with the rapidly changing landscapes of our Earth. Chapter 1.2 ('Bodies in process: Towards a more-than-human corporeality') carefully positions the works by Channer and her peers within a nexus of debates that locate corporeality between visions of the Anthropocene and contemporary philosophical thought. In these debates, the human body is, on the one hand, *privileged* as the planet's current principal geological force and, on the other hand, *deprivileged* as just one of the innumerable forms of life on Earth.

The chapter's hypothesis is that the reformulation of the human in these contemporary debates informs how corporeality figures in the sculptural processes found in Channer's and her colleagues' works. At this juncture, the text also sheds light on sculptural debates of the late 1960s and early 1970s. In doing so, the human body and its authorial powers are gradually decentred through the notion of process. From post-minimal sculpture and land art to Burnham's system aesthetics, the text illustrates how concepts of authorship and corporeality begin to shift towards an ecological and systems approach that has resurfaced under new conditions in recent sculptural debates. How do the works of Channer and her peers transform notions of process and the status of the body in the context of these historical discussions?

In recent sculptural productions, bodies are aesthetically and conceptually understood to be 'bound up' in one way or another with their rapidly changing *umwelt*. Corporeality is mediated as an image of the body in transformation, suspended between human and non-human worlds. Considering this transformative notion of materiality and physicality, chapter 1.3 ('Corporeality after eccentric abstractions and cyborgian productions') interrogates works by Channer, Baremboym, Rosenkranz, and Bonneviot in relation to a period of transgression and gendering in the arts. Divided into two areas of investigation, the chapter suggests a proximity of their approaches to historical sculptural concepts that emerged with techno-infused artistic experiments and notions of the post-human in the 1980s and 1990s. It also links back to 'eccentric abstractions', 'anti-forms', and concepts of 'abjection' from the mid-1960s. Through trans-generational work comparisons, the first part examines the particular condition of corporeality in Channer's and her peers' sculptures, after 'formless', 'eccentric', 'cyborgian', and 'post-human' bodies. The aim of this chapter is to develop a sophisticated understanding of how the artists' materials and representations of corporeality have been altered by an increase in outsourced and digitally driven processes. How can we make sense of their familiar and yet strangely contemporary process art?

By re-summoning and reworking sculpture's centuries-old relationship to the body, Channer and her peers present ways to imagine and ultimately to understand corporeality in times of rapid environmental, technological, and sociopolitical change. The interim conclusion debates whether sculpture's re-imagination of bodies between 'high touch' and high tech may

help to recalibrate our senses by devoting its aesthetic attention to a changing world. By mobilizing sculpture's fluid boundaries between fiction and reality, death and life, do these works provide the sculptural syntax to articulate a changing material and bodily condition?

1.1 Bodies in 2.5D

In a series of works, Channer casts distorted representations of bodies – captured by digital photography or 3D scans and materialized via 3D printing and CNC milling – in materials such as chromed stainless steel, aluminium, or bronze. The first part of this chapter starts out by tracing this specific condition of corporeality in Channer's works through a rigorous analysis of her works' production cycles. Digitalization has firmly taken root in these works and has profoundly impacted the artist's understanding of corporeality. Expanding from Channer to works by her colleagues Alisa Baremboym, Juliette Bonneviot, Marguerite Humeau, and Pamela Rosenkranz, the discussion extends to highlight current sculptural production processes and the way they outline and mark corporeality. It continues by identifying an ongoing thematic dialogue between corporeality and mortality. This dialogue is evident in the sculptural forms of both Channer and her peers.

Digitizing a body

A serially repeated limb somewhere between human finger and animal claw forms the centre of Channer's delicate three-part installation *Mechanoreceptor, Icicles* (fig. 2). Cast in serial repetition and dipped halfway in a red thermoplastic coating, the 105 limbs are delicately held by tweezer-like fastenings (fig. 3). The spring fixings are mounted onto three free-hanging grid structures resembling jigs used in industrial surroundings. The modularized and industrial installation of the work reinforces the object's resemblance to a serially manufactured industrial object. Four steel cables fixate each of the horizontally free-hanging grid structures. From the ceiling, they traverse through the corners of each jig. Curling ever so slightly before they touch the floor, the cables give the installation a vertical quality. Installed at eye height in the space and supported by its industrial structure, the strangely distorted and serially repeated limb doubles a corpse. In its serial repetition and crisp aesthetic, one is reminded of a glimpse into a factory setting. Whose body are we looking at?

Channer's own finger becomes the point of departure for a process of abstraction and digital translation. After taking a plaster cast of her finger, Channer becomes the observer of her own artistic work – 'an alien' in the work's production process, as she explained to me. From this moment onwards, the artist then enters into a productive collaboration with several fabricators and makes use of various materials and digital and mechanical technologies. A 3D scan of the plaster cast is taken with a structured-light scanner at the London scan studio sample & hold. To this end, a narrow band of light or, more precisely, a pattern consisting of many stripes at once, is projected onto the three-dimensional shaped surface of the plaster cast. Seen from different viewpoints, the pattern appears geometrically distorted due to the surface shape of Channer's object. The geometrical deformation of the stripes al-



3 | Alice Channer, *Mechanoreceptor, Icicles*, 2016; lost wax cast and PVC-dipped aluminium, titanium, electropolished stainless steel, stainless steel wire, sheet stainless steel, stainless steel cables, fixings; dimensions slightly variable. Installation view, Eastside Projects, *Production Show: Prototyping/Discovering/Analysing*, Birmingham, 2016.

lows their three-dimensional coordinates to be retrieved precisely using a hand scanner. The physical cast is then replaced by images that serve as substitutes for the original object and body part. Through correspondences and overlays between various scans, the object's coordinates are digitally reconstructed using triangulation. Algorithmic processes in the respective software compress the image data and approximate the imaging process through a technique known as perspective projection.² The algorithms calculate the rotation and translation of one image with respect to another. Furthermore, they are used to measure the frequency distribution of pixel values in the image and subsequently combine the image subsets arithmetically.³ These algorithms convert the 2D image coordinates of a point into 3D coordinates by establishing connections between 3D and image points without requiring calibration. The data describing the digitized object can now either be seen as a list of numbers in ASCII text or as point clouds. These spatial measurements in the virtual domain can be visualized as a 3D mesh or a network of interconnected polygons, defining the object's shape.⁴ The flattened and shallow scan is assigned a volume by rendering the object as a 3D point cloud. In the case of Channer's sculpture, the scan replicating the shape of the former body part assumes once again a body of a different kind. The *digitus* (Latin 'finger') has become digital. It now exists virtually. It is perpetually malleable, composed in binary code, and can be translated and displayed in different formats; thus it is clearly separated from the materiality of its physical counterpart.

Fictionalizing a body

Research describes 3D capturing and modelling as the twenty-first century's high-tech analogue to the traditional cast, which was characterized as an accurate and three-dimensional representation of a sculpture with the advantages of reproducibility, portability, and experimentability.⁵ At first glance, these characteristics apply equally to a digital 3D reconstruction such as Channer's fingers. Like a conventional cast, its 3D scan can be endlessly copied, reproduced, carried, transported, and experimented on with 'greater ease, speed, economy, and safety' after it has been digitized.⁶ It is, however, important to highlight that the manual application of the mould to the object is replaced by contactless 3D data capture determined by mathematical rules. While casting and scanning technology converge in

2 Based on the assumption that a point on the target object, its corresponding point on the image plane, and the perspective centre all lie in a straight line.

3 See Keith F. Blonquist, 'Development of a mathematical model for 3D reconstruction of target objects by photogrammetry', Master thesis, Utah State University, Logan, Utah, 2008, doi: 10.26076/151f-414e.

4 A polygon is a shape that is enclosed by a number of points connected by edges.

5 See Adolf H. Borbein, 'Zur Geschichte der Wertschätzung und Verwendung von Gipsabgüssen antiker Skulpturen (insbesondere in Deutschland und in Berlin)' [On the history of the appreciation and use of plaster casts of ancient sculptures (specifically in Germany and in Berlin)], in Henri Lavagne and François Queyrel (eds.), *Les moulages de sculptures antiques et l'histoire de l'archéologie: Actes du colloque international Paris, 24 octobre 1997* [Casts of antique sculptures and the history of archaeology: Proceedings of the international symposium Paris, 24 October 1997] (Geneva 2000), 37–38.

6 See Bernard Frischer, 'Three-dimensional scanning and modeling,' in Elise A. Friedland, Melanie Grunow Sobocinski, and Elaine K. Gazda (eds.), *The Oxford Handbook of Roman Sculpture* (Oxford: Oxford University Press, 2015), 75.

their claim to produce a reliable and indexical imprint of reality, they are entirely different. Due to the lack of physical contact, one may be tempted to compare Channer's 3D scanning process with the indexical qualities of photography.

In semiotics, 'index' is a technical term that defines a sign whose particular characteristic is that it bears a physical relationship to the thing it signifies. Smoke becomes an indication of fire.⁷ 'The index is physically connected with its object,' Charles S. Peirce stipulates; 'they make an organic pair.'⁸ Photography is the indexical art form par excellence, as it corresponds to the original 'point by point.'⁹ According to the thinker, the imprint of light recorded in taking a picture establishes a causal connection between the photographic image and its object. The German art historian Isabelle Graw takes Peirce's reflections further and refines them. The impression of immediacy created by photographic images is an effect rather than a cause, she argues.¹⁰

The photographic mechanism of recording light *suggests* an authentic relation to life that it of course does not actually attain. I would say that this impression – this notion that photographs contain traces of life can be ascribed to what we might call 'index effects', a phenomenon simultaneously owed to the objective automatism of the technical apparatus and deliberately produced or triggered by the photographer or artist.¹¹

Graw thus proposes to shift focus 'from the photograph's "indexicality" to its "index effects"'.¹² Indeed, one could read Channer's 3D structured-light scan of her limbs as an example of Graw's index effect in that it links the photographic images and their object through light. However, the impression of contiguity retained in Graw's notion has merged with an element of fiction as the algorithm pieces together different images of the object to create that index effect.

As the specialists at sample & hold, Channer's 3D scan studio, explained to me, wherever there is not enough overlay of the various scans of Channer's finger cast, *MeshLab* (the software used) automatically fills in missing image information or 'blind spots' in the data. Accordingly, any dark spot or obsolete data is regarded as part of the object's information rather than being trimmed away or purged. As Hito Steyerl (born 1966 in Munich, Germany) has pointed out, this means that

3D technologies not only render those parts that are actually captured as locational measurements by a lidar [or 3D] scanner, but equally the parts that are missing from 2D images: the shadowed, covered or cut parts of the image.¹³

7 Charles S. Peirce, 'What is a sign?', in *The Essential Peirce: Selected Philosophical Writings*, vol. 2 (Bloomington, Indiana: Indiana University Press, 1998), 9.

8 Peirce, 'What is a sign?', 16.

9 Peirce, 'What is a sign?', 16.

10 Isabelle Graw, 'Lost traces of life: A conversation about indexicality in analog and digital photography between Isabelle Graw and Benjamin Buchloh', trans. Gerrit Jackson, *Texte zur Kunst* 99 (September 2015), 42–55.

11 Graw, 'Lost traces', 44.

12 Graw, 'Lost traces', 44.

13 Hito Steyerl, 'Ripping reality: Blind spots and wrecked data in 3D', in Hito Steyerl (ed.), *Duty Free Art: Art in the Age of Planetary Civil War* (London: Verso, 2017), 197.

In the process of reconstructing missing data based on estimation, or stitching up of surfaces and closure of holes for the object to withstand gravity, a substantial amount of aesthetic-algorithmic data *interpretation* goes into the creation of Channer's digitized body part. The index effects of 3D scanning technology do not unfold between the artist and the technical equipment but rather between the algorithms and the apparatus.

Steyerl calls scans that entail elements of reconstruction or estimation '2.5D' or 'imperfect 3D', in short, a 'space between surface and volume'.¹⁴ 3D scanning can, therefore, be considered a 'remote sensing cast of reality'.¹⁵ Following such logic, the attribute 'remote' not only refers to the absence of contact between the object and cast. It also points to the fact that the 3D scan not so much replicates a digitized cast or media mould of Channer's finger as creates a remote version of it.

3D scanning is, therefore, different from casting or photography. It always entails a fictional interpretation of an object based on algorithmic calculations. As much as the *digitus* has become digital, it has also become fictional.¹⁶ It does not resemble an actual imprint of reality anymore. This difference between Channer's original and her 3D scanned and processed limb also intimates that we are confronted with a much more complicated indexical relationship. This makes the scanned body part decisively different from a simple cast used for centuries in sculptural reproduction. Channer's limb emerges from the unresolved difference between reality and fiction at the heart of 3D scanning processes that are often claimed to be objective. In this fictional representation, the digital state foreshadows a changed notion of corporeality. The digit assumes a deictic quality.

Stretching a body

Channer takes such productive tension even further by visually emphasizing the difference between the human body part and her artistic interpretation. After a transfer of the scanned file into 3D animation software, the human limb is stretched and elongated beyond its usual length. The limb now virtually moves between a human finger and an animal claw, fictitious and real body part. This strange fusion of fiction and indexicality, mechanics and organics, maths and matter, and information and individuals in Channer's objects make their novel relation apparent. As such, the artist places body and machine, sensation and concept, and nature and artifice in ongoing relations of discordance and concordance with each other. The digital version or information of her former body part is thereby not delinked from its material substance but instead highlights its change in state. The work displays an altered understanding of the body. Quite literally and conceptually, Channer stretches bodies beyond a human reference point and makes them metamorphose across different types of digital and analogue technologies. This metamorphosis is related less to the gradual change of the final work over time than to the limb's transformation from analogue to digital technology and back. Metamorphosis becomes a crucial aspect of Channer's production process

14 Steyerl, 'Ripping reality', 197.

15 Steyerl, 'Ripping reality', 197

16 Steyerl, 'Ripping reality', 191.

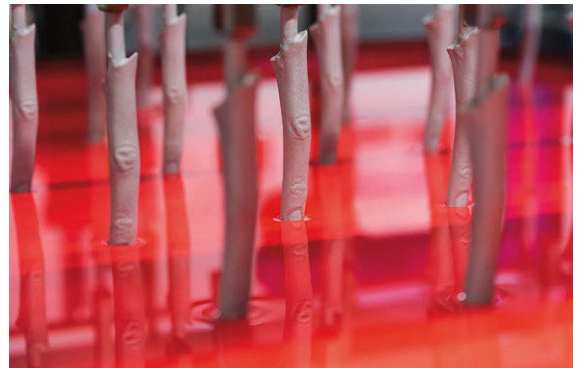
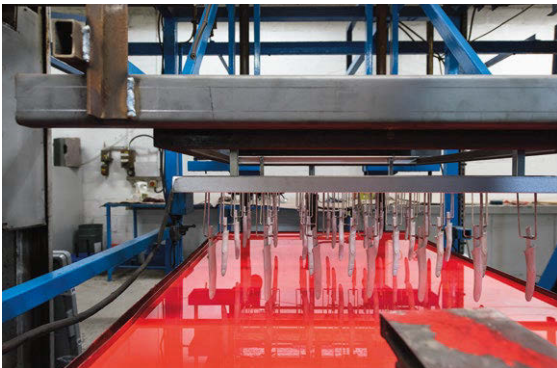
that always manifests in the final works. Channer's body part not only metamorphoses at the moment of digitization, it also becomes a fiction.

(Re-)Materializing a body

Over the course of one hour and thirty minutes, Channer's limb emerges layer by layer. The 3D print is made from a resin compound sprayed from eight print heads with ninety individual jets. The traditional understanding of sculpting as carving or removing material from a substance is replaced by an additive procedure. This procedure creates an object that consists of 1080 thin parametric layers. The 3D printer applies fine dust of resin to a surface in delicate layers and glues them together. The printing process reminds us once again that, through its volume, the scan itself has a body as well. This body is not only material by way of its material inscription on the rotating disks of computer hard drives, but assumes an actual materiality each time it is printed anew.¹⁷ In this understanding, the 3D printing process gives an actual body to the digital file based on a real body part. The seemingly disembodied information provided by 3D scanning technologies now assumes a literal, material embodiment. It reappears as tangible matter. The former body part turned into an 'object-fiction', as Steyerl would say, once again assumes an actual body in real space.

Casting a body

The 3D scanned, digitally stretched, and 3D printed digit serves as a mould for a wax injection cast, which in turn forms the base for the aluminium casting process. Through a system of inlets, the formless and heated material flows into the cavity left by the molten wax – like in the veins of a body – and solidifies into form. At the moment of casting, the inside becomes the outside, one of one hundred and five limbs. Alice Channer's limbs were born out of a gap, a blank: digitally from the gap left by missing image data and physically from the



4 | Thermoplastic dip coating process of Alice Channer's limbs for *Mechanoreceptor*, *Icicles*, 2016.

17 For an in-depth analysis of digital materiality, see chapter 2.2 ('A sea of noise: Liquid fantasies and digital matters').

negative and positive threshold essential for casting an object. What began with a remote sensing cast of reality has become a near shape of reality.

The limb's crisp industrial production cycle is concluded with the process of plastic thermos dipping, commonly used for the handles of tools like pliers (fig. 4). In this phase, the limbs are affixed to an industrial jig resembling those present in the exhibition space. Through an automated procedure, they are gradually submerged in a bath of red liquid plastic. The interaction between the cast limb and the heated red plastic elicits both seductive-sensual and repulsive-poignant connotations. The transition from remote sensing technology, used during the digitizing of Channer's limb, to an intimate form of touch is evident, and Channer's limbs are subsequently enveloped by a second skin, serving as an impermeable boundary. The red industrial fluid evokes an affective-bodily and almost erotic experience, perhaps intensified by its retention in its industrial form. Once cooled into solidity, the lush-shiny, bright red surface invites tactile exploration, whereas in its fluid state, it prohibits any physical contact.

The thermoplastic dipping process – commonly used to handle tools and now applied to a distorted 3D scanned, printed, and cast human body part – emphasizes the complex and ambiguous layering of mechanical, digital and actual bodies in Channer's work. The work's title, *Mechanoreceptor, Icicles*, refers to a sensory receptor in mammalian skin that responds to mechanical pressure and distortion. The artist consciously employs the effect of such a title combined with seductive industrial materials to arouse a bodily reaction and attraction to her works. This, in turn, accentuates the contrast between sensual encounters and painful experiences, remote sensing technology and near-touching experiences, and image body and body images.

In Channer's work, the human body doubles as a corpse. It is represented as disjointed and suspended on tweezer-like fastenings somewhere between life and death. While her aesthetic is reminiscent of a glimpse into an industrial setting, perhaps an abattoir, one might also see votive offerings of limbs in some strange post-industrial commemorative site. Here, the refined and carefully arranged body parts appear as deposits of a different kind.

Rebirthing a body

In Channer's work *First Rebirth* (2016; fig. 5), a very similar procedural dramaturgy is at play. An accordion-pleated, black, shiny tech-lamé fabric plays around a crescent-like curved shape of fired ceramic (fig. 6). The greenish glaze, traversed by black bleeding, relativizes the organic origin of the clay and gives it the appearance of an industrially manufactured and wrinkled material. In combination with the texture of the fabric, the form appears like a halved pipe from which a black viscous fluid is flowing. The slightly S-shaped bend of the ceramic form is taken up and intensified by highly polished and horizontally mounted stainless steel plates. The steel appears to be dematerialized, with the mirroring and minimal bearing surface referring to its liquid origin. Two forms cast in bronze and jesmonite supplement the mirror-polished steel strips. Their bends suggest the bodies of snakes. As ceramic material has accepted the imprint and the form of an industrial sewer pipe, the mirror-polished steel owes its deflection to a roller, and the cloth bears the traces of a cardboard template for



5 | Alice Channer, *First Rebirth*, 2016; fired and glazed ceramic, rolled and mirror-polished stainless steel, pleather print on rolled and mirror-polished stainless steel, cast jesmonite, cast and chromed bronze, accordion-pleated high-tech lamé; 20 × 620 × 65 cm. Installation view, Konrad Fischer Galerie, Berlin, 2016.

6 | Alice Channer, *First Rebirth*, 2016; fired and glazed ceramic, rolled and mirror-polished stainless steel, pleather print on rolled and mirror-polished stainless steel, cast jesmonite, cast and chromed bronze, accordion-pleated high-tech lamé; 20 × 620 × 65 cm; detail.





7 | Alice Channer, *Organics*, 2015; fired and glazed ceramic, cast and chromed bronze, rolled, mirror-polished stainless steel, accordion-pleated high-tech lamé; 30 × 372 × 136 cm.



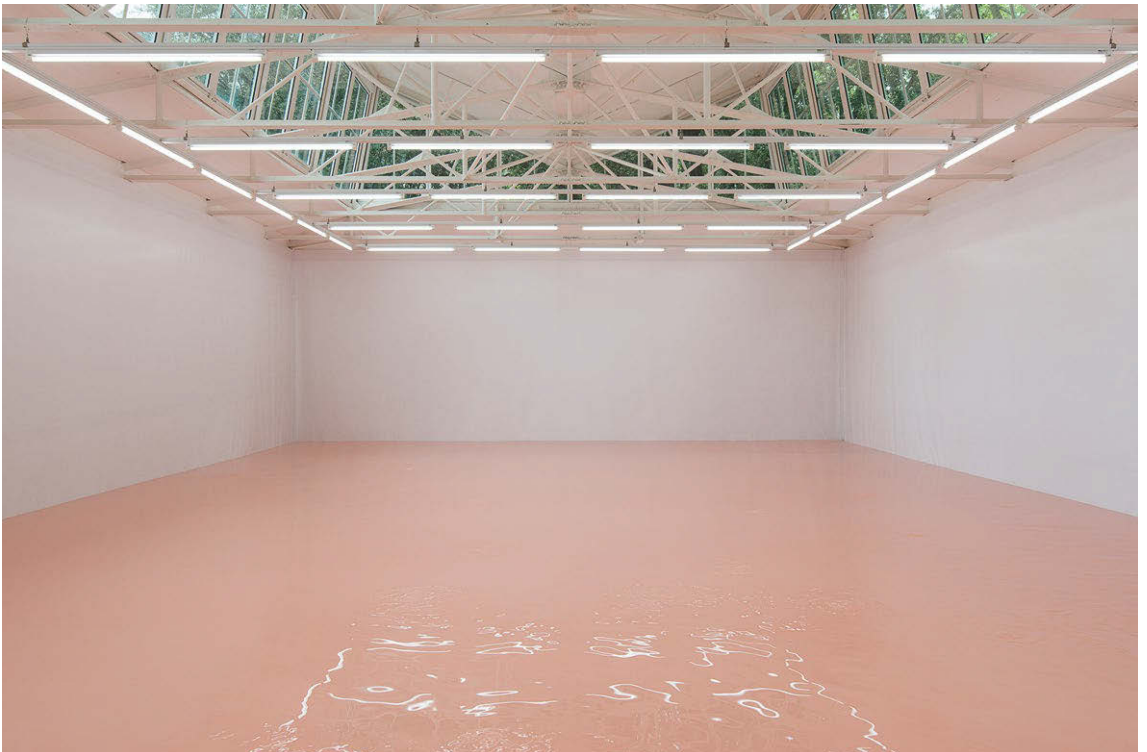
8 | Alice Channer, *Synthetics*, 2015; fired and glazed ceramic, rolled, mirror-polished stainless steel, pleather print on stainless steel, cast jesmonite, accordion-pleated high-tech lamé; 35 × 471 × 101 cm.

pleating. All the objects are placed in parallel to one another but rarely touch. They bear the traces of complex transformation processes related to form, volume, and body.

Like in earlier installations such as *Organics* (2015; fig. 7) and *Synthetics* (2015; fig. 8), the two snake-like casts in *First Rebirth* were created by digitally transforming a human femur taken from a school skeleton. After the 3D scanning and digital stretching of the femur, the virtual version is materialized through a CNC process and formed in aluminium via a multi-step casting process. The human bone is now impossibly and awkwardly curved. It has assumed proportions similar to remains of prehistoric animal bones found in palaeontological excavation sites. Almost programmatically for Channer's way of working, the casting process she uses is commonly called *the method with lost form*. A title that could equally be applied to the 3D processes of her works, it indicates the choreography of lost and regained corporeality at the centre of Channer's practice. In that practice, the digital, as a seemingly disembodied or dematerialized form of information processing, is always deeply tied to the materiality

and physicality of fragmented and abstracted organisms. Once again, one feels reminded of a post-industrial commemorative location, ritual site, or even burial ground in which the remains of a body are found alongside objects made from various materials and shapes. Corporeality is not entirely lost in these installations, but it has profoundly metamorphosed.

This understanding of corporeality can also be observed in works by artists who have exhibited alongside Channer in various exhibitions, including the *56th Venice Biennale: The Encyclopedic Palace* (2013), *Nature After Nature* (2014), *Rest in the Furrows of My Skins* (2017), *Crash Test* (2018), *The Shape Left by the Body* (2018), *Cloudpoint* (2022), and *Trickster Figures: Sculpture and the Body* (2023). Though Channer's visual approach is noticeably different, she and the artists Pamela Rosenkranz, Juliette Bonneviot, and Alisa Baremboym share parallels in their conceptual approach to corporeality. The latter artists also articulate bodies through material encounters between the synthetic and natural, the anthropomorphic and the artificial, the inanimate and the animate, the industrial and the corporeal, the human and the technoid. In all their works; bodies appear to be exhumed from industrial detritus. They are caught in metamorphoses or on the brink of collapse. These works deal with abstracted, fragmented, metamorphosed, or liquified bodies and eventually engage with a body's potential death.



9 | Pamela Rosenkranz, *Our Product*, 2015. Installation view, Swiss pavilion at the 56th Venice Biennale.



10 | Juliette Bonneviot, *Xenoestrogens (Peace Green)*, 2016; lead, cadmium, aluminium, aspirin, oestradiol, soy, pesticide, silicon rubber; 200 × 100 cm.

In works by Swiss artist Pamela Rosenkranz, for example, the human subject is dissolved or only hinted at as a mixture of materials and forms composed of an artificial corporeality.¹⁸ Her works depict bodies that might loosely be recognized as human, characterized by fluid features set amidst a backdrop of global brands. In her 2015 Venice Biennale contribution for Switzerland, *Our Product* (2015; fig. 9), physicality becomes a serial association made from imagined substances such as Neoteene, Silican, Evoin, Viargat, Bionin, and Necrion.¹⁹ In a neon-lit laboratory, corporeality has been liquified. To the algorithmically generated sound of water, the body is marketed like a product that smells of fresh baby skin and matches the Northern European skin tone. The artist suggests that, by 'taking skin as the medium per se, the economically codified and technologically extended surface collapses into the organic depth of this body as an evolved, natural product generated by blind and anonymous physical forces and biological processes. My work tracks how scientific knowledge distorts and stretches the "artificial" image of the body, and how it undermines the meaning of identity

18 Pamela Rosenkranz was born in Uri, Switzerland, in 1979. She was graduated at the University of Zurich in 2005 and earned her MFA from the Academy of Fine Arts in Bern in 2010.

19 See Susanne Pfeffer and Robin Mackay, *Pamela Rosenkranz: Our Product* (Kassel: Fridericianum, 2017), exhibition catalogue. For further reference visit ourproduct.net.

that comes with this image.²⁰ The human, or what is left of it, has been subordinated to an industrial, corporate scale.

The works of French artist Juliette Bonneviot also address artificial corporeality negotiated, treated, penetrated, and 'polluted' by post-industrial processes.²¹ Many of the products used by the artist are from the world of manufacturing and are profoundly disruptive to living systems. For *Xenoestrogens (Peace Green)* (2016; fig. 10), made from lead, cadmium, aluminium, aspirin, oestradiol, soy, pesticide, and silicon rubber, Bonneviot compiles products containing xenoestrogen. Xenoestrogens, resembling oestrogens, exist both organically and synthetically in various materials, including those present in Bonneviot's body of work.

This encompasses various types of oestrogens, such as metal oestrogens sourced from materials like aluminium, lead, copper, chrome, antimony, and cadmium; phytoestrogens derived from plants like soy, sesame seeds, and flax plants; mycoestrogens extracted from zearalenone, a fungus found in grains; and other synthetic xenoestrogens drawn from silicone, phthalates, BPA, epoxy resins, additives, aspirin, and, of course, contraceptives. The artist acquires these diverse products both online and offline, arranging them based on their colour before grinding them into powders. The results are then blended with PVC, silicone, and poured into an aluminium cast or applied to a linen canvas, creating an almost imperceptible coating. With their use of substances linked to birth defects, cancerous growth, hormonal disruption, and reproductive abnormalities in both animals and humans, her works present a liquefied corporeality deeply influenced by the presence of death.



11 | Alisa Baremboym, *Leakage Industries: Clear Conduit*, 2012; gelled emollient, unglazed ceramic, USB cable with gender changers, flash drive, hardware; 101.6 × 81.3 × 121.9 cm; detail.



Alisa Baremboym, *Chromosome Absorption*, 2018; ceramic, mineral oil gel, cotton wick, glass, perspex; 115 × 40 cm; detail.

20 Ruba Katrib, 'Hyper-materiality', *Kaleidoscope: Magazine for Contemporary Culture* 18 (Summer 2013), 59.

21 Juliette Bonneviot was born in Paris. She studied at the École Nationale Supérieure des Beaux-Arts de Paris and lives in Berlin.



12 | Alisa Baremboym, *UNIT 1: Hypothalamus: Organ of Influence*, 2018; concrete canvas, ceramic, mineral oil gel, cotton wick, vinyl, glass, perspex; 144.78 × 104.14 × 104.14 cm; detail.



Alisa Baremboym, *UNIT 2: Thyroid: Growth & Development*, 2018; concrete canvas, ceramic, mineral oil gel, cotton wick, vinyl, glass, perspex; 172.72 × 104.14 × 106.68 cm; detail.

New-York-based Alisa Baremboym is equally interested in the dissolution of physical states of materials, giving her works a sense of being between liquid and solid form.²² Baremboym's *Leakage Industries: Clear Conduit* (2012), *Chromosome Absorption* (2018), *UNIT 1: Hypothalamus: Organ of Influence* (2018), and *UNIT 2: Thyroid: Growth & Development* (2018) all feature hand-moulded ceramic objects whose flesh-coloured glazes resemble human body parts (fig. 11). They are arranged on amorphous-looking substances defined by a tactile and simultaneously repelling visual presence. The modularized and industrial-sounding titles of the works reinforce the ceramic objects' resemblance to serially manufactured industrial goods. The transparent blocks consist of gelled emollient, a material obtained from petroleum and crude oil usually used in cosmetics, food, or pharmaceutical industries. The different arrangements are generally reminiscent of organs. Referencing, among others, the pineal gland, the thyroid, and the hypothalamus, Baremboym's titles recall hormones that regulate our body's temperature, thirst, hunger, and other homeostatic systems (fig.12). The association with a living organism is visually reinforced by artery-like elements connected to the

22 Born in Moscow in 1982, Alisa Baremboym trained as a painter under Jutta Koether and was graduated from Bard College with an MFA in 2010. She received her undergraduate degree from the School of Visual Arts in New York.

ceramic objects and further refined by the anatomical properties of the employed materials. During the works' presentation, the mineral oils of the gelled emollient slowly penetrate the porous ceramic pieces.²³ The ceramics, in turn, exude the soaked-in substance over the period of the presentation like a skin, making the flesh tone gradually darker. Baremboym's works thus constantly change their state of being, and this process 'revives' the seemingly dead materials within her sculptures.

Like Channer, Rosenkranz, Bonneviot, and Baremboym use complex, procedural dramaturgy to merge human remains and industrial fragments into an anthropomorphic–technoid distilled form. These works diminish the human scale, breaking down the subject into its component parts. They present the image of a body in crisis, mediated through post-mortem fluidity or rigidity, departing from its vertical and privileged state. In doing so, the works evoke a sculptural tradition rooted in the representation of the human form, a tradition with deep connections to ancient burial cultures.

Out of body

Sculpture has always had a privileged relationship to the body and its demise and decay. Corporeality means three-dimensionality, and for many centuries, Western sculptural discourse has centred on the monolithic, static, figurative, vertical, and autonomous object made of inert, durable, and lasting materials. While the Assyrians and Sumerians had introduced the tradition of freestanding figures as grave markers at burial sites, the legacy of the Greek *kouros* further established the enduring aesthetic of the realist depiction of the vertical human body. From Etruscan graves to the war memorials of the twentieth century, the history of sculpture is profoundly linked not only to the human body but also to the



13 | Alice Channer, *Burial*, 2016; cast aluminium bronze, cast concrete, cast corten steel, polystyrene regrind; dimensions variable. Installation view, Museum Kurhaus Kleve, *Wer nicht denken will, fliegt raus – Handlungsanweisungen nach Beuys*, Kleve (Germany), 2016.

23 This is based on a verbal statement by the artist.

tomb. This historical relationship extends to the history of production of Western sculpture.²⁴

'All agree that it began with tracing an outline around a man's shadow.'²⁵ While Pliny's emblematic tale in *Natural History* begins by describing the origins of painting, he quickly turns to the plastic arts. Pliny recounts the story of Buttades, the potter of Sicyon, who began modelling bodies from clay due to his daughter's love for a young man. She had drawn his outline on a wall in yearning.

As a story in which an absent (male) body inspires and grounds the birth of pictorial, and then sculptural representation, Pliny's tale is an appropriate example of sculpture's millennia-long fixation on the human body.²⁶ In this primal scene of visual art, representation takes shape from, takes meaning from, and takes place in the form of a human body. The (male) body was thus enshrined in the narratives of sculpture for the centuries to come.²⁷ Giorgio Vasari later echoed Pliny's famous declaration in his own reflections on sculpture when he wrote: 'It is undeniable that from man, as from a perfect model, statues and pieces of sculpture and the challenges for pose and contour were first derived.'²⁸ Pliny and Vasari exemplify a discourse on sculpture dominated by the human body, a perspective that remained valid until the twentieth century. This also brings to mind Joseph Beuys, who later admitted that 'what interests me is the fact that sculpture supplies a definition of man.'²⁹

Wherever religious norms allowed three-dimensional representation, an intensive examination of the human body developed through depiction. As Jan Gerchow argues, such Western fascination with the human body and its representations is also linked to Christ and his dramatically treated and exposed body's double role as testimony and symbol.³⁰ In Christianity, faith is experienced, testified, suffered, and quite literally incarnated through the body of Christ and his followers.³¹ In the human body, Christianity thus finds its primary site and evidence of faith. This accounts for the uniquely Christian obsession with the body that made Christianity so central to European arts and European sculpture in particular. The

24 See Daniel H. Garrison, 'Introduction', in Daniel H. Garrison (ed.), *A Cultural History of the Human Body in Antiquity* (London: Continuum, 2014), 14.

25 Pliny the Elder, *Natural History*, tr. H. Rackham (Cambridge, Massachusetts: Loeb Classical Library, 1952), 373 (book 35, passage 43).

26 Pliny, *Natural History*, 373 (book 35, passage 43).

27 Garrison (ed.), *A Cultural History of the Human Body in Antiquity*, 14.

28 Giorgio Vasari, *Le Vite de' più eccellenti pittori, scultori, ed architettori da Cimabue insino a'tempi nostri* [Lives of the most excellent painters, sculptors and architects, beginning from Cimabue to our times] (Florence: Torrentino, 1550), quoted in W. J. T. Mitchell, *What Do Pictures Want: The Lives and Loves of Images* (Chicago, Illinois: University of Chicago Press, 2006), 245.

29 Joseph Beuys quoted in Lucy R. Lippard, *Six Years: The Dematerialization of the Art Object from 1966 to 1972* (Berkeley, California: University of California Press, 1997), 121.

30 See Jan Gerchow, 'Ebenbilder' [Likenesses], in Jan Gerchow and Hans Belting (eds.), *Ebenbilder: Kopien von Körpern – Modelle des Menschen* [Likenesses: Body copies—Models of the human being] (Ostfildern-Ruit: Hatje Cantz, 2002), 16–17, exhibition catalogue.

31 See Jan Gerchow, 'Körper der Erinnerung: Votiv-, Stifter- und Grabbilder im Spätmittelalter' [Bodies of remembrance: Votive, patron, and grave portraits in the late Middle Ages], in Gerchow and Belting (eds.), *Ebenbilder* [Likenesses], 55.



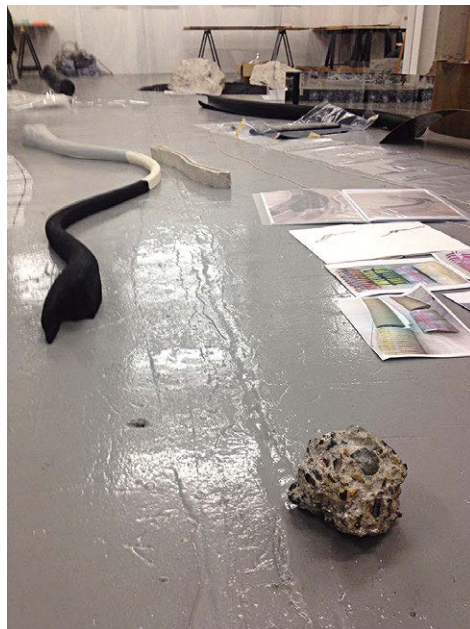
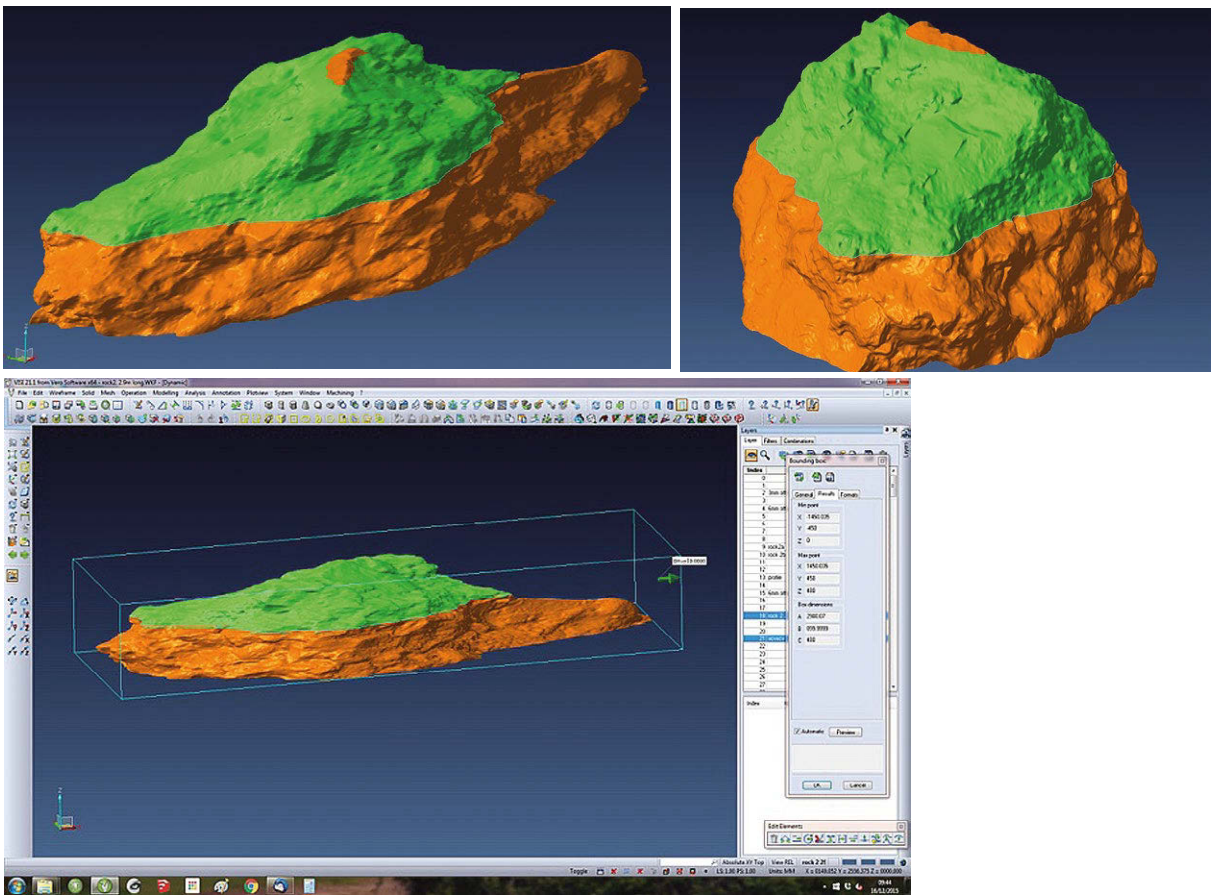
14 | Alice Channer, *Burial*, 2016; cast aluminium bronze, cast concrete, cast corten steel, polystyrene regrind; dimensions variable. Installation view, Museum Kurhaus Kleve, *Wer nicht denken will, fliegt raus – Handlungsanweisungen nach Beuys*, Kleve (Germany), 2016.

manifest significance of the body in Christian culture also expresses itself in the ecclesiastical memory of the dead. Through sculptural artefacts with bodily references, deceased or absent persons were physically made manifest, occupying a real place in the memory of the living.³² This again recalls burial rituals of earlier cultures in which life-size sculptures of the body acted as a substitute.³³ From antiquity onwards, and further propelled by Christianity, sculpture's relationship with and focus on the human body are deeply tied to burial culture. In this context, sculpture acts as a substitute for life, a type of placebo.³⁴ It relativizes mor-

32 These sculptures were typically categorized into different groups: votive images, deposited by believers in their spiritual patron's church during their lifetime; gravestones, portraying the deceased on their graves or representing them; and donor portraits, commissioned by a significant church sponsor, often after their death, to establish a monument.

33 See Gioni, 'Ask the dust', 64.

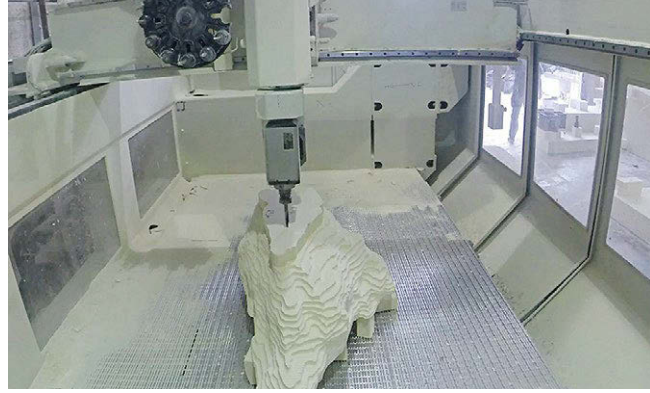
34 For an overview on this constellation, see for example Béatrice Foulon, Anne de Margerie, and Musée



15 | 3D modelling process of rocks based on lump of concrete for Alice Channer's *Burial*, 2016.



16 | CNC milling process of rocks for Alice Channer's *Burial*, 2016.



tality through the use of solid materials. 'When a body dies', Channer says in an interview, 'it changes state, and it is fascinating to me that making objects that exist alongside bodies that are mutating, in transitional zones, is an original function of sculpture. Whether or not it is something you are interested in, as an artist, making art and working with materials, you will be brought really, really close to the fact that we are going to die. All art-making might be a way of preparing for that, and I think it's something particularly closely related to working with sculpture.'³⁵

The abstracted, fragmented, metamorphosed, or liquified bodies by Channer, Baremboym, Bonneviot, and Rosenkranz continue such sculptural examinations of bodies and their relationship to death in a contemporary context. In their works, the body is always understood to be more than just a human one.

In Channer's work *Burial* (2016), human figuration has given way to a formation of four rocks resting in a black desert of polystyrene regrind – a waste product from the automobile industry (fig. 14). Like in the installation *R o c k f a l l* (2015) for the Aspen art museum (figs. 20–21), the work is modelled after a 3D-scanned and digitally stretched lump of concrete (fig. 15). It is an object originating from London, and for the artist it represents an elementary sign of the city's development, gentrification, and urban growth.

national des arts d'Afrique et d'Océanie (eds.), *La mort n'en saura rien: reliques d'Europe et d'Océanie* [Death won't know: Relics of Europe and Oceania] (Paris: Réunion des musées nationaux, 1999), exhibition catalogue; Alfred Pacquement, Centre Georges Pompidou, and Haus der Kunst München (eds.), *Traces du sacré* [Traces of the sacred] (Paris: Éditions du Centre Pompidou, 2008), exhibition catalogue.

35 Alice Channer quoted in Rosanna McLaughlin, 'Alice Channer: "The area in between the subject and the object is the area I want to locate in my work"', *Studio International* blog (8 November 2016), <https://www.studiointernational.com/index.php/alice-channer-interview-early-man-burial-rockfall>, accessed 12 December 2024.



17 | Casting process of rocks for Alice Channer's *Burial*, 2016

Its new versions are CNC milled and cast from Corten steel, aluminium-bronze, and glass-fibre concrete (fig. 16). To this end, the fibreglass form is placed in a sarcophagus-like flask. Then it is completely *buried* and moulded in sand (fig. 17). After the model is removed, a hollow space remains, which is then filled with molten material. Through a system of inlets, the formless and heated materials flow into the cavity like through the veins of a body and solidify into a form. The seemingly natural landscape proves to be of industrial origin. In the interior of the stone formation of *Burial*, the material does not compress to a solid core. Instead, there is a hollow space. Seen from this perspective, *Burial* appears as a sarcophagus. Are we confronted here with stones absorbing a corpse or even consuming flesh, as implied by the origin of the word sarcophagus? By making the work *Burial* the centrepiece of an exhibition entitled *Early Man*, Channer questions sculpture's millennia-long fixation – estab-

lished in antiquity – on the figurative and vertical. She juxtaposes the radical horizontality of her works with our vertical position (fig. 13). The artist plays with ‘the notion of the horizon as the clear marker between human and non-human worlds’.³⁶ To achieve this, she modified the CNC’s standard tool path to create longer horizontal grooves. This further emphasizes the stretching effect and, consequently, the radical horizontal orientation of the installation. The viewers find themselves in a beautiful yet disconcerting spatial experience that seems to have preserved nature’s lifelines through an inert monument radiating death. *Burial* subtly revolves around the sculptural tradition of the tomb, the intertwining of mortality and eternity while preserving an ironic undertone with its absence of literal references to a human body. Whose funeral are we attending here?

French-born artist Marguerite Humeau could have also posed this question in her work. She equally confronts, in her digitally conceived installations, sculpture’s relationship to life, death, and its intervening states. Two white polystyrene sculptures, mounted on elegant metal legs, mark the centrepiece of her installation *Art Now: Marguerite Humeau: Echoes* at Tate Britain in 2017–2018 (fig. 18). The hypnotic yellow pigment that dresses the walls is highly seductive and visceral, drawing the viewer into the work without revealing its lethal effects. The colour is derived from poisonous black mamba python venom sourced from a snake farm in Africa. It alludes to Cleopatra’s death, as the ancient queen’s synthetically pro-



18 | Marguerite Humeau, *Art Now: Marguerite Humeau: Echoes*, Tate Britain, 2017–2018. Installation view, Tate Britain, London, 2018.

36 Courtney Finn, ‘Fast but Slow’, in *Educator Notes: Alice Channer, Rockfall* (Aspen, Colorado: Aspen Art Museum, 2015), 4, exhibition catalogue.

duced voice reverberates through the space. Underpinned by electronic beats of the twenty-first century, she sings in the nine extinct languages that she reputedly spoke. The two 3D modelled and 5-axis-milled sculptures also allude to ancient Egyptian history, being based on the Egyptian gods *Wadjet (King Cobra)* and *Taweret*. Suspended between abstraction and figuration, they re-enact bodily function through biological engineering. Long tubes emerge from the fictitious sculptural forms, pumping fluid around the installation. Cutting through the dazzling environment, they lead to two corners of the space containing non-descript white tanks entitled *Sobek (Muhammad Ali)*. The work comes to life as an ecosystem in which alligator blood, hippopotamus milk from a Taiwanese zoo, Californian breast milk procured online, and the substances rapamycin and resveratrol circulate through the tubes bestowing upon the work a life of its own.³⁷

This literalist use of materials is deeply repellent but at the same time also seductive in its immediate link to the mechanisms of the globalized circulation of exotic goods. The result is a light-pink potion that contains strong antibiotics and antiseptics, which, according to the artist, is an elixir for eternal life. Humeau interweaves the human concepts of death and the afterlife with the dreams of regenerative biology and biotech engineering. To this end, she uses speculative design strategies to reconnect, re-incarnate and communicate with unknown, extinct, or unreachable life forms.³⁸ Morphing between a hippopotamus, an alligator, and a goddess, her sculptures mimic corporeality and bodily functions while increasingly replacing them with sterile artificial processes.

Anamorphic productions

Part tomb, part laboratory, part temple, part post-apocalyptic excavation site, the space-filling works of Channer and her peers evoke uncanny and seductive experiences. Their abstract poetry invites us to look at bodies askew or from a certain point of anamorphosis. 'Instead of reducing forms to their visible limits, [anamorphosis] projects them outside themselves and distorts them so that when viewed from a certain point they return to normal,' writes Jurgis Baltrušaitis in his publication that traces anamorphic art throughout the centuries.³⁹ Such qualities of an artwork can then both accelerate and decelerate, or sharpen and obscure, viewers' perspectives on reality. Foremost, anamorphic art demands that its viewers change their accustomed standpoints, as it is only from an unusual perspective that the work's meaning is revealed. Hans Holbein's *The Ambassadors* (1533) is a powerful example of such a mechanism. At the bottom corner of the painting floats an intriguing, amorphous spot. Only when viewed from a particular angled perspective does the spot reveal itself as a skull. The work's meaning reveals itself as a reflection about death. Channer, Baremboym, Bonneviot, Rosenkranz, and

37 Rapamycin, also known as sirolimus, is used to coat coronary stents, prevent organ transplant rejection, and treat the rare lung disease lymphangioleiomyomatosis. Resveratrol is a natural phenol and phytoalexin produced by plants under attack by pathogens such as bacteria and fungi or in response to injury.

38 Marguerite Humeau quoted in Design Indaba, "Marguerite Humeau on Reviving Prehistoric Creatures," *Designs* blog (12 September 2013), <https://www.designindaba.com/videos/conference-talks/marguerite-humeau-reviving-prehistoric-creatures>, accessed 11 December 2024.

39 Jurgis Baltrušaitis, *Anamorphic Art*, tr. W.J. Strachan (Cambridge: Chadwyck-Healey, 1976), 1.

Humeau play with a similar system around which fictitious forms and bodily speculations can be made and unmade. 'Material ambiguity and perceptual double-takes have always interested me,' Baremboym asserts in an interview.⁴⁰ In the gesture of anamorphic art, her works and those of her peers force us to change our privileged perspective for their meanings to arise.

Aesthetically and conceptually, Channer and her peer group intend to evoke bodily experiences that decentralize the human subject as the locus of the sculptural representation, act, and experience. They represent bodies as being inextricably linked with their post-industrial surroundings and the processes of production. These practices trace how human-technological interaction has blurred the boundaries between human and non-human bodies. One perceives no aesthetic distinction between what could be identified as animal, mineral, or human. Linking organic and inorganic terrains, bodies compose themselves from the elements that confine and surround them, shaping their material *umwelt*.

The viewer is engulfed by their all-encompassing and post-industrial experiences, unable to assert mastery over them. Sculpture can be understood in an embodied and installational sense, that is 'in constellation with its surroundings'.⁴¹ These works venture into what Juliane Rebentisch calls the 'aesthetic of installations,' a sculptural praxis that has become self-reflexive.⁴² And yet, Channer does not think of her works as installations but as sculptures, as she highlights in a statement on her work:

Often people assume with my work that it is an installation that you can put together in different ways. But this isn't the case. Rockfall [a modification of her work Burial] for instance, is a single object and has dimensions that are fixed – there is a very long document explaining exactly how it should be laid out – it's just that those dimensions include the gaps between the rocks. If we are talking about the works being hybrids, forming bodies, what I experience when I try to bring together all these different parts is that, although they are brought together into a new thing, something that new thing makes visible is the gap between the parts. So this new thing is never entirely whole. If we are talking about hybrids, I wonder if part of the cyborg is that these parts come together, but they are not unified and continent [sic] in the way that we might imagine a solid body to be. And if that was the case, to me that would be quite a relief.⁴³

The heterogeneous, contradictory, at times digitally altered, material components of these works are in the words of Channer 'not unified and continent [sic] in the way we might imagine a solid body to be'.⁴⁴ Channer and her peers have renounced the human scale in their works, opting instead for assemblages composed of organic and inorganic materials. They understand the body as a dynamic function undergoing constant change rather than as a uniquely defined state.

40 Michaël Amy, 'Double-takes: A conversation with Alisa Baremboym', *Sculpture* 37, no. 1 (January/February 2018), 44.

41 Rebentisch, *Aesthetics of Installation Art*, 62.

42 Rebentisch, *Aesthetics of Installation Art*, 246.

43 McLaughlin, 'Alice Channer'.

44 McLaughlin, 'Alice Channer'.

As speculative casts of our reality, as bodies in 2.5D, these works radiate a sense of pre-apocalyptic glam. They convey the symptoms of a changing material and bodily condition in an era that has widely come to be known as the Anthropocene. Channer, Baremboym, Bonneviot, Humeau, and Rosenkranz depict bodies as exhumed and, at the same time, rooted in the disruptive processes of our time. They suggest artistic figurations to make viewers imagine and ultimately understand corporeality in times of rapid environmental and technological change. Continuing its focus on the body and its formation in artistic processes, the following sub-chapter connects Channer and her peers' practices to the discourses that engage with our precarious environmental state.

1.2 Bodies in process: Towards a more-than-human corporeality

In their work, Alice Channer, Alisa Baremboym, Juliette Bonneviot, Marguerite Humeau, and Pamela Rosenkranz engage with what having a body or being a body means in our technological present. Through post-industrial surroundings, the human scale has been relinquished in favour of states of aggregations, modular commodities, cultural artefacts, commemorative sites. Despite or perhaps due to this development, Channer and her peers aesthetically and conceptually summon and rework sculpture's ancient relationship between the body and death. Their material constellations reflect relationships between bodies and environments that are so strongly prefigured and structured by synthetic materials, corporate products, and digitized processes 'that even resorting back to natural products appears as if mediated by a sterile plastic film'.⁴⁵

Employing sculptural vocabularies, these artists address a changing material and bodily state that is also the topic of the debates on the Anthropocene. It is here that 'the natural environment, saturated with technological interventions in all possible scales, from the geological ground to earth surface to oceans, to plants, air and vacuum, begins to exert a new kind of pressure on the human body'.⁴⁶ Half a century after Siegfried Giedion's publication *Mechanization Takes Command*, mechanization has not only encountered organic substance but has profoundly transformed it. In his famous book, Giedion outlines the effects of mechanization on humans throughout the centuries. His premise is that we have to understand our tools and, one should add, our production processes to know how mechanization spreads or disappears.⁴⁷ The ultimate goal is to help humans find an equilibrium between themselves and their environment – to re-establish 'man in equipoise'.⁴⁸ His exploration of mechanization could be interpreted as a precursor to discussion of the Anthropocene.

45 Susanne Pfeffer, 'Juliette Bonneviot', exhibition leaflet in conjunction with the *Nature After Nature exhibition at the Fridericianum, Kassel* (Kassel: Fridericianum, 2014), 11.

46 Jacob Wamberg and Mads Thomsen, 'The posthuman in the Anthropocene: A look through the aesthetic field', *European Review* 25 (3 October 2016), 2, doi: 10.1017/S1062798716000405.

47 See Siegfried Giedion, *Mechanization Takes Command: A Contribution to Anonymous History* (New York, New York: W. W. Norton, 1969), 4–5.

48 Giedion, *Mechanization Takes Command*, 720.

The term 'Anthropocene' was first popularized by chemist and Nobel prize winner Paul J. Crutzen in his 2002 paper 'Geology of mankind', in reference to an *anthropos-centred*, 'human-dominated, geological epoch, supplementing the Holocene, defined as the warm period of the past 10–12 millennia'.⁴⁹

Crutzen's terminology aligns with a broader epistemological tradition.⁵⁰ As early as the 1960s, Rachel Carson, for example, described anthropogenic – that is, human-produced – change as symptomatic of a changing relationship between people and their environment: 'Only within the moment of time represented by the present century has one species – man – acquired significant power to alter the nature of the world.'⁵¹ Nine years later, Gideon would base his book *Mechanization Takes Command* on the observation that 'our contact with the organic forces within us and outside of us has been interrupted – a paralyzed chaotic condition.'⁵² In the 1990s, biologist Hubert Markl diagnosed a 'radical change in the Anthropozoic', asserting that 'nature ought to be understood as a new "cultural task".'⁵³ Crutzen takes these diverse concepts one step further. Essential to his argument for a new epoch is that in the Anthropocene, human beings have themselves become a significant geological force.⁵⁴ On this basis, Crutzen and his colleagues Jacques Grinevald, John McNeill, and Will Steffen have controversially argued for a 'geology of mankind'.⁵⁵ Since 2009, the Anthropocene Working Group – an interdisciplinary team of thirty-seven researchers – has been investigating the Anthropocene as a geological time unit.⁵⁶ Established by the Subcommission on Quaternary Stratigraphy (SQS), the group has identified key human-made markers, including artificial radionuclides, combustion particles, altered biotic populations, and organic pollutants in sedimentary layers.⁵⁷ These markers, particularly those found in Crawford Lake, Canada, provide strong geological evidence for the Anthropocene's impact, confirming that it is not just a theoretical concept but a tangible stratigraphic reality.⁵⁸ However, in spring 2024, the

49 Paul J. Crutzen, 'Geology of mankind', *Nature* 415, no. 6867 (January 2002), 23, doi: 10.1038/415023a.

50 In 1873, Italian geologist Antonio Stoppani had already suggested an analogous concept when he argued that people had introduced a 'new telluric force which in power and universality may be compared to the greater forces of the Earth'. He called this new era 'anthropozoic'. See Valeria Federighi, 'The Anthropozoic era: Excerpts from "Corso di Geologia"', *SCAPEGOAT* 5 (2013), 346–353.

51 Rachel Carson, *Silent Spring*, (London: Penguin Classics, 2000).

52 Giedion, *Mechanization Takes Command*, 6.

53 Hubert Markl, *Natur als Kulturaufgabe* [Nature as cultural task] (Stuttgart: DVA, 1986). Translation by Mara-Johanna Kölmel.

54 See Crutzen, 'Geology of mankind', 23.

55 Crutzen, 'Geology of mankind', 23.

56 Jan Zalasiewicz, Colin N. Waters, Colin P. Summerhayes et al., 'The Working Group on the Anthropocene: Summary of evidence and interim recommendations', *Ancene* 150 (2017), 2, doi: 10.1016/j.ancene.2017.09.001.

57 See Zalasiewicz, Waters, Summerhayes et al., 'The Working Group on the Anthropocene', 2.

58 Based on research at twelve locations, the group dates the Anthropocene's onset to the 1950s, coinciding with the 'Great Acceleration'—a period of exponential global change reflected in socioeconomic data, rapid population growth, and rising CO₂ and methane levels in the atmosphere. See Cédric Defert, 'Anthropozän: Der Beginn eines neuen Zeitalters?' [Anthropocene: The beginning of a new era?] [video], *ARTEde*, (11 January 2025), <https://www.youtube.com/watch?v=v1M5dDuh1VQ>, accessed 4 February 2025.

International Union of Geological Sciences (IUGS) voted against formally recognizing the Anthropocene as a distinct geological epoch, leading to a rift between the Working Group and the official geological community.⁵⁹

Art in the Anthropocene

While the emergence of a new geological epoch remains contested in scientific circles, an epochal shift is palpable in contemporary art, particularly sculptural work.⁶⁰ As we experience pieces such as Channer's *Burial* – a seemingly natural rock formation 3D modelled and CNC milled based on a lump of concrete – the human impact on our planet and its 'effects for our species are literally written into the rocks', as Donna Haraway observed in a related context.⁶¹ Looking at Channer's sculptural works in which highly polluting materials such as PVC or polystyrene regrind are interwoven with organic substances such as silk or ceramics confirms what a significant number of artists and theorists have explored in numerous exhibitions and publications over the past years.⁶² The Anthropocene is first and foremost a 'sensorial phenomenon' and thus an 'aesthetic event'.⁶³ Its reading is 'framed through modes of the visual', as Heather Davis and Etienne Turpin have lucidly observed in the introduction of *Art in the Anthropocene*, one of the most comprehensive anthologies on art in the new geological paradigm.⁶⁴ For the theorists, 'art, as the vehicle of aesthesis, is central to thinking with and feeling through the Anthropocene'.⁶⁵

This goes hand-in-hand with a demand to change the relationship between us and our surrounding world. 'The consequences [of global warming]', as Dipesh Chakrabarty has argued, 'make sense only if we think of humans as a form of life [beyond many] and look on human history as part of the history of life on this planet. For, ultimately, what the warming of the planet threatens is not the geological planet itself but the very conditions, both biological and geological, on which the survival of human life as developed in the Holocene period depends'.⁶⁶ A diverse group of researchers from different backgrounds and disciplines

59 See John Ludden, 'The Anthropocene', Statement issued by the president of the International Union of Geological Sciences, March 20, 2024, International Union of Geological Sciences (IUGS), accessed 4 January 2025.

60 Epochs in geology are separated by significant changes in the rock layers to which they correspond. Rocks thereby record the emergence of one type of commonly fossilized organism and the disappearance of another.

61 Donna Haraway, 'Anthropocene, Capitalocene, Chthulhocene: Donna Haraway in conversation with Martha Kenney' in Heather Davis and Etienne Turpin (eds.), *Art in the Anthropocene: Encounters Among Aesthetics, Politics, Environments and Epistemologies* (London: Open Humanities Press, 2015), 259.

62 It is not surprising that exhibitions including *Crash Test (2018) in Montpellier*, *Coactivity: Notes for the Great Acceleration* (2014) in Taipei, *Nature After Nature* (2016) in Kassel, or *Geographies of Contaminations at DRAF* (2014) in London have located such works within frameworks of the so-called Anthropocene.

63 Heather Davis and Etienne Turpin, 'Art and death: Lives between the fifth assessment and the sixth extinction', in Davis and Turpin (eds.), *Art in the Anthropocene*, 3, 11.

64 Davis and Turpin, 'Art and death', 3.

65 Davis and Turpin, 'Art and death', 3.

66 Dipesh Chakrabarty, 'The climate of history: Four theses', *Critical Inquiry* 35, no. 2 (2009), 213, doi: 10.1086/596640.

has demanded we think of ourselves as biological organisms first, as one organism among many. Such decentred thinking would thus allow for a more open and curious relationship with other beings on the planet, including animals and plants.⁶⁷ As mountain glaciers and polar ice caps melt and ocean levels rise, the effects of climate change become not only increasingly entwined with politics and economics, but also affect the position of the human within this nexus. In debates around the Anthropocene, the human is, therefore, simultaneously *privileged* as the planet's principal geological force and *deprivileged* as just one of Earth's innumerable forms of life. In light of the challenges posed by the Anthropocene, artistic engagements such as those by Channer, Baremboym, Rosenkranz, and Humeau represent humans and their bodies not in a position of control but rather as dispersed in a nexus of technological, sociopolitical, and environmentally driven forces.

Decentring the author

Following such reflections, Channer describes her artistic contribution as an authored 'by many different beings, only one of which is me'.⁶⁸ In her exhibition catalogue *Skinmed and Detouched*, the artist emphasizes her perception of being wholly evacuated from the privileged position of 'the maker' through an elaborate account of the artistic process behind the creation of her works.⁶⁹ The publication documents the different material stages and technologies involved in producing the 200 PVC-coated aluminium fingers for *Mechanoreceptor*, *Icicles* and vacuum-metallized shells for *Crustacean Satellites* (2018). Their varied industrial histories and 'agencies' thus consciously reflect and disturb the conventional sense that the producing agent is exclusively human. Borrowing from the science fiction genre, the texts by Fer Boyd recount Channer's making process from the object's perspective. The writings speak of the sensual, almost erotic, encounter between different industrial materials and technologically guided processes in which the artist is entirely absent.

Lying on the floor of the factory I stretch myself out, languid and wanting and incredulous and beloved. I am a supernatural actuating body. I am a totally utilitarian hedonist. I am a protean axiom. I am so brilliant that by industry standards I'm close to mummification. I've got a great industrial form. ... The glam nature of a body stretched out in plain sight.⁷⁰

Channer describes herself as 'one of many authors' and her artistic process as underpinned by a 'horizontal authorship'.⁷¹ Similarly, Baremboym calls her work 'self-contained systems' or animate

67 For further research on the non-human within the trajectory of anthropological research, see Eduardo Kohn, *How Forests Think: Toward an Anthropology Beyond the Human* (Berkeley, California: University of California, 2013); Eduardo Viveiros de Castro, *Cannibal Metaphysics: For a Post-Structural Anthropology*, tr. and ed. Peter Skafish (Minneapolis, Minnesota: Univocal Publishing, 2014).

68 Alice Channer quoted in Eastside Projects, 'Alice Channer, Nicolas Deshayes: Production talk', *Eastside Projects* website (date unknown), <https://eastsideprojects.org/esp/events/production-talk-alice-channer-and-nicolas-deshayes/>, accessed 11 December 2024.

69 Boyd, 'Detouched', 6.

70 Boyd, 'Detouched', 11.

71 Alice Channer quoted in Archey, 'Post-materiality', 41.



19 | Alisa Baremboym, *UNIT 3: Homunculus: Matter Against Memory*, 2018; concrete canvas, ceramic, meal-worm-eaten polystyrene, vinyl, glass, perspex; 148.59 × 105.41 × 104.14 cm. Installation view and detail.

resources with a logic of their own.⁷² This becomes apparent not just in the gels that slowly seep into the porous ceramic pieces of her artwork but also in how their flesh tone gradually darkens as a result (see fig. 11). It also applies to the artist's co-authoring with living organisms.

Central to her piece *Unit 3: Homunculus: Matter Against Memory* (2018, fig. 19) are polystyrene balls. These have been carved by mealworms, which are naturally inclined to eat and digest Styrofoam. In this regard, Baremboym too might be seen as an author among many other authors. In these works, the human artist is understood to produce with and alongside other organisms, thereby reflecting the more significant transformations of the natural world that occur through artistic co-production.

Process, art, and ecology – then and now

With their evident interest in the relationships between process, art, and ecology, this young generation of sculptors echoes the intentions of the environmental art, land art, and earth art movements that originated in the 1960s and 1970s. In those movements, artists such as Robert Smithson, Robert Morris, and Hans Haacke used their interest in process and the material configurations of our world to examine the environment, space, and the relationships between subject and object. Indeed, Robert Smithson's writings of the late 1960s are

72 Alisa Baremboym, 'Why I create', *Phaidon* blog (19 December 2017), <https://www.phaidon.com/agenpda/art/articles/2017/december/19/alisa-baremboym-why-i-create/>, accessed 3 July 2019.

an important source of reference for Alice Channer. His scepticism towards progress, linear temporalities, exponential growth, and – above all – the notion of humanity as the centre and ruler of the world resonates with Channer and her peers' reflections and the underlying premise of the Anthropocene thesis itself.⁷³

In his essay 'The domain of the Great Bear', Smithson recounts a visit to the Hayden Planetarium. Here, he demonstrates his visionary artistic sensibility, as his expressions prefigure the debates around the aesthetics of the Anthropocene. In the final section, 'Illustrations of catastrophe and remote times', Smithson describes a scene of entropy:

The problem of the 'human figure' vanishes from these illustrated infinities and prehistoric cataclysms. Time is deranged. Oceans become puddles, monumental pillars of magma rise from the dark depths of a cracking world. Disasters of all kinds flood the mind at the speed of light. Anthropomorphic concerns are extinct in this vortex of disposable universes. A bewildered 'dinosaur' and displaced 'bears' are trapped in amazing time dislocations. 'Nature' is simulated and turned into 'hand-painted' photographs of the extreme past or future. Vast monuments of total annihilation are pictured over boundless abysses or seen from dizzying heights. This is a bad-boy's dream of obliteration, where galaxies are smashed like toys. Globes of 'anti-matter' collide with 'proto-matter', billions and billions of fragments speed into the deadly chasms of space. Destruction builds on destruction; forming sheets of burning ice, violet and green, it all falls off into infinite pools of dust. A landslide of diamonds plunges into a polar crevasse of boundless dimension. History no longer exists.⁷⁴

Visiting Smithson's *Spiral Jetty* (1970), one experiences the aesthetic values that lie at the heart of his earthworks. In its almost otherworldly monumentality, the work demonstrates how it may feel irrelevant to the passing of geological and cosmological time. It evokes an experience of what the planet would be like without us. 'The future is but the obsolete in reverse ... in the ultimate future the whole universe will burn out and be transformed into an all-encompassing sameness.'⁷⁵ Smithson concludes 'Entropy and the new monuments' by further emphasizing the human purposeless in the grand passing of time.

Situated both within and in stark contrast to the expansive mountainous backdrop surrounding the Aspen Art Museum, Channer's outdoor work *Rockfall* (fig. 20) intimates an encounter between landscape and viewer that resembles Smithson's exploration. In its radical horizontal orientation, the sculptural fixation on the human figure vanishes in this work. The human body is relocated in a dynamic nexus between time, space, and viewer. As curator Courtney Finn observes in the exhibition essay on *Rockfall*:

73 See in this context the essay by Sverker Sörlin, 'Uncovering the non-site: Robert Smithson on art, layers, and time', in Katrin Klingan, Ashkan Sepahvand, Christoph Rosol, and Bernd M. Scherer (eds.), *Textures of the Anthropocene: Grain, Vapor, Ray* (Cambridge, Massachusetts: MIT Press, 2015), 33; Etienne Turpin, 'Robert Smithson's abstract geology: Revisiting the premonitory politics of the Triassic', in Elizabeth Ellsworth, Jamie Kruse, and Reg Beatty (eds.), *Making the Geologic Now: Responses to Material Conditions of Contemporary Life* (New York: Punctum Books, 2013), 173–178.

74 Robert Smithson, 'The domain of the Great Bear', in Jack Flam (ed.), *Robert Smithson: The Collected Writings*, 2nd rev. edn (Berkeley, California: University of California Press, 1996), 33.

75 Robert Smithson, 'Entropy and the new monuments' in Flam (ed.), *Robert Smithson: The Collected Writings*, 11.



20 | Alice Channer, *Rockfall*, 2015; cast concrete, cast corten steel, cast aluminium; 55 × 305 × 1730 cm. Installation view, Aspen Art Museum, *Rockfall*, Aspen (USA), 2015.

Channer's layering of time – perhaps the work's most potent and poetic aspect – encompasses industrial time (the material and way in which the object is manufactured), post-industrial time (the 3D scanning and use of a digital platform to alter, crop, and shape the image), and present time: by our mere presence, we become acutely aware of our body in space and our manner of observation.⁷⁶

Channer's works embody and reveal their history of making. They display the various technological and human bodies involved in their production. While Smithson used the local materials found at the shore of the Great Salt Lake in Utah (basalt rock, salt crystals, earth, water), Channer's 'abstract geologies' emerged entirely from post-industrial processes (fig. 21). Having been made by human hands and machines, *Rockfall* embodies our destabilizing impact on natural forms. These objects are quite literal 'geologies of mankind', to use Crutzen's phrase.⁷⁷ The title of the work amplifies this observation by alluding to the increasing incidence of rockfall produced by the rapid melting of glaciers around Aspen, as Robert Morris famously noted in 'Some notes on the phenomenology of making: The search for the motivated', originally published in *Artforum* (1970):

76 Finn, 'Fast but slow', 3.

77 Crutzen, 'Geology of mankind', 23.

I believe there are 'forms' to be found within the activity of making as much as within the end products. These are forms of behaviour aimed at testing the limits and possibilities involved in that particular interaction between one's actions and the materials of the environment.⁷⁸

Considering Channer's piece at the Aspen Art Museum as a record of a rapid geological and environmental human-induced change, one could equally observe that there are forms to be found within the activity of 'un-making'. Indeed, we are all 'being overtaken by processes that are un-making the world that any of us ever knew', as Deborah Rose Bird has observed.⁷⁹ Most interestingly, during a residency at the Aspen Institute at Aspen, Morris's practice started to address the concept of process as outlined in his writings.⁸⁰ Here, Morris's artistic 'process experienced a turn away from a strictly subject-oriented understanding of action to begin instead to envision a material world of mutual energy exchange', as James Nisbet writes.⁸¹



21 | Alice Channer, *Rockfall*, 2015; cast concrete, cast corten steel, cast aluminium; 55 × 305 × 1730 cm; detail. Installation view, Aspen Art Museum, *Rockfall*, Aspen (USA), 2015.

78 Robert Morris, 'Some notes on the phenomenology of making: The search for the motivated', in *Continuous Project Altered Daily: The Writings of Robert Morris* (Cambridge, Massachusetts: MIT Press, 1993), 73.

79 Deborah Bird Rose, 'Anthropocene noir', *Arena Journal* 41/42 (2013), 216.

80 See James Nisbet, *Ecologies, Environments, Energy Systems in Art of the 1960s and 1970s* (Cambridge, Massachusetts: MIT Press, 2014), 132.

81 Nisbet, *Ecologies, Environments, Energy Systems in Art*, 131.

As early as 1968, the curator and art critic Jack Burnham assessed the implications of such a shift for the field of sculpture. Burnham trained and briefly worked as a sculptor before he turned his focus to exhibiting and theorizing on the works of his peer group. Moving, as the title of his book suggests, *Beyond Modern Sculpture*, Burnham argued for a shift from objects to systems – a systems aesthetics.⁸² Using Robert Morris and Robert Smithson alongside artists such as Hans Haacke, Les Levine, and Dennis Oppenheim as his examples, Burnham's landmark essay 'Systems esthetics' contended that artistic systems should act as prosthetic joints between artificial and natural environments, creating a circuitry of systems.⁸³ In Burnham's opinion, these artists' works signalled the socioscientific paradigm shift that visionary art had to respond to, namely the slow transition from an object-oriented to a systems-oriented culture. Burnham was thus one of the first thinkers to connect the idea of open, organic ecosystem models with cybernetic, technological ones. Burnham also diagnosed a shift from subject to object, thus tackling the question of the human being in light of these new emerging technological systems:

As the craftsman slowly withdraws his personal feelings from the constructed object, the object gradually gains its independence from its human maker, in time it sees a life of its own through self-reproduction.⁸⁴

The role of the artist would thus shift from '*homo faber*' as 'the maker of tools and images' to '*homo arbiter formae*' as the 'man of aesthetic decisions'.⁸⁵ Burnham demonstrated this new constellation in his exhibition *Software* (1969). Jasia Reichardt, the curator of the show *Cybernetic Serendipity*, which took place in London one year before *Software*, reached a similar conclusion: 'No visitor to the exhibition, unless he reads all the notes relating to all the works, will know whether he is looking at something made by an artist, engineer, mathematician or architect'.⁸⁶

Using Morris's and Smithson's works as case studies, Nisbet's study *Ecologies, Environments and Energy Systems in Art of the 1960s and 1970s* shows how previously 'compartmentalized' artistic practices share both a focus on 'process' and a position as important precursors of the conceptualization of the human at the heart the Anthropocenic debate.⁸⁷ For

82 This was, of course, not an entirely new observation. As early as the 1940s, refugees of European origin in the US, such as architect Siegfried Giedion, artist László Moholy-Nagy, and art historian Alexander Dörner, had already started to write about an emerging reality and subjectivity based on interaction, organisms, and systems; see Christoph Asendorf, 'Die Künste im technischen Zeitalter und das utopische Potential der Kybernetik' [The arts in the age of technology, and the utopian potential of cybernetics], in Michael Hagner and Erich Hörl (eds.), in *Die Transformation des Humanen: Beiträge zur Kulturgeschichte der Kybernetik* [The transformation of the human: Contributions to the cultural history of cybernetics] (Frankfurt am Main: Suhrkamp Verlag, 2008), 109.

83 Jack Burnham, 'Systems esthetics', *Artforum* 7, no. 1 (September 1968), 31.

84 Burnham, *Beyond Modern Sculpture*, 368.

85 Burnham, 'Systems esthetics', 35.

86 Jasia Reichardt, *Cybernetic Serendipity: The Computer and the Arts* (London: Studio International, 1968), 5.

87 According to Nisbet, artistic objects of the late 1960s have too often been divided among '(i) work that turned against static objects in favour of working environmentally ("land art"), (ii) work that reject-

Robert Morris, 'the question of sculptural composition had to be freed from the dominance of the artist as a singular subject-producer. In [Robert] Barry's work, the materiality of his production had to be let loose from the confines of the singular, static object. And [Dennis] Oppenheim had to reconceptualize his body as no longer the singular producer of external artistic objects but itself the "producer-product"; Nisbet writes.⁸⁸ His study implies that the artistic approaches to the process of the late 1960s and early 1970s strongly resonated with the observations made by Félix Guattari and Gilles Deleuze in *Anti-Oedipus: Capitalism and Schizophrenia*, first published in 1972.⁸⁹ These, in turn, also inspire the younger generation of sculptors discussed in this chapter.

The principal goal of *Anti-Oedipus* is to generate a method of critical analysis that the thinkers call 'materialist psychiatry' or 'schizoanalysis'.⁹⁰ This approach arises in 'a theoretical rapprochement between psychoanalysis and Marxism'.⁹¹ Interestingly, it is a work of art – namely George Büchner's novella fragment on the writer Jakob Michael Reinhold Lenz – that opens *Anti-Oedipus* to set the scene for a more philosophical outline of their project. A close friend of Wolfgang Goethe, Lenz suffered from a mental disorder and was therefore sent to Friedrich Oberlin's vicarage in the Steintal. Büchner's book begins with Lenz's journey on foot through the Vosges mountains to the vicarage. In his schizophrenic episodes, Lenz perceives in the natural elements the profound presence of a vital force.⁹² For Deleuze and Guattari, Büchner's account testifies to Lenz's altered state of mind. He not only perceives the earth, the wind, and the water as infused with a vital force, but he also manifests a longing to be part of this alternate order. In this desire, Lenz 'has projected himself back to a time before the man–nature dichotomy, before all the coordinates based on this fundamental dichotomy have been laid down'.⁹³ He becomes an example for their 'schizo-subject', whose ego is evacuated from the position in the centre of their sense of subject-hood. Lenz, as the two argue, 'does not live nature as nature but as production processes. There is no such thing as either man or nature now, only a process that produces the one within the other

ed the regularity—whether geometric and/or serial—of minimalist sculpture in place of soft or openly organic forms ("postminimalism"), or (iii) work that cast off object orientation entirely ("conceptual art").' Nisbet shows how artists moved away from formal-aesthetic forms towards the interrogation of ecological structures—that is to say, the relations of organisms to one another and to their physical surroundings, see Nisbet, *Ecologies, Environments, Energy Systems in Art*, 131.

88 Nisbet, *Ecologies, Environments, Energy Systems in Art*, 176.

89 See Nisbet, *Ecologies, Environments, Energy Systems in Art*, 175.

90 Gilles Deleuze and Felix Guattari, *Anti-Oedipus: Capitalism and Schizophrenia*, tr. Robert Hurley, Mark Seem, and Helen R. Lane (Minneapolis, Minnesota: University of Minnesota Press, 1983), 273 onwards.

91 Ian Buchanan, *Deleuze and Guattari's Anti-Oedipus: A Reader's Guide* (London: Continuum, 2008), 39.

92 'He thought that it must be a feeling of endless bliss to be in contact with the profound life of every form, to have a soul for rocks, metals, water, and plants, to take into himself, as in a dream, every element of nature, like flowers that breathe with the waxing and waning of the moon. To be a chlorophyll- or a photosynthesis-machine, or at least slip his body into such machines as one part among the others.' Georg Büchner, *Complete Plays, Lenz and Other Writings*, tr. John Reddick (London: Penguin, 1993), 141, quoted in Deleuze and Guattari, *Anti-Oedipus*, 2.

93 Deleuze and Guattari, *Anti-Oedipus*, 2.

and couples the machines together.⁹⁴ The notion of the machine thereby designates 'the differential interactions of forces and processes of individuation that underlie, connect, and structure all entities, whether mineral, animal or machine.'⁹⁵ In other words, the schizo-subject undergoes a process in which they no longer perceive themselves as an organism. It is such a profound shift in perspective that Deleuze and Guattari call it making oneself a 'body without organs.'⁹⁶ The experience achieved by Lenz is, in Büchner's words, one of 'dissolving into a single harmonious wave.'⁹⁷ The subject becomes a '*homo natura*' to the extent that he or she feels unified with the production of nature whose conception encompasses both the animate and the inanimate, the artificial and the natural.⁹⁸ It is from within such constellation that Deleuze and Guattari define two notions of production that link bodies, machines, nature, industry, and energy across fields of distribution and consumption:

Everything is production, since the recording processes are immediately consumed, immediately consummated, and these consumptions directly reproduced. This is the first meaning of process as we use the term: incorporating recording and consumption within production itself, thus making them the productions of one and the same process. Second, we make no distinction between man and nature: the human essence of nature and the natural essence of man become one within nature in the form of production or industry, just as they do within the life of man as a species. Industry is then no longer considered from the extrinsic point of view of utility, but rather from the point of view of its fundamental identity with nature as production of man and by man. Not man as the king of creation, but rather as the being who is in intimate contact with the profound life of all forms or all types of beings, who is responsible for even the stars and animal life.... This is the second meaning of process as we use the term: man and nature are not like two opposite terms confronting each other – not even in the sense of bipolar opposites within a relationship of causation, ideation, or expression (cause and effect, subject and object, etc.); rather, they are one and the same essential reality, the producer-product.⁹⁹

The understanding of process firmly informed the environmental artists working in the 1970s. It is also an important reference point for Channer and her peers' renewed interest in questioning the artists' privileged role in their works' production cycles. While their works' aesthetic properties display a concern with representations of bodies of human, animal, or mineral natures, the artists also display an interest in how such bodies are embedded and made up of the specific processes and networks of our time. As representation and production, their works thus trace how a human–technological interaction has shifted towards a blurring of the boundaries between human and non-human worlds.

94 Deleuze and Guattari, *Anti-Oedipus*, 2.

95 Ella Brians, 'The "virtual" body and the strange persistence of the flesh: Deleuze, cyberspace and the posthuman', in Joe Hughes and Laura Guillaume (eds.), *Deleuze and the Body* (Edinburgh: Edinburgh University Press, 2011), 131.

96 Deleuze and Guattari, *Anti-Oedipus*, 9.

97 Büchner, *Complete Plays*, 146, quoted in Deleuze and Guattari, *Anti-Oedipus*, 2.

98 Gilles Deleuze and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia*, tr. Brian Massumi (London: Athlone, 1988), 254, 311.

99 Deleuze and Guattari, *Anti-Oedipus*, 4–5.

Contemporary sculpture and new materialism

Channer and her peers' reflections are consistent: framed and theoretically accompanied by contemporary philosophy, particularly positions informed by new materialist thought. In dialogue with current philosophical debates, the works aesthetically approach a state where the human subject loses its anthropocentric position. Their works create sensibilities for different forms of corporeality and being in the world. Referring to new materialist thinkers, the artists translate theoretical considerations into aesthetic experiences without, however, producing mere illustrations of philosophical theory. It is useful, therefore, to look more closely at discourses of new materialism and situate the artworks within them. This will allow us to trace intersecting observations on material agency as well as overlapping figures of corporeal delimitations in art and philosophy.

Building on Deleuze and Guattari, among others, philosophers such as Rosi Braidotti, Jane Bennett, and Diana Coole understand the body as an assemblage composed of human and non-human actors. In N. Katherine Hayles's words, the body becomes 'an amalgam, a collection of heterogeneous components, a material-informational entity whose boundaries undergo continuous construction and reconstruction'.¹⁰⁰ Interested in the 'material agency of natural bodies and technological artefacts', the philosopher Jane Bennett, for example, finds in sculptures like Channer's a 'thing-power' which makes them beings unto themselves.¹⁰¹ In these philosophers' feminist writings, there is no absolute distinction between form and matter, between self and other, inside and outside, natural and unnatural, human and machine, or mineral and animal. In contrast to the body as either a subjugating colonial force or a passive object of knowledge and possession, the body in new materialist thought is considered subject to constant change. It is thus the antithesis of the white male or vertical body that links to specific and historical forms of violence. This vertical body not only strongly reverberates in the history of Western sculpture into modern times but also informs the concept of the *anthropos* at the centre of the Anthropocene debates. Rightly, feminist theorists renunciate the term Anthropocene by asking the crucial question of who qualifies as *anthropos* in these debates: 'All of *Homo sapiens*? All of mankind? Well, *who exactly*?'¹⁰² Against the background of such discussion, the figure of the *anthropos* in Crutzen's Anthropocene debates becomes itself 'a species term'.¹⁰³ This implies a dangerous anthropocentrism and appears counterproductive in understanding how material bodies affect and are affected by each other.¹⁰⁴

100 N. Katherine Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics* (Chicago, Illinois: University of Chicago Press, 1999), 3.

101 Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham, North Carolina: Duke University Press Books, 2010), xii.

102 Haraway, 'Anthropocene, Capitalocene, Chthulhocene', 259.

103 Haraway, 'Anthropocene, Capitalocene, Chthulhocene', 259.

104 For an overview of the different strains of critique surrounding the Anthropocene discourse, see Andreas Malm and Alf Hornborg, 'The geology of mankind? A critique of the Anthropocene narrative', *The Anthropocene Review* 1, no. 1 (1 April 2014), 62–69, doi: 10.1177/2053019613516291; Clive Hamilton, 'The Anthropocene as rupture', *The Anthropocene Review* 3, no. 2 (1 August 2016), 93–106, doi: 10.1177/2053019616634741; Stacy Alaimo, 'Elemental love in the Anthropocene', in Jeffrey Jerome Co-

Informed by such thinkers, the sculptural works of Channer and her contemporaries examined here decentre the human subject as the prevalent artistic form and agent. They thus approach and translate theoretical consideration into an aesthetic experience. These feminist philosophical positions strongly resonate with Deleuze and Guattari's reflections – those same reflections that also inspired Channer's and her peers' artistic precursors of the 1960s and 1970s. Starting with *Difference and Repetition*, Deleuze proposes a fundamental re-evaluation of the Western philosophical canon that had placed the liberal human subject and its dualistic subjectivity at its centre. In contrast, he proposes a 'theory of forces that are differentiated by varying degrees of intensity. These differences in intensity produce more differentiations in an exponential process that finally produces entities that we recognize as discrete objects, individuals and eventually subjects.'¹⁰⁵ To become an individual, one has to undergo a series of differentiations. One's ontological status is, therefore, not one of 'being' but of 'becoming.'¹⁰⁶ Following Simondon, Deleuze and Guattari argue for a '*spermatikos logos*' (the generative principle of Stoicism), a principle of organization immanent to matter.¹⁰⁷ Rejecting Aristotelian hylomorphism, this single material reality contains within itself immanent processes. Here, as Manuel de Landa argues, 'raw matter-energy, through a variety of self-organizing processes and an intense, immanent power of morphogenesis, generates all the structures that surround us.'¹⁰⁸ This morphogenetic process 'not only blurs the between the natural and the artificial but also that between the living and the inert'.¹⁰⁹

From such a perspective, 'Deleuze argues for a new understanding of subjectivity as a process, a "doing", that is at once creative and critical.'¹¹⁰ Subsequently, his student Rosi Braidotti introduces 'nomadism' as a transdisciplinary, polyglot style of thought involving 'an acute awareness of the non-fixity of boundaries' and 'the intense desire to go on trespassing, transgressing'.¹¹¹ The conceptual foundation of Braidotti's critical post-humanism revolves

hen and Lowell Duckert (eds.), *Elemental Ecocriticism: Thinking with Earth, Air, Water, and Fire* (Minneapolis, Minnesota: University of Minnesota Press, 2015), 298–309.

105 Deleuze quoted in Brians, 'The "virtual" body and the strange persistence of the flesh', 132.

106 See Deleuze and Guattari, *A Thousand Plateaus*, 408. Gilbert Simondon is an essential source of reference for Deleuze. Simondon fundamentally calls the ontological privilege assigned to fully-formed individuals into question, instead conceptualizing the individual from the point of view of the processes that produce individuals. He calls such a process ontogenesis 'because any process, and any relation with in a process, is an individuation that doubles the pre-individual being, pushing it out of step with itself, all the while correlating the extreme values and orders of magnitude without the refinements of mediation'. See Gilbert Simondon, 'The genesis of the individual', in Jonathan Crary and Sanford Kwinter (eds.), *Incorporations* (New York: Zone Books, 1992), 302. The text is a translation of the introduction to Gilles Deleuze's *L'individu et sa genèse physico-biologique* [The individual and his physico-biological genesis] (Paris: PUF, 1964).

107 Deleuze and Guattari, *A Thousand Plateaus*, 165.

108 Manuel de Landa, 'Immanence and transcendence in the genesis of form', in Ian Buchanan (ed.), *A Deleuzian Century?* (Durham, North Carolina: Duke University Press, 1999), 129–130.

109 de Landa, 'Immanence and transcendence', 129.

110 Brians, 'The "Virtual" body and the strange persistence of the flesh', 132.

111 Rosi Braidotti, *Nomadic Subjects: Embodiment and Sexual Difference in Contemporary Feminist Theory* (New York, New York: Columbia University Press, 2011), 37.

around the monistic philosophical universe of Baruch Spinoza, who posits the unity of all matter.¹¹² Monism shifts the difference away from a dialectical schema that perceives matter, world, and human beings as entities into a complex process based on their relationships to diverse others and structured around internal and external forces.¹¹³ In this post-human perspective, the living 'matter' appears as a process ontology which interacts in manifold ways with its social, natural, and psychological surroundings, producing multiple ecologies. Inspired by Spinozian thought, Braidotti postulates a transversal, embodied structure of the post-human subject as a composite being made of human, non-organic, mechanistic, and other elements: a technologically mediated 'human animal'.¹¹⁴ For Braidotti, identity is serial and involves different styles of beings. She aligns her project with her mentor's when she writes that 'the body [for Deleuze] is not an essence, let alone a biological substance; it is a play of forces, a surface of intensities; pure simulacra without originals.'¹¹⁵ Unifying these thinkers is the proposition that the body is more than its biological parts or fleshy boundaries. By opening 'the body beyond its limits of the flesh, to include its social and cultural codings, they displace the body from what we traditionally think of as the "material" realm, that of biology, while precisely insisting on its materiality'.¹¹⁶ New materialist ontology does not distinguish between the human and the non-human, materialism and idealism, or subject and object; instead, it sees them as irresolvably entwined. Despite having different and sometimes divergent conceptual approaches, new materialism strongly relates to historical critiques of the liberal humanist subject and its sovereign position in our world.¹¹⁷

The parallels with Channer, Baremboym, Bonneviot, Rosenkranz, and Humeau's hybridizing, shape-shifting forms are easy to trace. They do not act as mere embellishments to philosophical thoughts, however, but rather create an epistemological surplus that, in turn, allows us to revisit philosophical reflections through embodied and aesthetic experiences. Considering the works' post-industrial and digitalized surroundings, corporeality emerges from the interplay of surfaces and aggregations and, at times, the exteriorization of all interiority. As such, the body is not only a contingent product of evolution but is always a porous entity. This association is amplified by the titles of their works, such as Channer's *Cold Metal Body* (2012; fig. 22), Rosenkranz's *Our Product* (fig. 9), or Baremboym's *UNIT 2: Thyroid: Growth & Development* (fig. 12). The resemblance to a living circulatory system coalesces with a truly inanimate

112 Rosi Braidotti, 'Jenseits des Menschen: Posthumanismus' [Beyond the human being: Posthumanism], *Bundeszentrale für politische Bildung* [German Federal Agency for Civic Education] website (9 September 2016), <https://www.bpb.de/apuz/233470/jenseits-des-menschen-posthumanismus?p=all>, accessed 11 December 2024.

113 For a more detailed elaboration on monism, see Braidotti, 'Jenseits des Menschen' [Beyond the human being] and Rosi Braidotti, *The Posthuman* (Cambridge: Polity, 2013).

114 See Braidotti, *The Posthuman*, 69–75.

115 Braidotti, *Nomadic Subjects*, 112.

116 Brians, 'The "virtual" body and the strange persistence of the flesh', 134.

117 Diana Coole, 'From within the midst of things: new sensibility, new alchemy and the renewal of critical theory', in Christoph Cox, Jenny Jaskey, and Suhail Malik (eds.), *Realism Materialism Art* (Berlin: Sternberg Press, 2015), 43.



22 | Alice Channer, *Cold Metal Body*, 2012; digital print on heavy crêpe de Chine, machined, hand-carved and polished marble, chrome bar, steel cables; 1000 × 134 × 144 cm. Installation view, South London Gallery, *Out of Body*, London, 2012.

and dead dramaturgy. The aesthetic properties of the works focus on diverse representations of both human and non-human bodies while equally exploring the ways in which these bodies are embedded within the specific digitally driven processes and networks of our time. The artists' material-based interrogations thus depart visually and conceptually from the realm of the personal and biographic, matching a shifting focus away from the human as form and agent. These works describe an authorship 'by many different beings,' only one of which is the artist herself.¹¹⁸ Their sculptural compositions convey an idea of corporeality, materiality and agency found in process, in metamorphosis or flux. As Diana Coole highlights, 'a key feature of the new materialism is its insistence on the recalcitrance and vitality of matter and thus its role in constraining and engendering the way it is understood and handled.'¹¹⁹ Coole, therefore, rightly observes that today 'many artists and designers are returning to matter to explore immanent, elusive, and reclusive, properties of materials.'¹²⁰ In accordance with such reflections, in the works of Channer, Baremboym, and their colleagues, materiality is not inert, passive, or dead. Rather, it is understood to be vivid, vibrant, and dynamic. It is active and self-creative. Matter *matters*. This approach is again profoundly tied to Guattari and Deleuze's idea of the 'immanent power of corporeality in all matter, and on the esprit de corps accompanying it.'¹²¹ Besides Deleuze, an influential forerunner of this thinking is Bruno Latour. Through his scholarly investigations into the practice of science, he demonstrates that the reality of the world consists almost entirely of hybridity. This makes it impossible to disaggregate that which is human or non-human.¹²² Latour takes the concept of agency, once sacralized as essential for defining properties of persons, and applies it to the non-human world. Thus, he proves that material forms such as microbes or machines have consequences for people that are autonomous from human agency.¹²³ Following this thread of the Latourian notion of the actor, 'the "I" of more recent new materialism theories is no longer the sovereign human subject,' but is conceived of as a 'situated' or 'material-semiotic actor.'¹²⁴

By studying recent sculptural approaches, one can show how these debates on agency and the aliveness of matter coincide with a decentring of the artist's privileged role in the works' production cycles. It is in the overlapping fields of Anthropocene debates, materialist ontology, and sculptural discourse that a concept of a more-than-just-human corporeality, along with a decentralized notion of critical-creative 'agency' and 'aliveness,' is developed. The works of this group of artists thus create sensitivity to different forms of corporeality, to beings in the world that also embody the deathly symptoms of an epoch characterized by

118 Alice Channer, quoted in Eastside Projects, 'Alice Channer, Nicolas Deshayes'.

119 Coole, 'From within the midst of things,' 41.

120 Coole, 'From within the midst of things,' 41.

121 Deleuze and Guattari, *A Thousand Plateaus*, 411.

122 Bruno Latour, *Politics of Nature: How to Bring the Sciences into Democracy* (Cambridge, Massachusetts: Harvard University Press, 2004).

123 Examples are a crashing computer that prevents us from submitting a document in time, an illness that kills us, or a plant that refuses to grow the way we mean it to.

124 Barbara Bolt, 'Introduction: Toward a new materialism through the arts,' in Barbara Bolt and Estelle Barrett (eds.), *Carnal Knowledge: Towards a 'New Materialism' Through the Arts* (London: I.B. Tauris, 2012), 3.

humanity's effect on the Earth's atmosphere, surface, and biological forms. Their works speak of an entwining of technologies, materials, and bodies with the landscapes of the Earth. As such, the art produced in the Anthropocene can also be read 'as a call to re-imagine the human [and his/her position] through biology[,] ... geology'; and a rigorous focus on process.¹²⁵

Alongside their depiction of the human form as entwined with objects of artificial and natural origin, the artists' reflections on their working processes also destabilize any false binaries that position the human in opposition to nature or the producer in opposition to the product. Conceptually and aesthetically removing any separation between the interior human organism and its exterior mechanized world, these works strongly allude to a long sculptural trajectory. After establishing important contemporary frames of reference for Channer's and her peer group's works, the next chapter links their transformative notion of corporeality to their art-historical precursors. This may appear as a striking antithesis after having emphasized their contemporaneity. However, as the following analysis reveals, considering Channer's and her peers' sculptures on a diachronic axis leading into the past will allow us to refine their contemporary understanding and representation of corporeality further.

1.3 Corporeality after eccentric abstractions and cyborgian productions

In their sculptures, Channer and her colleagues conceptualize the body in metamorphoses suspended between human and non-human worlds. If a previous generation of sculptors adhered to the slogan 'the personal is political,' one could argue, in light of current debates, that for this generation of artists, 'the outsourced is political.' Their fragmented, liquified, or fictionalized bodies thereby mirror their inter-reference with ecological systems that now hang on the brink of deep transformation. In all these works, corporeality is delineated by materials both organic and inorganic, industrially produced and handcrafted. Such strange fluidity between mechanics and organics, interior and exterior, or physical and digital complicates the notion of the body and uncouples it from the primacy of humanness. As such, in the bodies by Channer, Baremboym, Bonneviot, and Rosenkranz, material agglomerations and manufacturing processes suggest a proximity to artistic concepts that emerged from the techno-infused artistic experiments and notions of the post-human. These developed in the 1980s and 1990s, with important precursors in 'eccentric abstraction,' 'anti-form' and 'abjection' concepts from the mid-1960s. The chapter places the approaches used by Channer and her colleagues within an artistic and art-historical trajectory that fundamentally links to a transgressive notion of corporeality and materiality. This examination will aid the reader in understanding the discursive transformations in contemporary sculpture's approach to materials and representations of bodies. Specifically, it elucidates how these changes are linked to the all-encompassing impact of digitally driven sculptural processes.

125 Davis and Turpin, 'Art and death', 6.

Post-human bodies

While the previous chapter discussed Channer's work within the framework of Rosi Braidotti's critical post-humanism, this section builds upon earlier reflections by delving into the writings of Octavia Butler, Donna Haraway, and N. Katherine Hayles. Their work on post-human and cyborgian bodies profoundly influenced Braidotti, Channer, and her peers. For example, the artist Alisa Baremboym, based in New York, remarks about her sculptures:

There is no longer a line between organic composition and appendage ... the appendages exist somewhere between hardware and software, fully integrated and functioning along with us.¹²⁶

Baremboym's installations are understood as abstractions of a body 'with ominous tones of simultaneous extension and preservation, as well as potentially overextended physicality of abnormalities.'¹²⁷ We encounter the interplay between synthetic and organic materiality, between the appendage and the organic composition, and between the body and its prosthesis as a recurring thread throughout the artist's work. Baremboym links the sci-fi look of her works to her experience of growing up in the Soviet Union in the 1980s, which was deeply shaped by 1970s futurism. 'The last thing I remember from before we left was a children's live-action series called *Guest from the Future*. The main character, who was named Alisa like me, was a Soviet pioneer schoolgirl with special powers, and aliens were after her. When I came to America, in 1990, the first movie I saw on TV was David Cronenberg's *The Fly*. I was seven years old. This, too, put a stamp on my visual construction of reality,' she notes in an interview.¹²⁸

The fascination and interest in transgressive corporeality also manifest when Channer speaks about a deliberate confusion of animate and inanimate matter, which she closely relates to the disembodied and omnipresent experience of digital technologies, cyberspace, and the internet during her childhood in the 1990s.¹²⁹ The bodily condition made manifest in Channer's object-making is also a fixture of science fiction literature including that of William Gibson and Octavia Butler.¹³⁰ With exceptional imagination, Butler writes her characters beyond normative Western discourses. By imagining the protagonists of her stories beyond gender, race, and sexual orientation, she encourages the readers of her fiction to rethink the body and the self. Like Butler's lead characters, Channer's figurations mutate between human, plant, and animal worlds, constantly morphing depending on circumstance and necessity. In Butler's works, it is always the hybridized nature of the body that allows it to become valuable. Disrupting binary intellectual patterns of thought, Butler playfully engages

126 Alisa Baremboym quoted in Katrib, 'Hyper-materiality'.

127 Alisa Baremboym quoted in Katrib, 'Hyper-materiality'.

128 Amy, 'Double-takes', 48.

129 Alice Channer, 'Conversation', in Margot Heller (ed.), *Breathing: Alice Channer* (London: South London Gallery, 2012), 47 onwards, exhibition catalogue.

130 As a woman of colour, Butler is largely absent from the traditional canon of the science fiction genre. See Gregory Jerome Hampton, *Changing Bodies in the Fiction of Octavia Butler: Slaves, Aliens, and Vampires* (Lanham, Maryland: Lexington Books, 2010), xii.

with a volatile space that addresses the oppression of marginalized bodies. Channer's work parallels Butler's feminist point of view of the transformative possibilities of the body. Donna Haraway reminds us in her ground-breaking 'Cyborg manifesto', first published in 1985 and still today often set reading for art students, that:

Late twentieth-century machines have made thoroughly ambiguous the difference between natural and artificial, mind and body, self-developing and externally designed, and many other distinctions that used to apply to organisms and machines. Our machines are disturbingly lively, and we ourselves frighteningly inert.¹³¹

For Haraway, the changes brought about by mechanization make us, in many respects, already cyborgs – through our reproductive technologies, our psychopharmacologies, and our mechanical and computational prostheses. In the opening pages of the 'Cyborg manifesto', Haraway argues: 'A cyborg is a cybernetic organism, a hybrid of machine and organism, a creature of social reality as well as a creature of fiction.'¹³² Playfully, ironically, and imaginatively, her cyborg is also considered through gender and racial lenses. It moves between biases via three crucial boundary breakdowns: between human and animal, organism and machine, and the physical and the non-physical. This transgressiveness, of course, also links back to overcoming the strong male/female split in cybernetic debates, where machine and artificial-technological images align with the masculine, while Mother Earth and nature are associated with the feminine. However, Haraway contrasts her notion of the cyborg with that of Norbert Wiener, who had de-essentialized the human subject in favour of the system from a distinct gendered, male perspective.¹³³ The cyborg fundamentally challenges the fixed notion of the human with any racial or gendered nature. It is a way out.

Along similar lines, Hayles's notion of the cyborg proposes an alternative perspective on the long artistic trajectory that has centered on the often eroticized and technologized body, a history dominated by the visions of Western men.¹³⁴ Harald Szeemann's exhibition *Junggesellenmaschinen* (1976), inspired by Michel Carrouges's book of the same name *Les Machines célibataires* (1954), offers a figuration of such male-centric genealogy of the machines.¹³⁵ Ex-

131 Donna Haraway, 'A cyborg manifesto: Science, technology and socialist-feminism in the late twentieth century' in Donna Haraway (ed.), *Manifestly Haraway* (Minneapolis, Minnesota: University of Minnesota Press, 2016), 11.

132 Haraway, 'A cyborg manifesto', 5.

133 Wiener's notion of cybernetics rested on the idea of two contrasting male figures. The 'Manichean devil', who is 'determined on victory and will use any trick of craftiness or dissimulation to obtain this victory'; and the 'Augustinian devil'. According to Wiener, 'the Augustinian devil is stupid'; he is associated with nature and is the Lord's 'humble servant'. He is characterized by evil but does 'not bluff' as he cannot outwit us by changing the rules. See Norbert Wiener, *The Human Use of Human Beings: Cybernetics and Society* (London: Eyre & Spottiswoode, 1950), 35.

134 For an overview of the genealogy of the man-machine discourse in art see, for example, Massimiliano Gioni and Gary Carrion-Murayari (eds.), *Ghosts in the Machine* (New York: Skira Rizzoli, 2012), exhibition catalogue; Karl G. Pontus Hultén, *The Machine, as Seen at the End of the Mechanical Age* (New York: Museum of Modern Art, 1968), exhibition catalogue.

135 See Harald Szeemann and Jean Clair (eds.), *Junggesellenmaschinen/Les Machines célibataires* [Bach-

hibited subjects included Prometheus, the mythical hero of technology artificially created by man; Alfred Jarry's bicycle; the electric chair in *Surmâle*; Kafka's printing machine; Mary Shelley's *Frankenstein* (the only reference to a female writer); Dorz's automats; Tinguely's painting machines; Villiers de L'Isle-Adam's android; Fritz Lang's (1926) female robot protagonist of *Metropolis*; and Duchamp's *Large Glass* (1915–1923). Szeemann's show visualizes what Carrouges reads as the myth of *Junggesellenmaschinen*, wherein the anthropomorphizing of machines throughout the centuries is understood as erotically charging symbols with self-referential desire.¹³⁶ The image of the bachelor who refuses to procreate – as is the topic of Duchamp's *Large Glass* – becomes a form of rebellion. In Szeemann's exhibition, this is countered with the image of pure machinic functioning. The chauvinistic implications of such concepts are evident in the absence of female voices in Carrouges's book and Szeemann's show. In terms of both artistic and theoretical contributions, their projects mainly consider male perspectives and male frames of reference. This flawed perspective was notably manifested through a misstep, wherein Meret Oppenheim's contribution to Szeemann's exhibition, her *Würgeengel* (1931), was displayed within the *femme fatale* section. In correspondence with the curators, she asserted that her work bore no relevance to this particular theme.¹³⁷ Misinterpreted by Szeemann, Oppenheim's work and its (dis)placement become emblematic of an archaic, male-centric understanding of the machine body that has dominated Western art history. Within such an understanding, female perspectives on machines can only ever appear as threats to manhood, or, in Szeemann's words, as *femmes fatales*.

In stark contrast, feminist thinkers such as Butler, Haraway, and Hayles have developed concepts that rethink the human–machine encounter – not as omnipotent, gendered, or bacheloresque, but as partial and unfixed. Haraway's notion of the cyborg

is resolutely committed to partiality, irony, intimacy, and perversity. It is oppositional, utopian, and completely without innocence. ... Nature and culture are reworked; the one can no longer be the resource for appropriation or incorporation by the other. The relationships for forming wholes from parts, including those of polarity and hierarchical domination, are at issue in the cyborg world.¹³⁸

Following such critical thinkers, Channer and her peers establish non-hierarchical links between the analogue and the digital, the handmade and the machine-guided, the synthetic and the organic. Separated from an eroticizing male gaze, their material conglomerates outdistance a commonly clear-cut division between the representation of a body and its passive, malleable surroundings. In Channer's works, human limbs metamorphose into animal claws or the bodies of snakes via digitally driven industrial processes. In Baremboym's

elor machines] (Venice: Alfieri, 1975), exhibition catalogue; Michel Carrouges, *Les Machines célibataires* [Bachelor machines] (Paris: Chêne, 1976).

136 See Carrouges, *Les Machines célibataires* [Bachelor machines], 5 onwards.

137 See Meret Oppenheim, 'Brief von Meret Oppenheim an Harald Szeeman' [Letter from Meret Oppenheim to Harald Szeeman], in Hans U. Reck and Harald Szeemann (eds.), *Junggesellenmaschinen* [Bachelor machines] (Vienna: Springer, 1999), 43.

138 Haraway, 'A cyborg manifesto', 9.

sculptures, organic materials such as clay take on the features of synthetic industrial forms. Rosenkranz presents human skin as an industrially produced and artificial fluid. Humeau's technoid installation is reminiscent of a glimpse into the interiors of a non-human organism, a circulatory system without clearly defined boundaries.

Aesthetically and conceptually, Channer and her peer group intend to evoke bodily experiences that decentre the human subject as the locus of the sculptural act and experience. Their works are as much about a changing representation of the body as about embodiment itself. 'In contrast to the body,' Hayles writes, 'embodiment is contextual, enmeshed within the specifics of place, time, physiology, and culture, which together compose enactment. Embodiment never coincides exactly with "the body", however that normalized concept is understood. Whereas the body is an idealized form that gestures toward a Platonic reality, embodiment is the specific instantiation generated from the noise of difference. Relative to the body, embodiment is other and elsewhere, at once excessive and deficient in its infinite variations, particularities, and abnormalities.'¹³⁹ Embodiment is thus always situated within a spatiotemporal matrix of a cultural practice. Such understanding of embodiment becomes evident in an interview with Channer about her work *Rockfall*:

When people talked about *Rockfall* being an installation, I would talk about the bees, that demonstrate a different way of being, or a different way of a living organism being in the world. [Apparently, there is no expert consensus about whether the individual bee or the entire beehive should be considered a single organism.] What if an encounter with a sculpture could bring us closer to this, physically? This is my hope, that a sculpture could suggest to you, an embodied being walking around it, an alternative state, a way to change, a different way of being.¹⁴⁰

Channer's works are aimed at making corporeality experienceable as an assemblage that is undergoing constant transformation. The works are post-human in that they aim to evoke bodily experiences that decentre their spectators away from a vertical and dominant position. The post-human bodies in her works are like Haraway's cyborg: not confined to one gender, one sexuality, one race, one subjectivity. This embodied understanding of corporeality distinctly counters the archaic and masculine dream of the body as the measure of all man, or its recreation as a technically perfected or enhanced appendage of the machine. Post-human 'does not really mean the end of humanity. It signals instead of the end of a certain conception of the human, a conception that may have applied, at best, to that fraction of humanity who had the wealth, power, and leisure to conceptualize themselves as autonomous beings exercising their will through individual agency and choice.'¹⁴¹

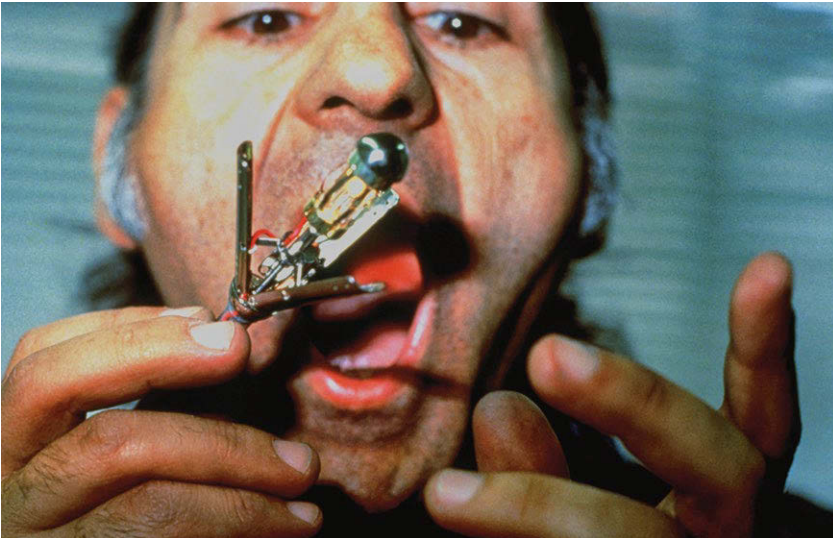
Trans-human visions

Channer and her peers are content neither with apocalyptic imaginations nor with the optimistic narratives of trans- or pan-humanism shifting the body towards its omnipotent fu-

139 Hayles, *How We Became Posthuman*, 196–197.

140 McLaughlin, 'Alice Channer'.

141 Hayles, *How We Became Posthuman*, 286.



23 | Stelarc, *Stomach Sculpture*, 1993. Fifth Australian Sculpture Triennale, NGV, Melbourne (AU).



24 | Stelarc, *Third Hand*, 1980; Tokyo, Yokohama, Nagoya.

ture. This aesthetic-conceptual discontent distinguishes their works from a type of post-human or trans-human art that thrived in the 1990s. Two consecutive issues of the German *Kunstforum*, titled *The Future of the Body* and published in 1996, provide a comprehensive overview of how the post-human body was portrayed in visual art during that period. Taking the then-emerging concept of 'cyberspace' as their starting point, the diverse contributions were organized around two thematic horizons. The first issue explored the ways artists devised and conceptualized the interfaces and thresholds between the human body and cyberspace. The second issue focused on the technological body, robots, and cyborgs.

The contributions in the *Kunstforum International* issues departed from the observation that contemporary science and biotechnologies would affect the fibre and structure of life and alter our understanding of the human body. The publication revolved around New Media artists such as Stelarc (born 1946 in Limassol, Cyprus), Lynn Herschman Leeson, Jeffrey Shaw (born 1944 in Melbourne, Australia), and Stahl Stenslie (born 1965 in Oslo, Norway). Contributions of scientists, philosophers, art historians, writers, and theorists flanked their accounts, oscillating between a euphoric fascination with the promise of overcoming our fleshly being and an affirmation of the human body expressed in explorations of the performative and interactive body. The speculative representations of the interface between humans and machines established the tone of the volumes, delving into the portrayal of cyborgs and the wired, enhanced bodies. Here, the body would become an object – not an object of desire, but of design.¹⁴²

142 See Stelarc, 'Von Psycho- zu Cyberstrategien: Prothetik, Robotik und Tele-Existenz' [From psycho-to cyber-strategies: Prosthetics, robotics, and tele-existence], *Kunstforum International* 132 (1996), 79.

For the self-proclaimed body hacker Stelarc, for example, nanotechnology and its promise to alter our 'overaged' bodies at the cellular level marked the last step of his artistic vision of the wired and enhanced post-human body (fig. 23).¹⁴³ This is also the starting point of Horst Prehn's contributions. His text evolved around the speculative operationalization of a brain-computer interface based on the phasing of brain waves and electric circuits.¹⁴⁴ His 'enabling technology' would thus allow our mind to master complex decision-making processes by accessing computer data.¹⁴⁵ Similarly, Hans Moravec's contribution traced the genealogy of the mechanical body and culminated in the description of a fictional future. There, our 'old bodies' would be connected to a cyberspace matrix in which the mind – understood as 'pure software' – would wander freely.¹⁴⁶ 'When the cyberspace assumes more power, its superiority over the material body will be omnipresent. Finally, everything will become sparkling mind-expanding with the speed of light,' Moravec concluded.¹⁴⁷ The future visions of Stelarc, Moravec, and Prehn exemplify the transhumanist visions that propel the futurist issues of *Kunstforum International* (fig. 24). In this context, the post-human was envisioned as a condition where the focus of human subjectivity would shift towards a disembodied and enhanced mind. The reification of a Cartesian separation of body from mind extended and intensified the modern notion of the human into the realm of the post-human. This represented a distinct departure from the post-human concept proposed by feminist thinkers during the same period. Surprisingly, their contributions were largely absent from among the forty-six *Kunstforum International* contributors, only twelve of whom were women.

Compared to the euphoric celebration of bodily enhancements seen amongst these 1990s writers, Channer and her peers articulate a different understanding of prosthetics in their sculptures. This understanding does not centre solely on human beings, nor is it defined by their physical boundaries. Instead, their works remix different bodies, ranging from human to animal and mineral, and reinterpret their boundaries and functions. Such interplay becomes evident in Channer's use of strangely elongated and metamorphosed limbs in works such as *Mechanoreceptor*, *Icicles* (figs. 2–4), *First Rebirth* (figs. 5–6), *Organics* (fig. 7), and *Synthetics* (fig. 8). The same thread runs through Baremboym's works, including *Leakage Industries: Clear Conduit*, *Chromosome Absorption*, *UNIT 1: Hypothalamus: Organ of Influence* and *UNIT 2: Thyroid: Growth & Development* (fig. 11–12). We see it also in the works of Rosenkranz (fig. 9), Bonneviot (fig. 10) and Humeau (fig. 18). The historic euphoria for and erotically charged fascination with the machinic body has become transmuted into the strange transgressive forms and material mixtures found in the work of Channer's generation. The definition of the prosthesis is thus inverted.¹⁴⁸ Here, the artists' asexual formal language is,

143 Stelarc, 'Von Psycho- zu Cyberstrategien' [From psycho- to cyber-strategies], 74.

144 Horst Prehn, 'Körperzeichen – Zeichenkörper' [Body signs—sign bodies], *Kunstforum International* 133 (1996), 188.

145 Prehn, 'Körperzeichen – Zeichenkörper' [Body signs—sign bodies], 188.

146 Hans Moravec, 'Körper, Roboter, Geist' [Body, robot, spirit] *Kunstforum International* 133 (1996), 109. Translation by Mara-Johanna Kölmel.

147 Moravec, 'Körper, Roboter, Geist' [Body, robot, spirit], 108–109. Translation by Mara-Johanna Kölmel.

148 In its original and grammatical meaning, prosthesis describes 'the addition of a syllable to the be-

in the logic of Freud's fetish object, an expression of 'a displacement of or a compensation for something else, a substitute or surrogate for other things, now lost'.¹⁴⁹ The image of the Freudian 'prosthetic god' has given way to Hayles' post-human 'amalgam, a collection of heterogeneous components, a material-informational entity whose boundaries undergo continuous construction and reconstruction'.¹⁵⁰ In recent sculptures, subject and object aesthetically appear to fold over one another. Their material conglomerates leave behind any clear-cut division between the representation of human and other kinds of bodies. Channer and her peers address the body and its surroundings as inextricably linked to its vanishing surroundings.

Abject bodies

These aesthetic-conceptual qualities also distinguish their works from the tendencies of post-human and abject art during the 1990s. After the relative marginalization of the human figure within the 'expanded field' that encompassed minimalism, land art, institutional critique, and various forms of social practice, Jeffrey Deitch's 1992/1993 touring exhibition *Post Human* argued for a reinvention of the human figure in the dystopian light of four converging developments: First, cyberspace and its promise of virtual reality. Second, the decentred world of television and its fragmentation of reality. Third, biotechnology with its possibility of modifying human and non-human genetic codes. Finally, plastic surgery and the burgeoning fitness culture for enhancing the body's appearance.¹⁵¹ Carefully tracing the rise and confluence of scientific, technological, and social events from the Renaissance until the then present day, Deitch's opening essay investigates the 'emergence of a new concept of the self'.¹⁵² The curator concluded that with the 1990s' progress in bio- and communication technologies, a natural understanding of the self would slowly be replaced by a post-human personality. As a seismographer of technological and socioeconomic change, art responded to this emerging concept through a new interest in the human body and its representation.¹⁵³ Deitch's exhibition essay concluded that the artists in his show introduced a 'shocking new definition of humanity' that offered 'alarming insights' into the 'post-human future to come'.¹⁵⁴

Deitch's *Post Human* contrasted the trans-human artistic visions discussed in *Kunstforum International* with presentations of the works of artists Cindy Sherman, Kiki Smith, Matthew Barney, Robert Gober, and Pia Stadtbäumer. His show thereby strongly alluded to the Whit-

gining of a word'; and as of 1704 the term is used for a 'replacement of a missing part of the body with an artificial one'. See David Wills, *Prosthesis* (Stanford, California: University of Stanford Press, 1995), 218.

149 Marquard Smith, 'The vulnerable articulate: James Gillingham, Aimee Mullins, and Matthew Barney', in Marquard Smith and Joanne Morra (eds.), *The Prosthetic Impulse: From a Posthuman Present to a Biocultural Future* (Cambridge, Massachusetts: MIT Press, 2007), 48.

150 Hayles, *How We Became Posthuman*, 3.

151 Jeffrey Deitch 'Post Human', in Jeffrey Deitch and Dan Friedman (eds.), *Post Human* (Pully/Lausanne: Deste Foundation for Contemporary Art, 1993), 28–47.

152 Deitch, 'Post Human', 29.

153 Deitch, 'Post Human', 42.

154 Deitch, 'Post Human', 42.



25 | Kiki Smith, *Tale*, 1992; beeswax, microcrystalline wax, pigment and papier mâché; 406 × 58.4 × 58.4 cm.

ney museum exhibition *Abject Art: Repulsion and Desire in American Art*, which took place the same year.¹⁵⁵ In both exhibitions, scatological assemblages, body fragments, and other traces of sexual differences evoked an image of the (post-)human body as fragmented, literally a site of production. Kiki Smith's work *Tale* (1992) powerfully embodies this thematic approach (fig. 25).¹⁵⁶ In her androgynous sculptures oscillating between male and female forms, Pia Stadtbäumer questions gender bias, homosexuality, and codes of beauty (fig. 26).

Robert Gober's disturbing wax leg sculptures protruding from walls were informed by personal narratives (his mother experienced limb transplantation) and conveyed the gravity of the AIDS crisis and the loss of close friends (fig. 27). The artists in Deitch's show thus depict the body as deformed, dismembered, and fragmented in light of its exposure to deadly diseases on one hand and biotechnological interventions on the other.¹⁵⁷ Many of these works of the 1990s manifest a profound desire to navigate the human body through the four developments sketched out by Deitch's introductory essay. They aimed to reclaim the

155 See Craig Houser, Leslie C. Jones, Simon Taylor, and Jack Ben-Levi (eds.), *Abject Art: Repulsion and Desire in American Art* (New York, New York: Whitney Museum of Art, 1993), exhibition catalogue.

156 See Simon Taylor, 'The phobic object: Abjection in contemporary art', in Houser et al. (eds.), *Abject Art*, 59.

157 See Schneede, *Mit Haut und Haaren* [With skin and hair], 9.

human body's agency.¹⁵⁸ The fact that flesh, blood, skin, and hair were used as materials in works by Gober, Smith, Kelly, and others could thus be read as artistic figurations of such acts of reclamation.¹⁵⁹

At the same time, these artists intervened in the sociotechnological processes and discussions with an art of immediacy and intimacy. A popular term in these discussions was the notion of the 'object', which, according to Julia Kristeva, describes a state of dissolution where 'the borders between the object and the subject cannot be maintained'. In other words, 'the substance of the subject is called into question, endangered.'¹⁶⁰ This art of the 1990s thus exhibits a constructed, objectified, inscribed, fragmented, alienated, and object – but still very figurative and human – body.

While works by Smith, Kelly, Gober, Stadtbäumer, Smith, and Ray centred on the exploration of the human form as socially, psychologically, and emotionally charged territory, the cold, minimalist formal language that Channer, Baremboym, Bonneviot, Humeau, and Rosenkranz used in the 2010s seems to be far removed from this 1990s aesthetic. The 1990s iterations approached the loss of individualized corporeality by discovering new forms of mimetic figurations, including realistic casts and dolls. However, Channer's and her peers' practices distance themselves from the human race at the levels of production and depiction. They instead search for a blending of human and machine, the organic and inorganic, the physical and digital.

The object explorations of the 1990s generation were strongly informed by a feminist critique, which Deitch failed to address. In the effort to trace the functions and representation of the body and corporeality through specific cultural constructs and concepts, feminist scholars interpreted the body as a text, as the product and effect of sign processes. In 'Fou-

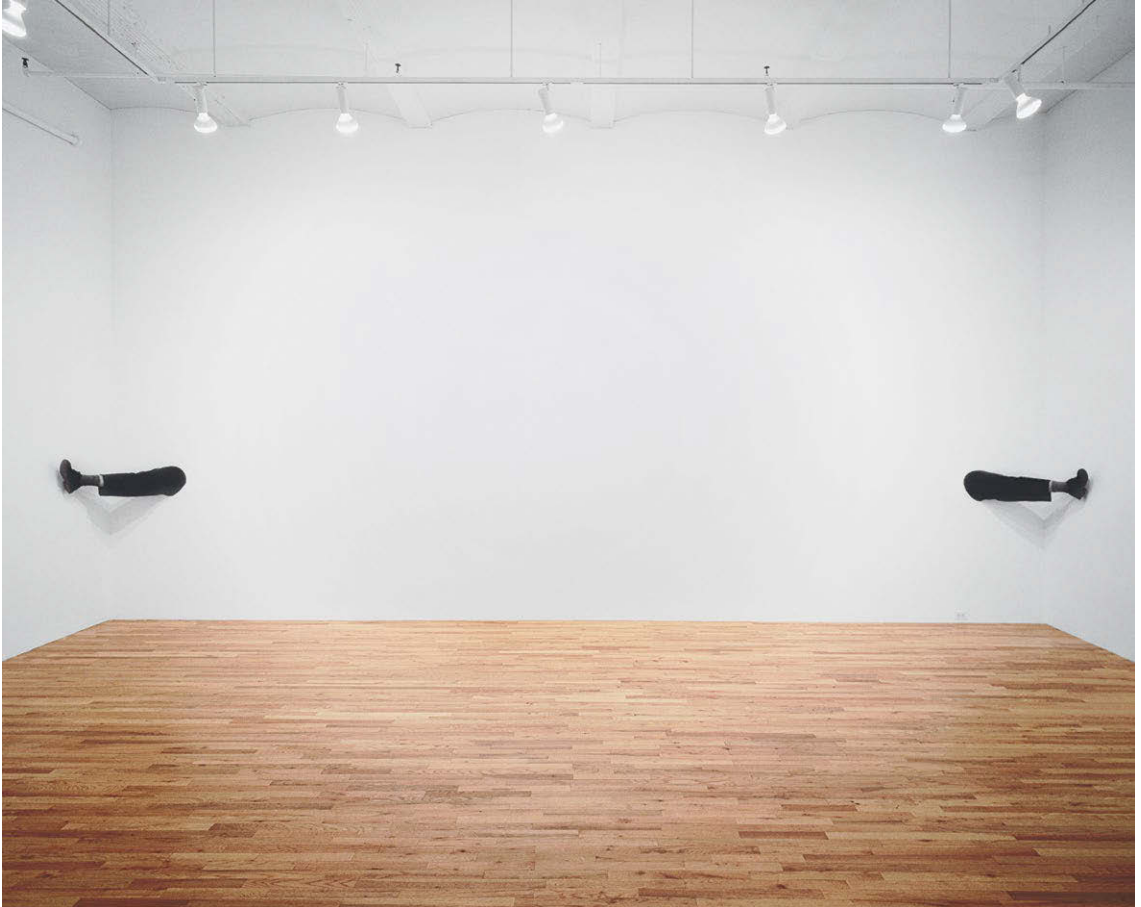
26 | Pia Stadtbäumer, *Violet Women, Upside Down*, 1991; wadding, acrylic paint, acrylic binder; 162 × 47 × 28 cm. Installation view, Kunsthalle Bremen, Bremer Kunstpreis, Bremen (Germany), 1991.



158 See Schneede, *Mit Haut und Haaren* [With skin and hair], 9.

159 See Schneede, *Mit Haut und Haaren* [With skin and hair]; Monika Wagner, *Das Material der Kunst: Eine andere Geschichte der Moderne* [The material of art: A different history of modernity], 2nd edn (Munich: C. H. Beck, 2013).

160 Charles Penwarden, 'Of word and flesh: An interview with Julia Kristeva', in Stuart Morgan and Frances Morris (eds.), *Rites of Passage: Art for the End of the Century* (London: Tate Gallery Publishing, 1996), 22, exhibition catalogue.



27 | Robert Gober, *Two Spread Legs*, 1991; wood, beeswax, leather, cotton, human hair and steel; 28 × 89 × 70 cm (each).

cault and the paradox of bodily inscription', Judith Butler identified the body as a site where regimes of discourse and power inscribe themselves on a location that was pre-given.¹⁶¹ The body, according to Butler, thus always already constructs itself before becoming identifiable. Bodily inscription serves its most important purpose in placing the body within a cultural matrix. Yet, as early as the 1960s, experimental approaches to the body and corporeality had begun to disrupt notions of binary intellectual thought. The art of the 1960s and 1970s had already emphasized that the body had always been constructed in multiple and contradictory ways. This past interest in constructing the body differently strongly resonates with a recent generation of sculptors.

161 See Judith Butler, 'Foucault and the paradox of bodily inscriptions', *The Journal of Philosophy* 86, no. 11 (1989), 601–607.

Reforming the anti-form

In this context it is worth turning attention to the sculptural approaches showcased in three post-minimal exhibitions in the 1960s: *Eccentric Abstraction*, curated by Lucy Lippard in 1966 at the Fischbach Gallery in New York; *9 at Leo Castelli*, organized by Robert Morris at Leo Castelli's warehouse in 1968; and *Anti-Illusion: Procedures/Materials* (1969) conceived by Marcia Tucker and James Monte.¹⁶² The artistic advancements in these shows conveyed an interest in both process and materiality, as well as ideas surrounding embodiment and bodily flux – much like the work produced by Channer, Baremboym, Bonneviot, and Rosenkranz. As a result, the 1960s exhibitions prefigured the conceptualization of the body and experimented with bodily scales, material dynamics, and authorship in ways that were later taken up and expanded upon by Channer's generation.

Lucy Lippard writes that the works included in *Eccentric Abstraction* (fig. 28) were devoted to a 'non-formal tradition ... opening up new areas of materials, shape, colour, and sensuous experience'.¹⁶³ She thus locates these works somewhere between an evolved 'non-sculptural style that has a good deal in common with primary structures as well as, surprisingly, with aspects of surrealism. The makers of what I call for semantic convenience, eccentric abstraction, refuse to eschew imagination and the extension of sensuous experience while they also refuse to sacrifice the solid formal basis demanded of the best in current non-objective art'.¹⁶⁴ In his introduction to *Anti-Illusion: Procedures/Materials* (fig. 29), James Monte observes 'a de-objectified or scattered or dislocated state and in some instances the three conditions simultaneously. Another condition often found [in these works] is the dependence on location, not merely as a site for the work, but as an integral, inextricable armature, necessary for the existence of the work'.¹⁶⁵ Marcia Tucker, too, confirms in her essay for *Anti-Illusion: Procedures/Materials* that the pieces 'are not attempts to use new materials to express old ideas or evoke old emotional associations, but to express a new content that is totally integrated with the material'.¹⁶⁶ The art historian Rosalind Krauss designates the sculptural tradition emerging in the 1960s as 'formless' after George Bataille's '*informe*'.¹⁶⁷

162 *Eccentric Abstraction* featured works by Alice Adams, Louise Bourgeois, Eva Hesse, Gary Kuehn, Bruce Nauman, Don Potts, Keith Sonnier, and Frank Lincoln Viner. *9 at Leo Castelli*, the 1968 exhibition organized by Robert Morris at Leo Castelli's warehouse, showed, in addition to Eva Hesse's work, installations by Giovanni Anselmo, Bill Bollinger, Joseph Beuys, Eva Hesse, Stephen Kaltenbach, Bruce Nauman, Alan Saret, Richard Serra, Keith Sonnier, and Gilberto Zorio. *Anti-Illusion: Procedures/Materials*, conceived in 1969 by Marcia Tucker and James Monte, featured Carl André, Michael Asher, Lynda Benglis, Bill Bollinger, John Duff, Rafael Ferrer, Robert Fiore, Philipp Glass, Neil Jenney, Barry Le Va, Robert Lobe, Steve Reich, Robert Rohm, Robert Ryman, Joel Shapiro, Michael Snow, Keith Sonnier, and Richard Tuttle, among others.

163 Lucy R. Lippard, 'Eccentric abstraction', in *Changing: Essays in Art Criticism* (New York, New York: Dutton, 1971), 99.

164 Lippard, 'Eccentric abstraction', 99.

165 James Monte, 'Introduction' in Whitney Museum of American Art, *Anti-Illusion: Procedures/Materials* (New York, New York: Whitney Museum of American Art, 1969), 5, exhibition catalogue.

166 Marcia Tucker, 'Anti-Illusion: Procedures/Materials', in Whitney Museum, *Anti-Illusion: Procedures/Materials*, 30.

167 Surrealist writer Georges Bataille describes his notion of the '*informe*', introduced in *Documents 7* (1929), as 'a word whose task it is to declassify'. As much as it is linked to the undoing of logical and categor-



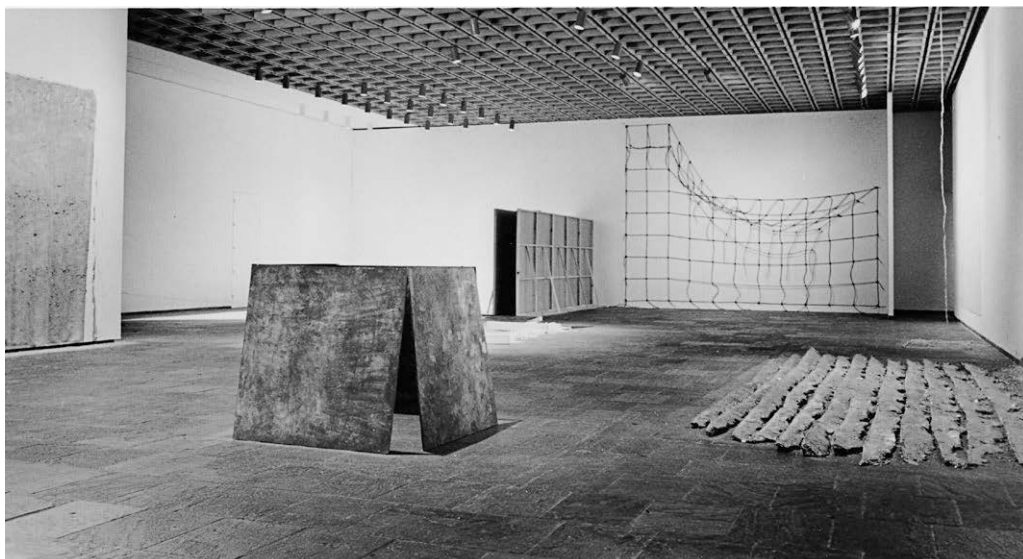
28 | *Eccentric Abstraction*, curated by Lucy R. Lippard, Fischbach Gallery, 1966. Installation view with works by Eva Hesse, Frank Viner, Keith Sonnier and Don Potts.

Krauss describes formlessness as a way of thinking about the declassification and displacement of matter. She thus considers it a

transgression of that formal logic which depends on the distinction of categorical oppositions ... like inside/outside, figure/ground, male/female, living/dead. It is the transgression of these distinctions, the dangerous imagination of their collapse, that produces the *informe*.¹⁶⁸

ical thought, '*informe*' also describes a means of thinking about the declassification and displacement of matter. According to Krauss and Yve-Alain Bois in *Formless: A User's Guide* (New York, New York: Zone Books, 1997), the most commonly used translations of his texts are: Isabelle Waldberg, Ian White, and Robert Lebel (eds.), *Encyclopaedia Acephalica: Comprising the Critical Dictionary and Related Texts* (London: Atlas Press, 1995); Georges Bataille, *Visions of Excess: Selected Writings, 1927–1939*, ed. Allan Stoekl, tr. Allan Stoekl, Carl R. Lovitt, and Donald M. Leslie, Jr. (Minneapolis, Minnesota: University of Minnesota Press, 1985).

168 Rosalind Krauss, 'Louise Bourgeois: Portrait of the Artist as "Fillette"', in Rosalind Krauss (ed.), *Bachelors* (Cambridge, Massachusetts: MIT Press, 1999), 71, italics in original.



29 | *Anti-Illusion: Procedures/Materials*, curated by Marcia Tucker and James Monte, Whitney Museum of American Art, New York, 1969. Installation view with, clockwise from centre, Richard Serra, *One Ton Prop*; Keith Sonnier, *Flocked Wall*; Bruce Nauman, *Performance Corridor*; Robert Rohm, *Untitled*; Eva Hesse, *Untitled (Ice Piece)*; Richard Serra, *Casting*.



30 | *9 at Leo Castelli*, curated by Robert Morris, Leo Castelli Gallery, New York, 1968. Installation view with works by Giovanni Anselmo, William Bollinger, Joseph Beuys, Eva Hesse, Stephan Kaltenbach, Bruce Nauman, Alan Saret, Richard Serra, Keith Sonnier and Gilberto Zorio.



31 | Claes Oldenburg, *Giant Soft Fan – Ghost Version*, 1967; canvas, wood and polyurethane foam, 304.8 × 149.9 × 162.8 cm.

Formlessness operates like a deviant system to explore the limits of the object. It thus becomes an 'operation'.¹⁶⁹ Such transgression of form, however, does 'not mean breaking free from forms', as Georges Didi-Huberman explains.¹⁷⁰

Asserting the formless does not mean asserting non-forms, but rather engaging in a labour of forms equivalent to the labour of giving birth or agony: ... a rending process that puts something to death and in this very negativity, invents something absolutely new, brings to light ... something of a cruelty at work in forms and in the relations between forms – a cruelty in resemblances.¹⁷¹

The 'formless', abstract, and eccentric objects presented in Lippard's and Morris's shows (figs. 28 & 30) shared a 'non-sculptural tendency' with haptic and highly sensual qualities due to their unusual material compounds, and alternation between soft and solid forms.¹⁷² Gangly and awkward, or strangely elegant, the works exhibited references to the body through agglutinations of new materials of their day, including latex, rubber, resin, and poured polyurethane. The results were resolutely handmade, with charged immediacy and aesthetic and conceptual volatility. Lucy Lippard describes these aesthetic properties as a 'reconciliation of different forms, or formal effects, a cancellation of the form-content dichotomy'.¹⁷³

169 Yve-Alain Bois and Rosalind Krauss, *Formless: A User's Guide* (New York, New York: Zone Books, 1997), 18.

170 Georges Didi-Huberman quoted in Elisabeth Lebovici, 'Lynda Benglis: All that matters ...', in Franck Gautherot, Caroline Hancock, and Seung-Duk Kim (eds.), *Lynda Benglis: All that Matters ...* (Dijon: Presses du Réel, 2009), 88.

171 Didi-Huberman quoted in Lebovici, 'Lynda Benglis: All that matters ...', 88.

172 Lippard, 'Eccentric abstraction', 99.

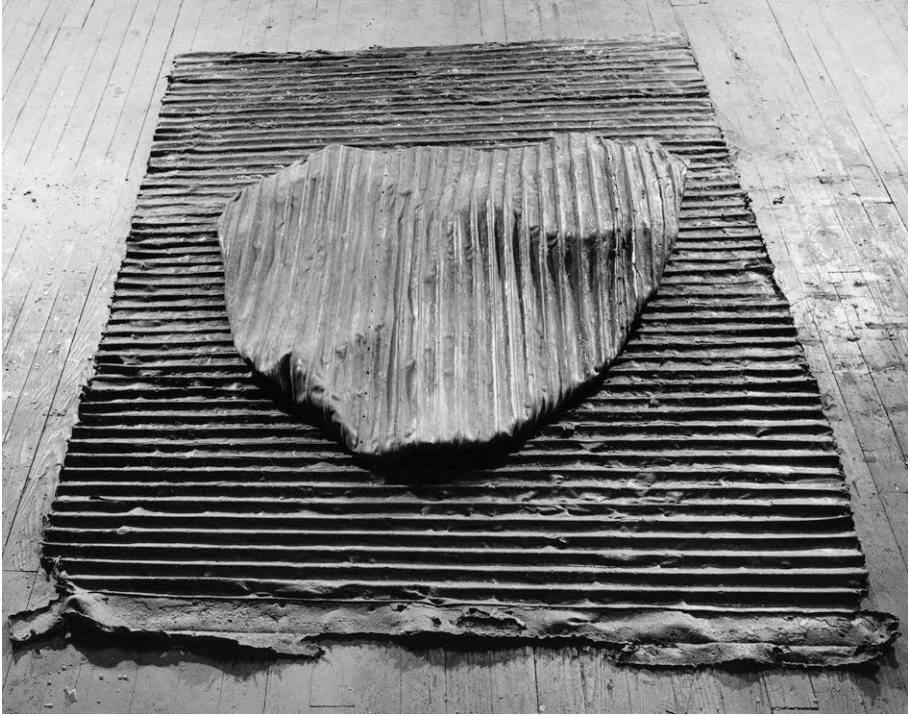
173 Lippard, 'Eccentric abstraction', 100.



32 | Louise Bourgeois. *Prattonia Sclerosis #2*, 1966; latex;
45.7 × 45.7 × 45.7 cm.



33 | Louise Bourgeois. *Portrait*, 1963;
latex; 26.7 × 17.8 × 7.6 cm.



34 | Richard Serra, *Blop*, 1967; latex; 15.2 × 193 × 251.5 cm.

In his essay 'Anti form,' published two years later, Robert Morris portrays a similar phenomenon. He discusses the processed character of the chosen artworks and their direct investigation of unorthodox materials, as seen, for instance, in Oldenburg's metamorphic soft sculptures (fig. 31).¹⁷⁴ In the *Eccentric Abstraction* exhibition, the anthropomorphic latex works *Prattonia Sclerosis #2* (1966; fig. 32) and *Portrait* (1963; fig. 33) by Louise Bourgeois were juxtaposed with Bruce Nauman's fragile and seemingly fragmented pieces.¹⁷⁵

Richard Serra's molten-lead sculptures (fig. 34) and Lynda Benglis's poured polyurethane pieces (fig. 35) adapted to the floors and walls on which they were splashed, spilled or propped.¹⁷⁶ Eva Hesse's experiments with string, latex, fibreglass, and wire mesh (1970; fig. 36) responded to 'natural forces of gravity, entropy, and deterioration'.¹⁷⁷

These artists focused on the 'process of "making itself"', which, according to Morris, had 'hardly been examined' in the Western art tradition.¹⁷⁸ 'Anti-form', 'process art', and what Rob-

174 See Robert Morris, 'Anti-form', *Artforum* 6 (April 1968), 32–35.

175 Unfortunately, *Prattonia Sclerosis #2* is no longer extant.

176 See Erika Lee Doss, *Twentieth-Century American Art* (Oxford: Oxford University Press, 2002), 174.

177 Doss, *Twentieth-Century American Art*, 174.

178 Morris, 'Anti-form', 34.



35 | Lynda Benglis, *Quartered Meteor*, 1969/1975; lead; 146 × 166.3 × 163.8 cm. Installation away from wall.

ert Pincus-Witten first termed 'post-minimalism' thus emphasized the space that the artworks occupied and the process by which they were made. These objects, as Jo Applin highlights, 'invited bodily identification with their malleable folds and yielding surfaces.'¹⁷⁹ They thus subverted the logic of minimalist form. The sculptural works by Channer and her peers bear strong parallels to this tendency of the art of the late 1960s, fusing a rational, minimalistic, formal basis with sensuous anthropomorphic elements.¹⁸⁰ Like their famous precursors, these artists employ material dynamics, a play with bodily scales, and an ambiguous tactility, swinging between structure and its dissolution. Informed by a contamination of aesthetic categories and a hybridization of materials, their works likewise negotiate the space between sensuality and rationality. This flowing and concentration of form are always tightly associated with sensuality, presenting a disorganized subject. In the quest to further decipher conceptualizations of corporeality in recent sculptural production, it is thus fruitful to place Channer's work and that of her peers in relation to this sculptural trajectory, where materiality and the body were fundamental. However, the following work comparisons also show that the human body and the artist's authorial touch as the maker of the works remained decisive reference points for this older generation – unlike for Channer and her colleagues.

179 Jo Applin, *Eccentric Objects: Rethinking Sculpture in 1960s America* (New Haven, Connecticut: Yale University Press, 2012), 6.

180 Lippard, 'Eccentric abstraction', 99.



36 | Eva Hesse, *No title*, 1970; latex, rope, string and wire; 244 × 549 × 92 cm.

Bruce Nauman, in his gracefully lean, anthropomorphic, rubbery streamer and cast fibreglass sculptures that bear similarities to Alice Channer's later works, played with bodily scales. To 'embody' this pioneering approach to corporeality, he explored untested, novel materials. While some of the works are installed on the wall, others engage with the floor. Nauman – like Channer – experimented with the dissolution of hierarchies and the physical state of materials, imparting a sense that his materials were between a soft and a solid form.

The latex work *Untitled* (1965–66; fig. 37), for example, consists of a group of rubbery streamers installed so that they take on the form of a fragile drawing or an unproportioned T-bar turned ninety degrees to its side. The vertical streamer is split at its top, producing the impression of a stem with a dangling branch. A horizontal rubber streamer meets the vertical stem approximately a metre above the ground. Overall, the work evokes the impression of a thin figure in a side view arched against a wall. The intersecting forms echo the outlines of a body. The upper part of this bodily arrangement appears disproportionately long. While one arm seems to be hanging down, the figure's long leg is stretched out to the left. Such associations do not appear far-fetched, considering that the work is part of a sculptural series that grew out of Nauman's 1965 performances, which consisted of changing body positions.¹⁸¹

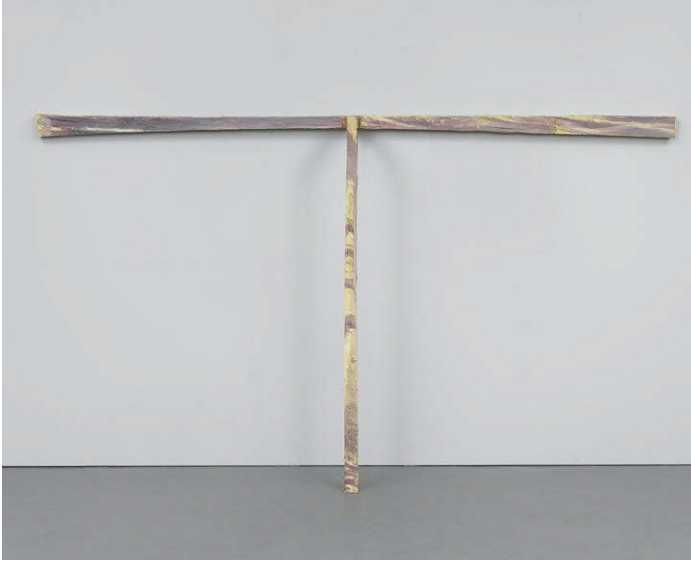
¹⁸¹ These performances became the starting point for his video work *Wall-Floor Positions* (1968). Nauman describes one of the performances to Willoughby Sharp as follows: 'I did a piece that involved stand-

37 | Bruce Nauman, *Untitled*, 1965–1966;
 latex rubber with burlap;
 263.2 × 139.7 × 10.16 cm.



Nauman translated his bodily experiment into sculptural works, allowing him to explore the relationship between object and space. How does the object relate to the room, the floor or the wall? What is the relationship between its top and bottom and front and back? These were some of the questions Nauman explored. His bodily arrangements thereby also provisionally pointed to its way of production. The artist slit a single piece of latex into strips and pinned them to the wall determining its final shape. Gravity produced the final composition. The fibreglass and polyester resin-cast work *Untitled* (1965–66; fig. 38) consists of a fragile T-bar with a slightly curved stem. It is leaning against a wall and has an unevenly coloured, purple-painted surface. The piece seems to be supported by its vertical section but, in fact, requires nails to keep the horizontal section affixed to the wall. The work is cast from two

ing with my back to the wall for about forty-five seconds or a minute, leaning out from the wall, then bending at the waist, squatting, sitting, and finally lying down. There were seven different positions in relationship to the wall and floor. Then I did the whole sequence again standing away from the wall, facing the wall, then facing the left and facing the right. There were twenty-eight positions and the whole presentation lasted for about half an hour.' Willoughby Sharp, 'Nauman interview', *Arts Magazine* 44 (March 1970), 22–27. Quote taken from a reprint in Janet Kraynak (ed.), *Please Pay Attention Please: Bruce Nauman's Words: Writings and Interviews* (Cambridge, Massachusetts: MIT Press, 2003), 122.



38 | Bruce Nauman, *Untitled*, 1965–1966; cast resin, pigments and fiberglass; 137.2 × 241 × 36.7 cm.

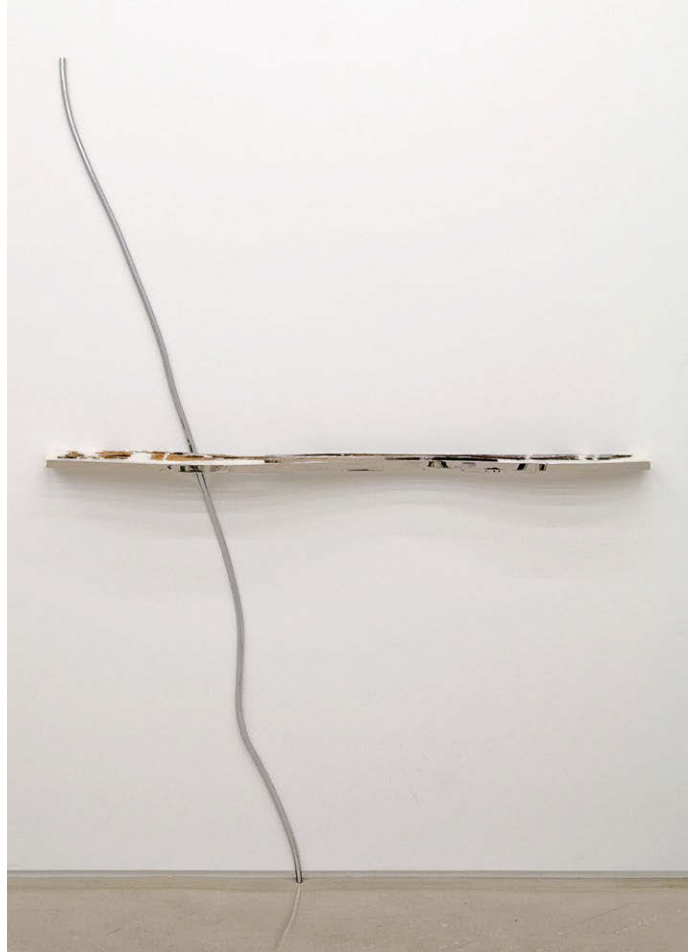
different moulds, using the same direct-casting method employed in all the hard-edge fibre-glass works. The seam attaches the parts. Its surface is a marbled swirling of green and purple. The horizontal element is marked with isolated streaks of blue and red. Nauman keeps the seams and traces of the work's production and material residues visible. This gives the cast the overall appearance of being unfinished. Lucy Lippard describes this effect perceptively:

The majority of Nauman's pieces are carelessly surfaced, somewhat aged, blurred and repellent, wholly non-sculptural and deceptively inconsequential at first sight. Their fragility suggests fragmentation, but they are disturbingly self-sufficient, with the toughness of lost, left-over function and a total lack of elegance.¹⁸²

By referencing archaic traditions of the autonomous monument or monolithic sculpture, Nauman's pieces are disturbingly 'self-sufficient', like fragile fragmentations that appear to have lost any function.

Such observations can also be attested to in Channer's sculptural pieces, however, in a wholly new way. In her work *Artificial Intelligence* (2012; fig. 39), there are aesthetic resonances with Nauman's *Untitled* (1965–1966) and *Untitled* (1965–1966). With her work, Channer explores the sculptural properties of volume, dimension, material, and weight in relation to a body. Like *Untitled* and *Untitled*, *Artificial Intelligence* is dominated by both horizontal and vertical leading lines. The gangly latex used in Nauman's works has given way to a curved steel pole and a seemingly weightless, horizontally mounted aluminium rail, which winds along the wall in a spine-like curve. Both Channer's and Nauman's works are installed on the wall, thus thematizing the space between image and object, while also displaying sacral

182 Lippard, 'Eccentric abstraction', 108.



39 | Alice Channer, *Artificial Intelligence*, 2012; digital print on accordion-pleated heavy crêpe de Chine, mirror-polished stainless steel, chromed aluminium; 192 × 141 × 15 cm.

references to the Christian cross. Here, the vertical stands for the link to the divine, while the horizontal line marks the earthly horizon. In Channer's work, the minimalist formal language suggested by the mirror-polished steel is juxtaposed with a sensually accordion-pleated and printed silk fabric on the horizontal shelf (fig. 40). The pleating means the print on the fabric is no longer recognizable. Different shades ranging from dark to light brown alternate with areas dominated by white. Along with the curved shelf, the fabric is reminiscent of animal skin, the skin of a snake perhaps. Some of the folds appear to open, giving the work an impression of movement, as if it expands and contracts like a breathing body.

The horizontal rail with the fabric is crossed, at a quarter of its length, by a highly polished stainless steel rod. It takes its starting point on the ground below the hanging rail and runs along the wall vertically, tilting to the left. Like a branch or writhing worm, it makes its way along the wall – just as in Nauman's work. The steel rod's curvature echoes the organic shape of the aluminium rail, which is installed at hip height on the wall. It is reminiscent of



40 | Alice Channer, *Artificial Intelligence*, 2012; digital print on accordion-pleated heavy crêpe de Chine, mirror-polished stainless steel, chromed aluminium; 192 × 141 × 15 cm; detail.

the shape of a spine, but also the curved body of a squiggling snake. Both Nauman's early latex and fibreglass pieces, which are based on body positions, and the shaped poles in Channer's work refer to stylized human poses created by the fashion maker Yves Saint Laurent.¹⁸³ While bodily scales are present in *Artificial Intelligence*, they have metamorphosed to exceed human scale. The verticality of her work highlights a different kind of corporeality. What sort of body are we looking at? A human spine, a snake, or even a worm? The playful bending of the steel elements not only emphasizes the fluid edges of a human or animal body, but also makes us think of the fluid origins of Channer's materials. Steel is liquid at very high temperatures but becomes extremely hard once cooled down. Silk is bleached in water baths and folded by steam before solidifying into a soft texture. In Channer's work, these liquid/solid, human/non-human, and organic/synthetic elements have effortlessly merged. Encapsulated in the title *Artificial Intelligence*, her work brings forth a glamorous, artificial-looking other with a life of its own.

By comparison with Channer's later approach, the human and the artist's body remain for Nauman the decisive reference point. This is evident, for example, in *Six Inches of my Knee Extended to Six Feet* (1967; fig. 41), where an amber-coloured column in fibreglass that represents an extended segment of his own knee is installed on the wall. Similarly, in *From Hand to Mouth* (1967; fig. 42), Nauman cast part of the body to map the distance between the words of the title, literally materializing a colloquial expression. These works are, in one way or another, 'poetic self-portraits', as Constance Lewallen highlights.¹⁸⁴ The art historian Anne Wagner adds to this observation when she asks whether they might 'not stand in for the psychic makeup of an otherwise anonymous subject? Is this the 1960s self?'¹⁸⁵ Nauman's authority as the human maker is manifest in the aesthetic features and in the process of making his work. His 'anti-technology was distinctly, even aggressively deskilled'.¹⁸⁶ His authorial touch and processing remained visible in the final works. Based on such observations, Robert Pincus-Witten described Nauman's work in the years 1968–1970 through the notion of process tied to the visible traces of the artist's hand. In his book *Postminimalism* (1977) he characterized the object production of these years as

a process so emphatic as to be seen as the primary content of the work itself, hence the term 'process art'. When this occurred, as it did in the lead tossings of Richard Serra, or in the *Drawings That Makes Itself* by Dorothea Rockburne, to cite but two examples, the virtual content of the art became that of the spectator's intellectual re-creation of the actions used by the artist to realize the work in the first place.¹⁸⁷

183 In an informal interview between myself and the artist, Alice Channer mentioned Yves Saint Laurent's drawings as a reference point.

184 Constance M. Lewallen, 'A rose has no teeth', in Constance M. Lewallen (ed.), *A Rose Has No Teeth: Bruce Nauman in the 1960s* (Berkeley, California: University of California Press, 2007), 46.

185 Anne M. Wagner, 'Nauman's body of sculpture', in Lewallen (ed.), *A Rose Has No Teeth*, 125.

186 Neal Benezra, 'Surveying Nauman' in Joan Simon, Janet Jenkins, and Toby Kamp (eds.), *Bruce Nauman: Exhibition Catalogue and Catalogue Raisonné* (Minneapolis, Minnesota: Walker Art Center, 1994), 19, exhibition catalogue.

187 Robert Pincus-Witten, *Postminimalism* (New York, New York: Out of London Press, 1977), 16.



41 | Bruce Nauman, *Six Inches of My Knee Extended to Six Feet*, 1967; fibreglass reinforced polyester resin; 174.6 × 14.6 × 11.7 cm.



42 | Bruce Nauman, *From Hand to Mouth*, 1967; wax on cloth; 71.1 × 25.7 × 10.2 cm.

In the catalogue text for James Monte and Marcia Tucker's exhibition *Anti-Illusion: Procedures/Materials* at the Whitney Museum of Art, the two curators come to a similar conclusion in regards to Richard Serra's works with lead: 'Richard Serra's lead sculptures is a displayed act as much as it is an exhibited sculpture.'¹⁸⁸

In contrast to Nauman's or Serra's sculptural approaches, Channer shifts the emphasis to the level of production and depiction away from her as an authorial maker. In her work, evidence of human traits is relativized by stretching the body beyond a human reference point via various technologies. The artist's touch is absent, emphasizing the works' outsourced nature. Channer's final works appear much sleeker, more distanced, and colder than Nauman's existential material examinations. 'The changes in state, along with the very different kinds of scale in the work, are what I imagine as different physical states or ways of being,' Channer asserts in an interview.¹⁸⁹

Bareboyism visually translates this logic into the arrangements of prosthetic-like objects in her sculptural works. Revolving around the unresolved place of corporeality in our post-

188 James Monte, 'Introduction', 5–7.

189 Alice Channer quoted in Henri Dietz and Antonia Lotz, 'Alice Channer', *Pool – Kunst aus London: Magazin* [Pool—Art from London: Magazine] (Hamburg: Textem Verlag, 2014), 53.

industrial society, she introduces a concept of bodily alienation. This is based on reconciling the organic and synthetic forms through sensual manipulation of substances. This approach, in turn, is inspired by Eva Hesse.¹⁹⁰ Like Hesse, Baremboym is interested in the point of intersection at which the machine-made becomes what we consider natural. Both artists confront the pictorial quality of their works with a sense of amorphousness after turning away from painting.¹⁹¹ Baremboym's work *Syphon Industries* (2013; fig. 43), evocative of Eva Hesse's *Top Spot* (1965; fig. 44) and *No Title* (1967; fig. 45), also moves toward the terrain that Duchamp mapped in *The Large Glass* and its 'bachelor machine'.

In their book *Anti-Oedipus* (1972), Deleuze and Guattari developed the concept of the desiring-machine, which is often discussed in relation to Hesse's work.¹⁹² Deleuze and Guattari centre the first part of their book on the body, which is interpreted as a series of part-objects, each of which they designate as a machine. In contrast to the world of mechanical production, which draws a clear distinction between machine and product, 'the desiring production of the part-objects is a process in which there is no distinction between production and product. For the flows produced by one machine, the breast, say, provide the continuum into which the next machine, the mouth, can cut, thereby setting up the precondition of the mechanical, which is to articulate matter.'¹⁹³ Baremboym visually translates this logic into the prosthetic-like ceramic objects appearing in several of her sculptural works. In her *Leakage Industries: Clear Conduit* (fig. 46), four ceramic objects lie on a transparent tabletop composed of four equal-sized blocks, showing visible traces of their processing. The installation in general is reminiscent of an unconnected assemblage unidentifiable organs. The artery-like USB cable and the flesh-coloured ceramic objects reinforce the idea of a human organism. A hard drive, embedded in the interior of the shell-like ceramic mould, connects to the cable. It passes through the tubular ceramic object and ends in a gender changer on the left edge of the table. If you connect the cable to a computer, you find a digital file stored on the hard drive that can actually be opened. It contains the animation of a spinning grinder gear, familiar from slowly loading computer programmes. In this context, it visualizes an action that leads nowhere.¹⁹⁴ The digital network in *Leakage Industries: Clear Conduit* is thus not merely suggested by the grey USB cables, the hard drive and its slumbering digital file – it is also physically embedded in the fragmented and standardized conception of the prosthetic-like ceramic forms. It penetrates and pervades them.

190 In an informal interview between myself and the artist, she described Hesse's works as important references for her practice.

191 In an informal interview between myself and the artist, Baremboym explained that this pictorial quality originated from an interest in the works of Sigmar Polke and Martin Kippenberger. She was exposed to their practice through her teacher and mentor Jutta Koether.

192 Eva Hesse cannot have known Deleuze and Guattari's book, as it was published two years after she died in 1970.

193 Rosalind Krauss, 'Hesse's Desiring Machines', in Mignon Nixon (ed.), *Eva Hesse* (Cambridge, Massachusetts: MIT Press, 2002), 52.

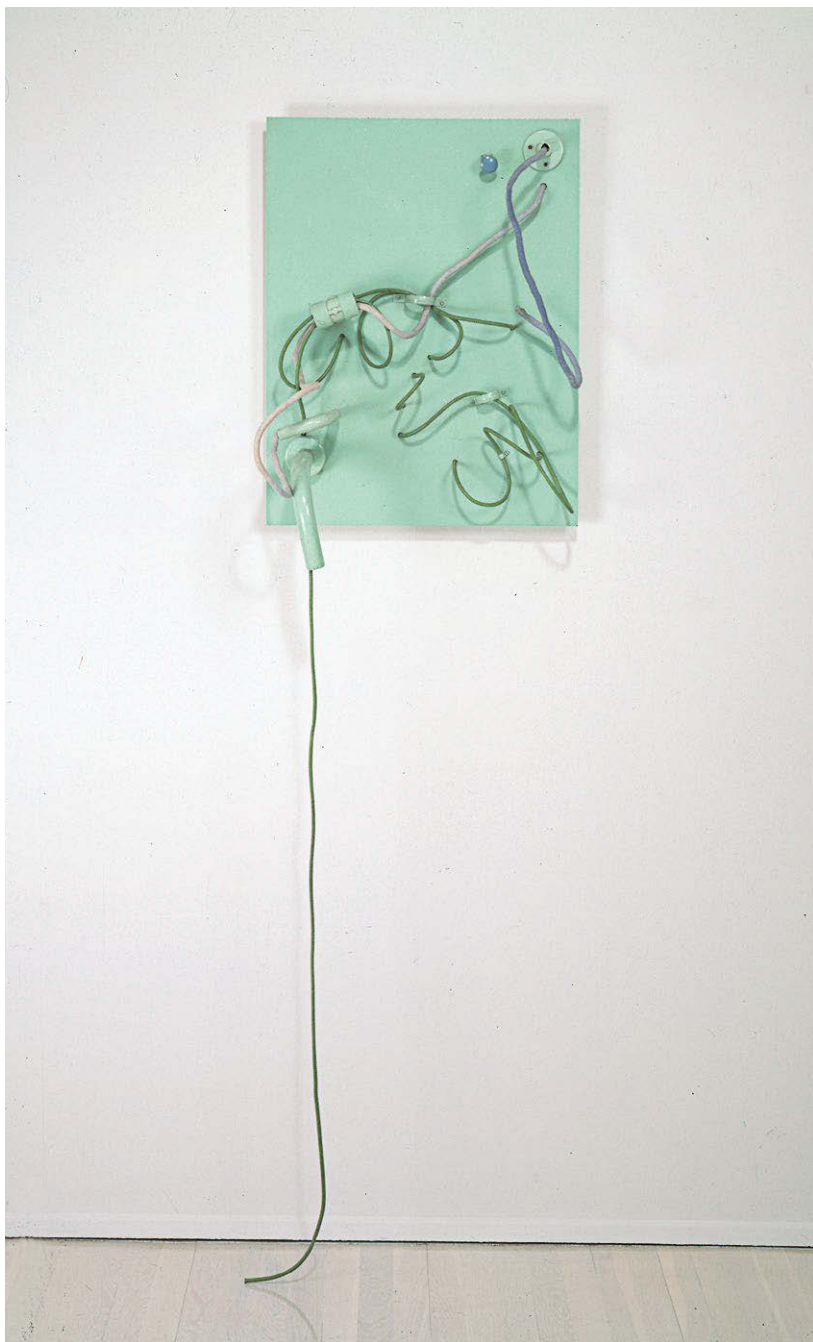
194 This is based on a verbal statement by the artist.



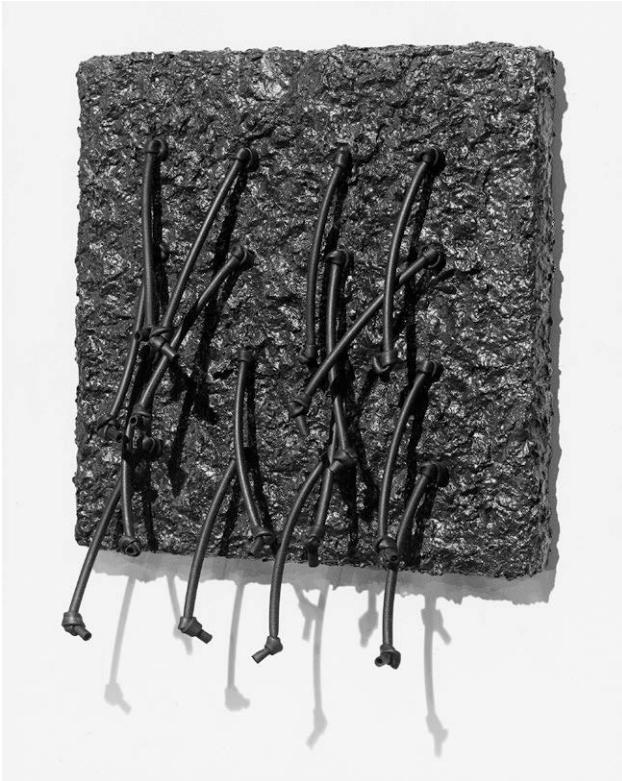
43 | Alisa Baremboym, *Syphon Industries*, 2013;
archival pigment inks on silk, gelled emollient,
ceramic, steel, vinyl, tubing, hardware;
152.4 × 114.3 × 0.635 cm. Installation view.

The anatomical properties of the employed materials further sharpen the association with a functioning organism. The ceramic objects are arranged on an amorphous surface of a gelled emollient. It is simultaneously a tactile and repellent visual presence. Throughout the work's presentation, the mineral oils in the gel slowly penetrate the porous ceramic pieces. Thus, the digital leaks, as the title of the work suggests, not only into the porous material of the ceramic, but also into its analogue organic subsurface. The human circulatory system already hinted at in the formal language becomes an actual animated organism and is thus subject to living logic. While the organs' visual presence dissolves the boundary between production and product by giving the impression of industrial products and production supplies, their inner living logic is productive.

As in Guattari's and Deleuze's concept of the desiring-machine (often linked to Hesse's work), the material flows in Baremboym's installations are determined by mechanisms of human-like processes of internalization and externalization. Here, ceramic objects bound with gelled emollients are penetrated by computer hardware. As mentioned above, Deleuze and Guattari focus the first part of their book *Anti-Oedipus* on the body, which is interpreted as a series of part-objects, each designated as a machine. They introduce the 'desiring-machine' as being 'modelled on a conception of the unconscious, which is without the regu-



44 | Eva Hesse, *Top Spot*, 1965; tempera, enamel, cord, found objects (metal, plastic, porcelain), particle, board, wood; 208.3 × 54 × 32.4 cm.



45 | Eva Hesse, *No Title*, 1967; acrylic, wood shavings, modelling compound, rubber on masonite; 30.5 × 25.4 × 6.4 cm.

lating function of a limit that contains it to an individual subject ... the desiring-machines are defined in terms of their capacity to forge links to an outside and therefore in terms of their capacity to surpass the regulating force of a higher principle (such as the superego) or natural limit.¹⁹⁵ Consequently, Guattari and Deleuze declare that 'although the desiring-machines make us into an organism, at the very heart of this production the body suffers in being organized in no way at all.' It becomes a 'deterritorialized body without organs' and its part-objects become 'desiring-machines'.¹⁹⁶

The works by Baremboym depict a loss of wholeness, 'a body without an image, a gestaltless body, a body without form', to adapt Rosalind Krauss's elaboration on Eva Hesse's work.¹⁹⁷ Both artists move towards the realm of the bodily, however, with different artistic means and intentions. While Hesse's work speaks of the artist's physical treatment of the material and the immediacy of the artist's touch, the smooth corporate look of Baremboym's work testifies to a digitally driven, outsourced, and much more creatively distanced process.

195 Alison Ross, 'Psychoanalysis: Family, Freud, and the unconscious', in Adrian Parr (ed.), *The Deleuze Dictionary*, 2nd edn (Edinburgh: Edinburgh University Press, 2010), 220 onwards.

196 Deleuze and Guattari, *Anti-Oedipus*, 9.

197 Krauss, 'Hesse's Desiring Machines', 52.

David Shapiro, for example, described Hesse's work in 1973 as not 'unrelated to the biomorphic, however, horrible biographically, since the perishability of the organic definitely becomes a connotation in the late work.'¹⁹⁸ Hesse's visceral, (at times brutally) brittle, and collapsing forms pose an existential question related to her personal experiences. Baremboym, in contrast, leaves out the realm of the personal in her search to sketch out a place for the conception of the body in an alienating, toxic, technological, and increasingly incorporeal world.

This search for figurations of what corporeality means in the twenty-first century also dominates Juliette Bonneviot's works. In her *PET Woman* series (2013–ongoing; fig. 47), Bonneviot makes use of the malleable nature of PET plastic sheets, which she moulds into curves resembling female torsos. The sheets reappear in the series *Minimal Jeune Fille* (2013; fig. 48), where the transparent plastic foil is draped over objects such as an arrangement of glass and steel containers, wooden brushes, and sanitary pads. The works are part of her aesthetic examination of the body's entanglement with its polluted, post-industrial surroundings, a theme she also explores in *Xenoestrogens (Peace Green)* (fig. 10), discussed above. Bonneviot's material pours interrogate the behaviour of substances in relation to the body, showing conceptual and aesthetic parallels with *anti-form* artist Lynda Benglis's approach. Benglis brushes encaustic onto supports to make sculptural wall pieces, pours pigmented latex or polyurethane foam on the floor to create mounds and rivers of colour, drips these substances over armatures to produce shapes that resemble cave formations, and fashions brain-like or cal-



46 | Alisa Baremboym, *Leakage Industries: Clear Conduit*, 2012;
gelled emollient, unglazed ceramic, USB cable with gender changers, flash drive, hardware;
101.6 × 81.3 × 121.9 cm; detail.

198 David Shapiro, 'The random forms in soft materials and string by the late young innovator Eva Hesse', *Craft Horizons* 33, no. 1 (February 1973), 44.



47 | Juliette Bonneviot, *PET Woman 1*, 2013; PET plastic sheet; 60 × 48 × 26 cm.



48 | Juliette Bonneviot, *Minimal Jeune Fille*, diptych, 2013; PET plastic sheet, stainless steel, metal scrubber and HDPE bottle caps; 108 × 143 × 25 cm.



49 | Lynda Benglis, *Wing*,
1970/1975; aluminium;
170.2 × 150.5 × 152.4 cm.

ligraphic forms from cast metal, marble, and glass. Bonneviot's works share an affinity with Benglis's in that both exhibit the agency of the employed materials and extend from the wall as enormous appendages capturing their own process of production.

In *Wing* (1970; fig. 49), which bears aesthetic similarities with Bonneviot's *Xenoestrogens (Peace Green)* (fig. 10) and *Xenoestrogens (Sweet Star | Rouge Fatal)* (2016, fig. 50), Lynda Benglis translated spills and rivulets of liquid polyurethane into solid aluminium. Freezing a painterly gesture in the moment of production, she mocked the colossal, often geometric, metal works popular among her male colleagues of the late 1960s. Using tactile materials such as paint and liquid rubber, Benglis quickly realized that 'the idea of directing matter logically was absurd. ... Matter can and will take its own form.'¹⁹⁹ Corporeality in Benglis' work is thus profoundly tied to movement and process. These two aspects constitute her works' strong corporeal presence: 'I really wanted somehow to get more tactile and chemically involved with the material, so I thought, "If I could only make my own paint, get into

199 David Bourdon, 'Fling, dribble and drip', *Life* 68 (27 February 1970), 62.

the pigment itself, make my own material, and somehow refer to the body more."²⁰⁰ The environment for *Phantom* (1971; fig. 51) demonstrates her approach. Here, Benglis poured and tossed polyurethane foam across inflated scaffolds, which were subsequently removed. The works spilled grotto-like forms into real space, exhibiting a monumental and, at times, vulgar presence that frequently enveloped the visitor. Tellingly, Benglis adopted the terminology 'frozen gesture' to describe her works.²⁰¹ She thought up theatrical special effects, adding phosphorescent salts – like those occurring naturally in rotting wood, lichens, and certain minerals – to her pigments. Under various lights or at particular times, these grotto-like formations then glow 'like relics from natural history of some imaginary planet'.²⁰²

Similarly, in *Embryo II* (1967–1976; fig. 52), Benglis worked with molten beeswax, which settled into tactile ridges and furrows on a Masonite board, its pastel tones evoking the palette of cosmetic products. Her form grows like a body from the inside. Often about an arm's length long, the pieces in this series reference the porousness of the female body. Benglis's *Rumple* (1977), meanwhile, evokes a golden frieze (fig. 53) and is installed high on the wall



50 | Juliette Bonneviot, *Xenoestrogens (Sweet Star | Rouge Fatal)*, 2016; cadmium, aluminium, silicon rubber; 200 × 100 cm. Kulturhaus Kleve, *Safe to Drink*, 2017.

200 Lynda Benglis, 'Lynda Benglis: Interview with Ned Rifkin', in Lynn Gumpert, Ned Rifkin, and Marcia Tucker (eds.) *Lynda Benglis, Joan Brown, Luis Jimenez, Gary Stephan, Lawrence Weiner: Early Work* (New York, New York: The New Museum, 1982), 9, exhibition catalogue.

201 Lynda Benglis, quoted by Thalia Cheronis Selz, 'Artists' profiles', in Peter Selz and William Valerio (eds.), *Modern Odysseys: Greek American Artists of the 20th Century* (New York, New York: Cantz, 1999), 30.

202 Robert Pincus-Witten, 'Lynda Benglis: The frozen gesture', *Artforum* 13 (November 1974), 59.

51 | Lynda Benglis, *Phantom*, 1971; phosphorescent pigment-ed polyurethane foam; 243.8 × 1066.8 × 243.8 cm. Union Art Galleries, *The Kansas State University Union Art Gallery and the Kansas State University Department of Art Invitational Exhibition '71*, Kansas State University, Manhattan, KS (USA), 1971.



like Bonneviot's *Xenoestrogens (Sweet Star | Rouge Fatal)* (2016; fig. 50).

Benglis here further explores the tension between the pictorial abundance of painting and the mass of sculpture. Such a conceptual approach resonates in the sleek and elegant works by Bonneviot. What unites these two sculptors from different generations is their in-depth examinations of corporeality through the play with bodily scales and material processes. Both artists stage and demonstrate the material process and agency of their artistic materials. The flow and condensation of form are closely linked to sensuality, evoking bodily experience and a fragmented subjectivity – though each work approaches this through distinct formal strategies.

The unbeautiful vs. the glamour of process

Like Bonneviot, Baremboym and Channer are following their famous predecessors by employing material dynamics, the swinging between structure and its dissolution. Yet the works of these two different generations of artists also show decisive differences. The artists discussed in the context of *Eccentric Abstraction* and 'Anti-form' emphasized roughness and brutality but also vitality, urgency, liveliness, and playfulness in their handling of materials. Morris pointed out that his approach to sculpture did not involve using deterministic tooling. He made arrangements that were 'casual and imprecise and unemphasized. Random piling, loose stacking, hanging give passing form to material. Chance is accepted and indeterminacy is implied since replacing will result in another configuration.'²⁰³ These were works in progress or working objects that appeared to claim a readiness for practical and, at times, horrifying use. Ursula Meyer thus characterizes them as 'anti-industrial, unclean and

203 Morris, 'Anti-form', 35.



52 | Lynda Benglis, *Embryo II*, 1967–1976; purified pigmented beeswax, dammar resin and gesso on masonite; 91.8 × 15.2 × 13 cm.



53 | Lynda Benglis, *Rumple*, 1977; chicken wire, cotton, plaster, gesso, oil-based size, gold leaf; 91.4 × 40.6 × 19.1 cm.

unsolid... – these works cowered helplessly on the ground, prostrate, accessible to the next blow.... The let-it-fall material flexibility demonstrates the transitory and impermanent..., the new trend is indicative of the “loss of power” not only over the object but of the object itself. No rigidity is associated with objecthood. The object is de-objectified.²⁰⁴ Fidel A. Danieli called Nauman’s pieces ‘end or waste products’,²⁰⁵ and Lippard highlighted the artist’s ‘use of colour [as] spiritlessly urban, but not commercial – like a shrimp-pink house badly in need of a paint job’.²⁰⁶ In a related mindset, James Mellow called Eva Hesse’s art ‘audacious in its awkwardness’.²⁰⁷ In Louise Bourgeois’s work, Lippard called out the ‘indirectly erotic or scatological allusions, and emphasis on the unbeautiful in art’ along with a directness and ‘suggestion of voyeurism’.²⁰⁸ David Shapiro later wrote that ‘Hesse’s sculpture reminds us that

204 Ursula Meyer, ‘De-objectification of the object’, *Arts Magazine* 8 (summer 1969), 22.

205 Fidel A. Danieli, ‘The art of Bruce Nauman’, *Artforum* 6, no. 4 (December 1967), 16.

206 Lippard, ‘Eccentric abstraction’, 108.

207 James Mellow and David Shapiro quoted in Lucy R. Lippard, *Eva Hesse* (New York, New York: New York University Press, 1976), 179.

208 Lippard, ‘Eccentric abstraction’, 101.

the theme of perishability in sculpture is closely allied to the squandering and exposure [and vulnerability] of materiality.²⁰⁹ Her works 'suffer an explicit ruin over the years,' thereby assuming almost 'primitivist, Stonehenge qualities'.²¹⁰

The works of Bourgeois, Hesse, and their contemporaries have irregular, unsmooth, and at times damaged-looking surfaces that display material residue and seams. The works thus preserved the artists' physical exertion when treating the material. This also evoked a physical response in the viewer: Lucy Lippard borrowed the psychological term 'body ego' to refer to the viewer's profoundly emotional or even repulsed response to such 'mindless, near-visceral identification with form' and material that registered in this way. She also compared the works' bodily presence to Bachelard's 'muscular consciousness,' achieved through scale, spatial relation, physical orientation, and material. It registered the 'artist's own approach to his materials and forms' or was determined 'by the viewer's indirect sensation of identification, reflecting both his personal and vicarious knowledge of sensorial experience in general'.²¹¹ Unfolding between the body of the artist, the viewer, and the work, body ego could thus

be experienced in two ways: first through appeal, the desire to caress, to be caught up in the feel and rhythms of a work; second, through repulsion, the immediate reaction against certain forms and surfaces which take longer to comprehend.²¹²

While the emphasis on bodily experience indeed helped develop a new kind of sculpture, traditional notions of spectatorship remained in place. As Richard J Williams has highlighted, 'the works were photographed extensively, but not ever with people around them. The gallery as usual encouraged visitors to keep their distance, and the experience of apprehending these works remained in many sense [sic] an optical one'.²¹³

Hesse, Nauman, Benglis, and their artist colleagues physically 'mixed, dipped, stretched, layered, coiled, wrapped, folded, threaded, punctured and moulded ... objects into being'.²¹⁴ However, they did so with a level of 'predetermined sequence of complexity [based on] aesthetic decisions of the same order as those made by artists like Caro or David Smith'.²¹⁵ These works, nevertheless, were cast from life, trying to convey some of its unpredictability, filthiness, imperfection, perishability, and existentialism.²¹⁶ They emphasized the 'unbeautiful', the dirty, the abject, the poor, the withered and even the self-lacerating aspects of their

209 Shapiro, 'The random forms in soft materials', 41.

210 Shapiro, 'The random forms in soft materials', 44.

211 Lippard, 'Eccentric abstraction', 102.

212 Lippard, 'Eccentric abstraction', 102.

213 Richard J. Williams, *After Modern Sculpture: Art in the United States and Europe* (Manchester: Manchester University Press, 2000), 32.

214 Jenni Lomax, 'File note 47: Eva Hesse' *Camden Arts Centre* online archive (11 December 2009), <https://camdenartcentre.org/file-notes/file-note-47>, accessed 12 December 2024.

215 Williams, *After Modern Sculpture*, 23.

216 Ironically, this logic has been entirely subverted by gallery and museum curators, as well as the artists themselves, who have meticulously reconstructed these works from the 1960s based on detailed observations of original installation photographs. Rather than focusing on the process, the current tendency when exhibiting these pieces has been to prioritize accuracy; see Williams, *After Modern Sculpture*, 23. This

creation process. The 1960s/1970s generation evoked an image of life, and particularly the body, as a production site. Their works propelled a perception of material flux. The pieces' materiality conveyed 'a world of contingency in which any sense of locus seems to be absent or confused of probabilities', as Shapiro wrote in regard to Hesse's work.²¹⁷ The works thus implied 'the location rather than the act of metamorphosis'.²¹⁸

For scholars specializing in the study of the iconography of materials, including Monika Wagner, Martin Kemp, Dietmar Rübel, and Petra Lange-Berndt, the materials of a work of art are crucial to developing a differentiated understanding of its historical context. Materials thus act as indicators of significant historical processes of change within and outside the arts.²¹⁹ Shining through the relationship between non-linear form and freedom among many artists of the 1960s and 1970s, 'Eccentric Abstractions' and 'Anti-form' have been read by art historians to be motivated by the social context of the time: the utopias, enthusiasms, and progressive moods of the post-war era and the hippie movement.²²⁰ 'Excessive sensuality' was here an appropriate strategy of social resistance and strongly received in leftist circles. Using raw and poor materials, the artists sought to re-assess the use value of art and aimed to withdraw their work from economic structures.²²¹ Notions of the 'scatological', as Lucy Lippard attributed them to Bourgeois's objects, as well as 'echoes of polymorphic sexuality', were seen as a 'refusal and liberation strategy' (in light of Sigmund Freud and the philosopher Herbert Marcuse). Such interpretations are fitting for the formless objects of this time.²²² These artists charged their materials with 'intentional biomorphic erotics and the play with the colour of flesh and decomposition'.²²³ They mirrored the spirit and desires of their time, with existential questions and psycho-analytical findings thus showing how 'art and life were inseparable', as Jenni Lomax observed with regard to Hesse's work.²²⁴

point is also explored below in the context of Barry X Ball's *Medardo Rosso Project*; see chapter 2.1 'Contagious codes', specifically the sub-section 'The liquid modern'.

217 Shapiro, 'The random forms in soft materials', 72.

218 Lippard, 'Eccentric abstraction', 101.

219 See in this context Dietmar Rübel, Monika Wagner, and Vera Wolff (eds.), *Materialästhetik: Quellen-texte zu Kunst, Design und Architektur* [Material aesthetics: Source texts on art, design, and architecture] (Berlin: Reimer, 2017); Monika Wagner, *Das Material der Kunst*; Monika Wagner, Dietmar Rübel, and Sebastian Hackenschmidt (eds.), *Lexikon des Künstlerischen Materials: Werkstoffe der Modernen Kunst von Abfall bis Zinn* [Dictionary of artistic material: Raw materials of modern art from waste to tin], 2nd, rev. edn (Munich: C. H. Beck, 2010); Monika Wagner and Dietmar Rübel (eds.), *Material in Kunst und Alltag* [Material in art and every-day life] (Berlin: De Gruyter, 2002); Sigrid G. Köhler, Jan Ch Metzler, and Martina Wagner-Egelhaaf (eds.), *Prima Materia: Beiträge zur Transdisziplinären Materialitätsdebatte* [Matter first: Contributions to the transdisciplinary materiality debate] (Königstein im Taunus: Ulrike Helmer Verlag, 2004).

220 See Lippard, *Six Years*, vii.

221 See Dietmar Rübel, *Plastizität: Eine Kunstgeschichte des Veränderlichen* [Plasticity: An art history of the mutable] (Munich: Verlag Silke Schreiber, 2012), 184.

222 See in this context Herbert Marcuse, *Eros and Civilization. A Philosophical Inquiry into Freud* (Boston, Massachusetts: The Beacon Press, 1955) and Herbert Marcuse, *An Essay on Liberation* (Boston, Massachusetts: The Beacon Press, 1968).

223 Shapiro, 'The random forms in soft materials', 72.

224 Lomax, 'File note 47', 1.

From anti- and abject forms to alienated forms

Any consideration of the works by Channer, Baremboym, Bonneviot, Rosenkranz, and Humeau removed from their entanglement with our society of the twenty-first century, supersaturated as it is with digital technologies and faced with ecological disaster, is only conditionally fruitful. While in Nauman's, Bourgeois's and Hesse's works the combination of latex, plastic, wax, rubber, fibreglass, and/or fur constituted the 'formless' materiality of their 'eccentric abstractions', the materials used by Channer and her peers originate from anonymous, impersonal, and digitally saturated industrial production processes of our times. Their installations are determined by Xenoestrogen, sanitary pads, gelled emollients, bungee cords, USB cables, sticks and belts, PVC and pelletized HDPE, CNC milled or 3D printed aluminium parts, or digitally printed silk elements, as well as handcrafted ceramic pieces. Baremboym's ceramic impressions with embedded hard drives or USB cables, Bonneviot's vacuum-formed PET plastic sheets indicating body parts, and Channer's digitally-altered materials all bear witness to a materiality that results from a post-industrial societal moment on the brink of collapse. Curator Karen Archey offers a lucid explanation for this development in her *Kaleidoscope* article, 'Post-materiality':

Just as the anti-form aesthetic of Post-minimalism can be read as a response to the chilly remove of Minimalist work, and an attempt to reassert a haptic or sexual material presence, it could be argued that the artists considered here attempt a similar operation.... Perhaps this collection of works responds not to a delayed understanding of how to resolve the networked with flesh, but how to navigate an increasingly impersonal world as a sentient being.²²⁵

While these artists take their cue from 1960s/1970s process art and its shift from objects to actions, they do so from an observational distance. Where the uncontrolled spills and visceral material choices of the 1960s emphasized the artists' flexibility, spontaneity, and the clumsy 'appropriateness' of their responses to the physical features of their employed material, recent sculptural works are much colder, more sterile, designed, and aesthetically pleasing. In a short interview with Ruba Katrib for *Kaleidoscope's* summer issue *Post-i-Meta-Hyper-Materiality*, Alisa Baremboym confirms this observation by addressing a condition of abstracted and fragmented physicality in her sculptures, which are deeply tied to digital technology and corporate aesthetics.²²⁶

These works do not point to a withered materiality as did the latex or fibreglass pieces by Bourgeois, Hesse, or Nauman. Rather, they highlight a glossy, elegant, glamorous, imperishable material reality. They do not emphasize the 'unbeautiful', the dirty, or the abject aspects of the process. Instead, they focus on its distant elegance, its destructive glamour and problematic beauty. Channer, Baremboym, Bonneviot, Rosenkranz, and Humeau employ not raw or poor materials but digitally and industrially processed ones. Their works are, therefore, not as personal or biographical as Marcia Tucker had observed, for example, of Eva Hesse's

225 Archey, 'Post-materiality', 41.

226 Alisa Baremboym quoted in Katrib, 'Hyper-materiality'.

work when she wrote: '[Hesse] has found that because she is concerned with creating personal forms, she must use only materials that she can make herself.'²²⁷

While the writings on post-minimalism emphasized the centrality of the 'artist's procedures of making' and thus always returned to 'the human subject as the cause of processes and ultimately the singular creator of the work of art', Channer and her peers shift such observations.²²⁸ As shown previously, Channer and Baremboym understand themselves as co-authors, as only one of many authors. Their understanding of shared authorship with their employed materials and technologies also distinguishes their work from the 1990s' abject and post-human iterations of sculpture. By placing a strong emphasis on the handmade object and the labour involved, artists of that time – including Smith, Goyer and Stadtbäum – aesthetically and conceptually emphasized the centrality of the artist's body in the creative process.

Though the work of Channer and her peers does resonate with feminist agendas, the artists do not take up such stances explicitly via gendered characteristics, as did their precursors. A feminist reading of Channer and her colleague's productions, *after* the 'abject' and 'eccentric abstractions', might focus on the apparent moments of sensual perversion when Channer's erect aluminium limbs dip into the hot red fluid for their plastic dipping finish. One could also reference situations in Baremboym's works where two USB cables unite in a 'gender changer', where a USB cable penetrates flesh-coloured ceramic, or where a drain-like form seemingly becomes a substitute for a body part (see fig. 46). Once again, we are reminded of the works' anamorphic nature, designating these works 'awry', as Slavoj Žižek reads Jacques Lacan.²²⁹ In the Lacanian reading, anamorphosis refers to a 'deceptive surface beneath which swarms an undergrowth of perverse and obscene implications, the domain of what is prohibited.'²³⁰ For Lacan, Holbein's skull becomes a 'phallic signifier', something that sticks out, that is 'erect' and does not fit.²³¹ It is a 'signifier without signified' that renders the work suspicious, thereby enabling a search for meaning.²³² In this moment of ambiguity and search, the observer is pinned to the observed object. It is 'the point from which the picture itself looks back at us' by addressing, in its play with repression and suspicion, the observer's libidinous desires.²³³

At once seductive and suspicious, uncanny, humorous, and glamorous, the works of Channer and her peers may be interpreted in similar terms. In contrast to those of their famous precursors, their works, however, trade abject and gendered associations for a post-gender eco-eroticism. The tangled web of power and sexual difference has given way to the non-human, the post-human, the animal, the mineral, and the cyborg. As such, the

227 Tucker, 'Anti-illusion: Procedures/materials', 30.

228 Nisbet, *Ecologies, Environments, Energy Systems in Art*, 142.

229 See Slavoj Žižek, *Looking Awry: An Introduction to Jacques Lacan through Popular Culture* (Cambridge, Massachusetts: MIT Press, 1991).

230 Žižek, *Looking Awry*, 90.

231 Jacques Lacan and Jacques-Alain Miller, *Le Séminaire de Jacques Lacan, 1972-1973, Livre XX* [The seminar of Jacques Lacan, 1972-1973, book 20] (Paris: Seuil, 1975), 75.

232 Lacan and Miller, *Le Séminaire de Jacques Lacan* [The seminar of Jacques Lacan], 75.

233 Žižek, *Looking Awry*, 91.

language of these installations instead mirrors the literal sense of the Latin word *pervertere*. Thus, they are rather a sign of sexual repudiation.²³⁴ Melissa Gronlund observes a similar tendency in works by Cécile B. Evans (born 1983 in Cleveland, Ohio, USA), Josh Kline (born 1979 in Philadelphia, Pennsylvania, USA), and trans-gender artist Juliana Huxtable (born 1987 in Bryan-College Station, Texas, USA). 'The overlap between man and machine suggests an eroticism that is wiped clean and sanitized', she writes, 'the body in post-internet art replaces markers of human labour and signs of bodily desire in favour of the hygienic, aestheticized visions of stock photography.'²³⁵

The distant coolness of the works of Channer and her contemporaries results from their various processes of pre- and post-production. This also qualifies their seemingly sexualized formal language as a somewhat subtler techno-eroticism. Elements are designed with Adobe Photoshop, Blender, or Sculpttris or processed through 3D scanning/printing software on the computer before they find their way into the corporeal being.²³⁶ Unlike the 'anti-industrial, unclean, and unsolid' materials used by Morris or the 'sawed redwood timbers rolled into the gallery, or tonnes of earth excavated from the desert, or stockades of logs surrounded by firepits', as Krauss described the earthworks of the 1960s, the works of Channer and her peers display and exhibit a different kind of 'a process art'.²³⁷ It arises from the prevailing entanglement of bodies with our contemporary situation. A significant difference to the methods of the post-minimalist sculptors of the 1960s is that the processes of this recent generation of sculptors are facilitated through the digital mediation present in all spheres of production.

The works of Channer, Baremboym, Bonneviot, Rosenkranz, and Humeau display a condition of corporeality deeply entwined with neoliberal digitality and post-industrial processes. From conception to production and ultimately to dissemination, the digital is a significant component of their material formation. Moving between the domain of high touch and high tech, what thus divides this generation of artists from their predecessors is the digital, which is present as a 'meta-medium' throughout their work.²³⁸ It has become an essential artistic 'production paradigm', as Kerstin Stakemeier suggests.²³⁹ The attendant visual properties tap into the discussion around 'new aesthetics'. The artist and writer James Bridle describes this aesthetic as an 'increasing appearance of the visual language of digital technology and the internet in the physical world, the blending of virtual and physical'.²⁴⁰ In Channer's and Humeau's cases, for example, the remnants of digital processing are aesthetically embedded in the final body of their work. Their object surfaces show traces of CNC milling machines or 3D printing technology. Consistent with digital design strategies and

234 The Latin word *pervertere* means 'to twist' or 'to turn the wrong way'; see Smith, 'The vulnerable articulate', 70.

235 Gronlund, *Contemporary Art and Digital Culture*, 74.

236 See Amy, 'Double-takes: A Conversation with Alisa Baremboym', 47.

237 Krauss, 'Sculpture in the expanded field', 33.

238 Stakemeier, 'Prothetische Produktionen' [Prosthetic productions], 177.

239 Stakemeier, 'Prothetische Produktionen' [Prosthetic productions], 168.

240 James Bridle, 'The new aesthetics and its politics', in Omar Kholeif (ed.), *You Are Here: Art after the Internet* (Manchester: Cornerhouse, 2014), 21.

corporate aesthetics, the material constellations chosen by Channer, Baremboym, Bonneviot, Humeau, and Rosenkranz do not emphasize the spontaneous or intuitive but rather the rationalized, well-thought-out, and carefully planned. The artists interrogate not only the agency of the 'raw' materials but their various processed and commodified states. The process is not prioritized over the product. They depict human and other corporeality as exhumed from digitally and industrially driven processes. These works thus exhibit a strangely novel 'process art'. As such, they are not 'eccentric abstractions' but glamorous, post-human abstractions, not so much anti-forms as outsourced, digitized, and alienated forms.

Interim conclusion: The glam nature of a more-than-human body

As demonstrated above, contemporary sculpture amounts to an important reconfiguration and reformation of corporeality and the body through digital technology. By carefully tracing the production process of Alice Channer's sculptures, this chapter has examined how a contemporary sculptor, employing 3D technologies aesthetically and conceptually, evokes bodily experiences that decentre the human subject as the locus of the sculptural representation, act, and experience. In dialogue with the artists Alisa Baremboym, Juliette Bonneviot, Pamela Rosenkranz, and Marguerite Humeau, and in comparison with prior sculptors, this chapter further showed how traditional sculptural techniques have been expanded through the use of state-of-the-art technologies to outline abstracted, fragmented, metamorphosed, or liquified bodies.

Contemporary sculptures' corporeality surfaces from their material *umwelt* and is inextricably linked with their post-industrial surroundings and processes of production. Like her peers Channer addresses the body in multiple ways and on different levels. These artists' explorations range from interrogations of the various digital and industrial bodies underpinning their figurations to the bodily and material traces of process left by the digital and analogue technologies they employed. These remnants are, in turn, visible and aesthetically ennobled on the final body of their works. By linking the bodily traces of their processes with the spectator's bodily experience of their works, the artists further complicate the notion of the body and corporeality. While the works' aesthetic properties display a concern with different representations of human and non-human bodies, they equally display an interest in the ways such bodies are embedded in the specific processes and networks of their – that is, our – time. The objects created by Channer and her peers allow us to use art as a means of thinking and feeling about our contemporary society – a society faced with extreme and rapid human-induced changes in culture, geology, and biology. Alongside contemporary philosophy, these works speak of the condition in which the human subject has lost its anthropocentric position in the world. Arising between analogue and digital processes, between future-oriented technologies and ancient sculptural techniques, the works discussed in this chapter address how human–technological interaction has shifted towards a blurring of agency and boundaries between human and non-human bodies.

At the same time, the transformative notion of corporeality in Channer's and her contemporaries' works aesthetically and conceptually alludes to a continuous renegotiation of physicality, materiality, and process in sculptural debates.

On one hand, these contemporary positions build upon the profound interest in process and the material configurations of our world, as explored by artists like Robert Smithson, Robert Morris, and Hans Haacke. They also manifest a concern with using digital means to represent diverse bodies that exist somewhere between the realms of human, animal, and mineral. Instead of the 'anti-industrial, unclean, and unsolid' materials used by Morris and his generation, Channer, Baeremboym, Rosenkranz, Humeau or Bonneviot exhibit a different kind of 'process art'.²⁴¹ It arises from the prevailing entanglement of bodies with our contemporary situation – namely, how bodies are embedded in and made up of the specific post-industrial processes and digitally mediated networks of our time. In addition to depicting the human form as entwined with objects of artificial and natural origin, the artists reflect on their own working processes as attempts to overcome the false binaries that position human and nature or producer and product in opposition to each other.

On the other hand, their dissolution of hierarchies and the physical state of materials recalls the 'eccentric abstractions' and 'anti-forms' of the 1960s, and those projects' reworking in the post-human and abject body of the 1980s and 1990s. These objects are thus subject to a sublime synthesis of the 'fey', 'sensuous', and 'technoid-digitized' artistic traditions of the past. These different generations of sculptors share an interest in material examinations and interrogations. The flowing and concentration of form in all their works are thus closely associated with a bodily experience, a disorganized subject, a corporeal thread, albeit through very different means.

While writings on post-minimalism highlight the centrality of the artist in the production process and thus always returned to the human maker as the singular creator of the work of art, Channer and her peers shift towards distributed forms of agency. Another significant difference to the processes of the post-minimalist sculptors of the 1960s is that the artistic processes of Channer and her peers are facilitated through the digital mediation of all spheres of production.²⁴² Consistent with digital design strategies and corporate aesthetics, the material constellations of Channer, Baeremboym, Bonneviot, Humeau, and Rosenkranz suggest something other than spontaneity and intuition. Instead, they channel the rationalized, well-thought-out, and carefully planned aesthetics of the technology industry. Thus the artists interrogate not only the agency of the 'raw' materials but also their various processed and commodified states. The process is not prioritized over the product. Channer, Humeau, Baeremboym, Bonneviot and Rosenkranz depict corporeality, human and otherwise, as exhumed from digitally and industrially driven processes. In contrast to those of their famous precursors, their works trade abject and gendered associations for a post-gender eco-eroticism. Away from an eroticizing gaze, their material conglomerates outdistance a commonly clear-cut division between the representation of a body and its passive, malle-

241 Krauss, 'Sculpture in the expanded field', 33.

242 Stakemeier, 'Prothetische Produktionen' [Prosthetic productions], 176.

able surroundings. Their post-human bodies are not confined to one gender, one sexuality, one race, or one subjectivity. The tangled web of power and sexual difference has given way to the non-human, the post-human, the animal, the mineral, and the cyborg.

In these works, it is no longer the personal but the outsourced that is political. This embodied understanding of corporeality distinctly counters the archaic and masculine dream of the body as the measure of all men or its recreation as a technically perfected or enhanced appendage of the machine. Channer's and her colleagues' works display a condition of corporeality deeply entwined with neoliberal digitality and post-industrial processes. From conception and production to dissemination, the digital has become a significant component of their material formation. Moving between the domain of high touch and high tech, what thus separates them from their famous artistic predecessors is that the digital appears as a 'meta-medium' in their work.²⁴³ As such, these works are not so much 'eccentric abstractions' as glamorous abstractions, not so much 'anti-forms' but outsourced, digitized, and alienated forms. Moving beyond abject principles of shock in art, the works bring forth a different kind of aesthetic and sensory attention. While the 1990s' sculptural iterations approached the thread of individualized corporeality by discovering new forms of mimetic figurations or trans-human visions, Channer and her peers move past common, clear-cut divisions between the representation of a (human) body and its malleable surroundings. Given the digital paradigms of our lived experience, the artists' works no longer arrest the viewer purely by being technologized—unlike the trans-human visions of the 1990s that fetishized technology. Rather, their works aesthetically distort and transform the ancient sculptural relationship between bodies and death in light of a radically changing planet. What might it mean to have or be a body, they ask, in the context of our technological present? As Karen Archey observes lucidly:

Living amidst these changes in state, and being both able and unable to adapt to them, are fundamental to what it means to be human in the twenty-first century, as such extreme fluxes in state – in scale, time, materials, geology, economics, biology, politics, and society – become more and more characteristic of our age.²⁴⁴

In response, the works by Channer and her peers propose material figurations that 'articulate what this experience might feel like'.²⁴⁵ Through their sculptural productions, established sculptural strategies, processes, shapes, the artists question, rework, erase, and simultaneously revive, unite, and rebirth associations and materials.

In 'An essay on liberation', written in the aftermaths of the 1969 student protests, Herbert Marcuse privileges artistic activity as a vehicle for developing a 'new sensibility'.²⁴⁶ 'The new

243 Stakemeier, 'Prothetische Produktionen' [Prosthetic productions], 177.

244 Karen Archey, 'Exhibition tour: Alice Channer, "Half-Life" at Lisa Cooley', *e-flux Conversations* blog (June 2015), <https://conversations.e-flux.com/t/exhibition-tour-alice-channer-half-life-at-lisa-cooley/1857>, accessed 10 December 2024.

245 Archey, 'Exhibition tour'.

246 See Marcuse, *An Essay on Liberation*, 31.

sensibility, which expresses the ascent of the life instincts over aggressiveness and guilt, would foster, on a social scale, the vital need for the abolition of injustice and misery and would shape the further evolution of the “standard of living,” Marcuse writes.²⁴⁷ The emergence of a new sensibility is crucial for escaping the sophisticated, constantly adapting system of capitalist domination in advanced industrial societies. Its goal is to pave the way for the construction of a liberated society. The cultivation of a new sensibility as the medium for social change would thus foster new forms of subjectivity:

The liberated consciousness would promote the development of a science and technology free to discover and realize the possibilities of things and men in the protection and gratification of life, playing with the potentialities of form and matter for the attainment of this goal. Technique would then tend to become art, and art would tend to form reality: the opposition between imagination and reason, higher and lower faculties, poetic and scientific thought, would be invalidated. The emergence of a new Reality Principle: under which a new sensibility and a de-sublimated scientific intelligence would combine in the creation of an *aesthetic ethos*.²⁴⁸

Activities such as art-making, hiking, and sexual pleasure are appreciated by Marcuse as playful, non-instrumental activities and, thus, crucial to developing a new sensibility. According to Coole, these activities would heighten our appreciation for our surroundings without consuming, appropriating, or wasting their resources.²⁴⁹ From a related position, Raqs Media Collective calls for a recalibration of our senses at a global level:

Without a recalibration of the senses, at the level of our global species-being, without at least half a conversation to understand, and then attenuate and nuance our desires and needs, we cannot conceive of another mode of production, another set of social relations, another ethic of husbandry between ourselves and the earth.²⁵⁰

In their artistic treatment of materials and process, do Channer’s and her peers’ sculptures transform sensorial and perceptual coordinates towards an ‘aesthetic ethos’? That is, do they move toward the acknowledgement of a collective nature?

By going beyond a clear-cut division between a body and its malleable surroundings, Channer and her peers’ sculptures literally connect us to the non-human: the animals, the rocks, the industrial and technological forces surrounding us. By blurring the boundaries between human and non-human bodies in both the production and reception stages, these works evolve into movable assemblages – life-spaces that we never master nor possess, but merely inhabit. Through their aesthetic and, at times, disturbing treatment of materials and

247 Marcuse, *An Essay on Liberation*, 31.

248 Marcuse, *An Essay on Liberation*, 31 onwards.

249 See Diana Coole, ‘Der neue Materialismus: Die Ontologie und Politik der Materialisierung’ [The new materialism: The ontology and politics of materialization], in Susanne Witzgall and Kerstin Stakemeier (eds.), *Macht des Materials: Politik der Materialität* [Power of material: Politics of materiality] (Zurich: Diaphanes, 2014), 39.

250 Raqs Media Collective, ‘Three and a half conversations with an eccentric planet’, *Third Text* 27, no. 1 (January 2013), 114.

processes, they transform our environment not into the eternally excluded 'other' of human existence, but into something that art can question, explore, situate, and continually revise. The works' resemblance to living yet fundamentally transformed (eco-)systems is, therefore, in harmony with sculpture's century-old confrontation with our own finitude and mortality.

For philosopher Rosi Braidotti, the key that allows us to invent affirmative alternatives and to refute horror and violence – those inhuman aspects of our present – is precisely such an encounter with our mortality. 'The spectacle of death is written obliquely into the script of our temporality, not as a barrier, but as a condition of possibility,' Braidotti argues.²⁵¹ In this way, she follows a long philosophical tradition of studying death.²⁵² Being confronted with the necessity of death is, for her, 'an ethical way of installing oneself in life as a transient, slightly wounded visitor.'²⁵³ This 'proximity to death suspends life, not into transcendence' – as in Stelarc or Moravec's trans-humanist notion of post-humanism – but rather into 'radical immanence of just a life, here and now, for as long as we can and as much as we can take. ... In so far as death is ever-present in our psychic and somatic landscape ... it has already taken place as a virtual potential that constructs everything we are.'²⁵⁴ The awareness of the 'transitory nature of all that lives is the defining moment of our existence connecting self and others including the animal, the vegetable, the earth, the non-human.'²⁵⁵ Finding ourselves in this death–life continuum, the binary oppositions between nature and culture, or human and non-human, are dissolved. In this sense, Braidotti describes an ethical bond altogether different from the self-interests of an individual subject, as defined along the canonical lines of classical humanism or trans-human future scenarios.²⁵⁶ While the key in Braidotti's post-human ethics is transcending negativity, this also means that the conditions of renewed political and ethical agency cannot be drawn from the immediate context of our current terrain.²⁵⁷ They must be generated affirmatively and creatively by mobilizing resources and visions left untapped and by actualizing them in daily practices of interconnection with others. It is conceptual creativity and visionary fuel that are thus central to Braidotti's post-human project.

In a similar spirit, Alice Channer claims that 'the 21st century needs objects that are vulnerable, uncertain, other, alien. ... They must be confidently doubtful, awkward as well as elegant, horizontal as well as vertical, soft as well as hard. Objects like these might show us new kinds of embodiment – how to mutate, adapt, change state, survive, prosper.'²⁵⁸

251 Braidotti, *The Posthuman*, 132.

252 See James Stevens Curl, *A Celebration of Death: An Introduction to Some of the Buildings, Monuments, and Settings of Funerary Architecture in the Western European Tradition*, 2nd edn (London: BT Batsford, 1993), 1.

253 Braidotti, *The Posthuman*, 132.

254 Braidotti, *The Posthuman*, 132.

255 Braidotti, *The Posthuman*, 132.

256 See Braidotti, *The Posthuman*, 190.

257 See Braidotti, *The Posthuman*, 191.

258 Alice Channer, 'The form-giver. A Picasso symposium', *Art in America* (September 2015), 87.

In refining our sense of attachment and connection to a shared but vanishing world, Channer's work and that of her colleagues evokes aesthetic experiences of different forms of embodiment and being in the world. As such, these works are not merely pessimist outlooks that mediate encounters with an ecological system on the brink of collapse. By mobilizing sculpture's fluid boundaries between fiction and reality or death and life, these works offer sculptural syntaxes that articulate a changing material and bodily condition. It is precisely here, in the engagement with the logic of sculpture as a reminder of death, that contemporary sculpture may initiate a way towards a different understanding of corporeality. By prompting us to experience moments of crisis, Channer's and her contemporaries' objects assist in our understanding of our corporeality, revealing the contingency of our world and its impending transformations. While these artistic views do indeed invoke the death of the subject, they do not indicate the end of humanity but rather an anthropocentric, sculptural conception of the human. Extending far beyond flesh and bone, the body in contemporary sculpture becomes a form-shifting device, a boundless edifice, and a commemorative site for articulating more-than-human corporeality.

In the next part of this book, the changing notion of the body in sculptural production from the perspective of the machine, or rather machine vision, is examined. Generated from face recognition, detection software, and genetic algorithms, the ghost-like and fictitious-looking visages of the American artist Sterling Crispin visualize how surveillance software systems perceive and construct our identity. His sculptural works thereby disclose the otherwise invisible plasticity of the technological systems surrounding us, including surveillance architecture and its constantly evolving codes. 'Plasticity: Contagious codes and algorithmic visions' expands our reflective horizon from corporeality towards the sculptural category of plasticity.

2

PLASTICITY: CONTAGIOUS CODES AND ALGORITHMIC VISIONS

The future is there ... looking back at us.
Trying to make sense of the fiction we will have become.¹

William Gibson's observation here could also have been made by artist Sterling Crispin of his *Data-Masks* (2013–2015; fig. 54), a series of six 3D printed face masks caught in a strange state of metamorphosis. The ghost-like and fictitious-looking visages are generated from face recognition, detection software, and genetic algorithms. They reveal how surveillance software systems perceive and construct our identity. Crispin, who initially trained as a painter at Rocky Mountain College of Art and Design, gradually extended his practice towards hybrid sculptures, investigating digital technology's form, function, and agency and its interfaces with human and non-human bodies. In his work *Data-Masks*, the artist and technologist has reverse-engineered surveillance technology to algorithmically render sculptural objects. Following complex digital translation and modelling processes, the final presentation takes the form of masks installed at eye level in front of a mirror. In Crispin's work, face detection and recognition algorithms have dissolved the solidity of human features into form-shifting, grotesque-looking data doubles. Redeeming the prognosis of Cayce Pollard, the female protagonist in Gibson's novel *Pattern Recognition*, whose story unfolds against the backdrop of a society marked by rising mass surveillance, these strange masks seem to be 'looking back at us'.² They thereby project 'the fiction we [have already] become' in the gaze of machine vision and surveillance technology.³

Sterling Crispin's *Data-Masks* are representative of a sculptural aesthetic also seen in the works of artists such as Zach Blas, Jon Rafman, Quayola and Oliver Laric. The artists digitize, archive, reference, rework, fragment, and/or reassemble emblematic art-historical references through the lens of algorithms, custom-made software, and digital prototyping technology. Their practices thus share and revise previous engagements with the Western sculptural canon in digital terms. In their artworks, the analysis and subsequent recombination of data through algorithmic commands embodied in code generate plastic form. Such plasticity doubles with a physical counterpart when their works are materialized via digital prototyping technologies.

1 William Gibson, *Pattern Recognition* (London: Penguin, 2003), 57.

2 Gibson, *Pattern Recognition*, 57.

3 Gibson, *Pattern Recognition*, 57.

The second part of this book aims to investigate the plasticity educed by contemporary sculptural practices employing digital technology. In recent artistic production, such plasticity arises in both physical and digital realms and between the material and seemingly immaterial worlds. Following its etymological roots, plasticity is negotiated as a phenomenon of the mutable, malleable, and ductile.⁴ This understanding is tied to the word's origin in the ancient Greek *plassein*, which described the moulding and forming with soft and mutable matter as well as the act of moulding a person through practice and education.⁵ Some sources further suggest a reading of *plassein* as fabricating, forging, lying, or contriving.⁶ The formal-technical terms *plastike techne* or *ars plastica*, meanwhile, designated modelling with clay, wax, and sometimes even ore.⁷ In Hellenic art literature *plastike* was established as an umbrella term for clay modelling, sculpting, casting, and carving.⁸ Hellenic culture, however, did not propose a systematic categorization or historical contextualization of the term, despite the fact that its development was from the onset determined by reflections on contemporaneous processes of production. Today, the word 'plastic' appears in various contexts, including technological, medical, and philosophical discourses. This text, however, uses 'plasticity' in its art-historical formulation. While English-speaking scholarship today still discusses plasticity mainly as a term of a formal-technical nature rooted in the word's etymology, German discourse has established plasticity as an important aesthetic term in light of German Romanticism. The text thus carefully unfolds and locates the significance of plasticity for recent object-making between different language horizons and academic worlds.

How are the digital and the physical, the virtual and the actual, the material and the immaterial bound together in Crispin's work? How do these relationships build on and transform existing notions of plasticity? How do these altered regimes reflect back at us, at the way our body enters the work and the materiality used to convey human form? Or, in Gibson's words, how to 'make sense of the fiction we will have become'? Such questions around plasticity, process, and materiality determine the problems this section attempts to answer.

To that end, I will examine the plasticity of Crispin's work within three horizons of investigation. Chapter 2.1 ('Contagious codes: Reworking the art-historical software') opens with a close reading of Crispin's *Data-Masks* followed by an inquiry into historical debates on plasticity. In light of the work's aesthetic features deriving from genetic, self-evolving algorithms, plasticity is invoked as a category closely (indeed, quintessentially) associated

4 See Christina Dongowski, 'Plastisch' [Plastic], in Karlheinz Barck et al. (eds.), *Ästhetische Grundbegriffe: Historisches Wörterbuch in sieben Bänden* [Foundational concepts in aesthetics: Historical dictionary in seven volumes] (Stuttgart: J.B. Metzler, 2010), 815; Rübel, *Plastizität* [Plasticity].

5 Dongowski, 'Plastisch' [Plastic]; 815.

6 Dongowski, 'Plastisch' [Plastic]; 815; Ulrich Pfisterer, 'Plastisch/Malerisch' [Sculptural/painterly], in Ulrich Pfisterer (ed.), *Metzler Lexikon Kunstwissenschaft: Ideen Methoden, Begriffe* [Metzler dictionary of art scholarship: Ideas, methods, terms], 2nd edn (Stuttgart: Metzler, 2011), 340.

7 See Alice A. Donohue, *Greek Sculpture and the Problem of Description* (Cambridge: Cambridge University Press, 2005), 63.

8 See Pfisterer, 'Plastisch/Malerisch' [Sculptural/Painterly], 342.



54 | Sterling Crispin, *Data-Masks*, 2013–2015; 3D printed nylon, mirror, facial recognition and detection algorithms, genetic algorithms; 46 × 66 cm (each). Installation view, ZKM Karlsruhe, *GLOBALE: Infosphere*, Karlsruhe (Germany), 2015.

with material agency, the taking of, creating, and giving birth to form.⁹ This understanding follows the etymological origins of the word ‘plasticity’ but is also closely linked to a modern sculptural tradition. Here plasticity was thought to foreground the polymorphic properties of an artistic material, its intrinsic energy, and its concrete material presence.¹⁰ To this end, the first chapter compares selected works by Medardo Rosso (1858–1928, born in Turin, Italy) and Auguste Rodin – conceptualized through writings on the ‘liquid modern’ by Julius Meier-Graefe, Max Osborn, and Georg Simmel – to Crispin’s *Data-Masks* and works by his peers Jon Rafman and Zach Blas.¹¹ Highlighting aesthetic, conceptual, and discursive parallels, this section demonstrates that the perceived novelty in sculptural approaches that utilize algorithmic systems can be connected to both the modern sculptural tradition and historical techniques of fabrication. By identifying both parallels and discontinuities, this

9 See Dongowski, ‘Plastisch’ [Plastic], 815.

10 See Rübel, *Plastizität* [Plasticity], 32.

11 Dietmar Rübel proposes the terminology of the liquid modern in his book *Plastizität* [Plasticity]. It is, however, difficult to determine whether this term appears in historical writings. See Rübel, *Plastizität* [Plasticity], 39.

chapter posits a digital plasticity that connects to and simultaneously reconfigures prior art-historical dialogues.¹²

After Crispin's and his peers' work has been placed in context with the past, chapter 2.2 ('A sea of noise: Liquid phantasies and digital matters') will develop an appropriate understanding of materiality, which forms the foundation for the digital plasticity of recent sculptural production. Moving beyond debates on digital objects and their im/materiality, the chapter illustrates how code is being reconsidered in contemporary art production as both an artistic material and mutable matter. Finally, chapter 2.3 ('Algorithmic visions: Towards a digital plasticity') builds upon debates surrounding digital materiality, tracing the mutability and materiality of code from discourses on parametric architecture and early algorithmic and computer art to 1990s digital sculpture.

By mapping how digital plasticity has shifted throughout the decades, the section enables a comparison between the work of Crispin and his peers and the works of the early pioneers of digital art, particularly early digital sculpture.¹³

Crispin's interest in surveillance technology was sparked by Edward Snowden's leaks of classified NSA files in 2013. Snowden's disclosures revealed the shocking implications of several secret treaties signed by members of the UK/USA intelligence community in the efforts to implement a global surveillance network. This chapter closes by examining the digital plasticity of the works by Crispin and his peer group as symptomatic of our current moment. Crispin's work and the military-industrial complex use the same software and hardware; given this repurposing, the chapter locates digital plasticity as an integral part of our contemporary architectures of power, so familiar and yet so invisible, seemingly neutral and yet inherently political.

The act of pattern recognition, as vividly evoked in Gibson's novel, thereby not only represents the underlying mechanism of machine vision software employed in Crispin's *Data-Masks*. Rather, 'pattern recognition' also describes the working maxim for this second chapter. Motivated to recognize and understand the repeating, evolving, and dissolving patterns in recent sculptural production, the following study aims to establish connections between historical advancements in plasticity and materiality and their contemporary counterparts. The artistic patterns identified in the works of Crispin and his peer group thus become the visual indicator of the otherwise invisible plasticity of the technological system, the uncanny architecture of our moment and its evolving codes. Crispin's *Data-Masks* give a face to a future that is already here. It is a future filled with objects 'looking back at us' and uncannily scrutinizing us, trying to make sense of the fiction we shall soon have become.¹⁴

12 See in this context also Mara-Johanna Kölmel, 'Digitale Plastizität/Digital plasticity', in Elke aus dem Moore and Jandra Böttger (eds.), *Vibration der Dinge: 15. Triennale der Kleinplastik Fellbach* [Vibration of things: 15th Fellbach triennial of small-scale sculpture] (Berlin: Archive Books, 2022), 222–229.

13 For further reading on the plasticity of digital sculptures see also Ursula Ströbele, 'Memory activism: Plasticity of digital sculptures', *Philosophy Kitchen – Rivista Di Filosofia Contemporanea* 22 (2025), 165–179. <https://doi.org/10.13135/2385-1945/12034>.

14 Gibson, *Pattern Recognition*, 57.

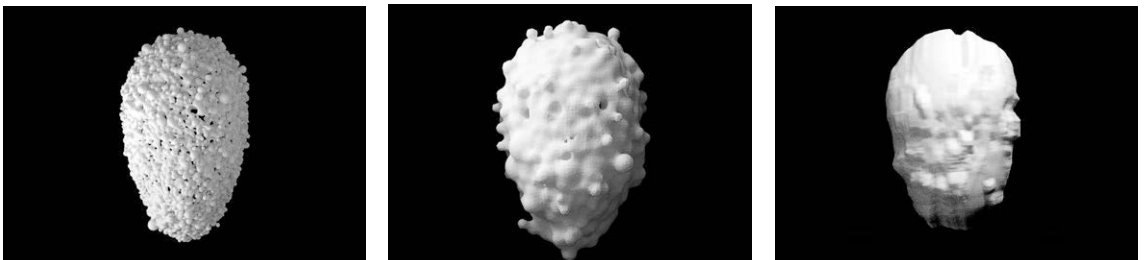
2.1 Contagious codes: Reworking the art-historical software

This chapter's point of departure is Sterling Crispin's series *Data-Masks*. Through a close reading of the visual-tactile qualities of his installation and its production processes, the chapter lays out an understanding of sculptural plasticity driven and deeply imbued by algorithmic processes. Technologically, Crispin's algorithmic systems are linked to biometric and surveillance technology and their potential to capture, classify, and render human form. Do his objects and those of his peers therefore relate differently to the concept of plasticity than did the works of his predecessors? In the artworks and writings of the 'liquid modern,' plasticity is invoked as a category closely associated with material agency, flexibility, pliability, and a given material's potential to evolve. That re-formulation of plasticity in modern sculpture foreshadows aspects of the plasticity which is at work in Crispin's pieces with genetic, agential and self-evolving algorithms. 'Contagious codes: Reworking the art-historical software' develops an art-historical foundation against which to compare the plasticity of recent objects, paving the way for a subsequent investigation into how Crispin and his peers conceive of materiality.

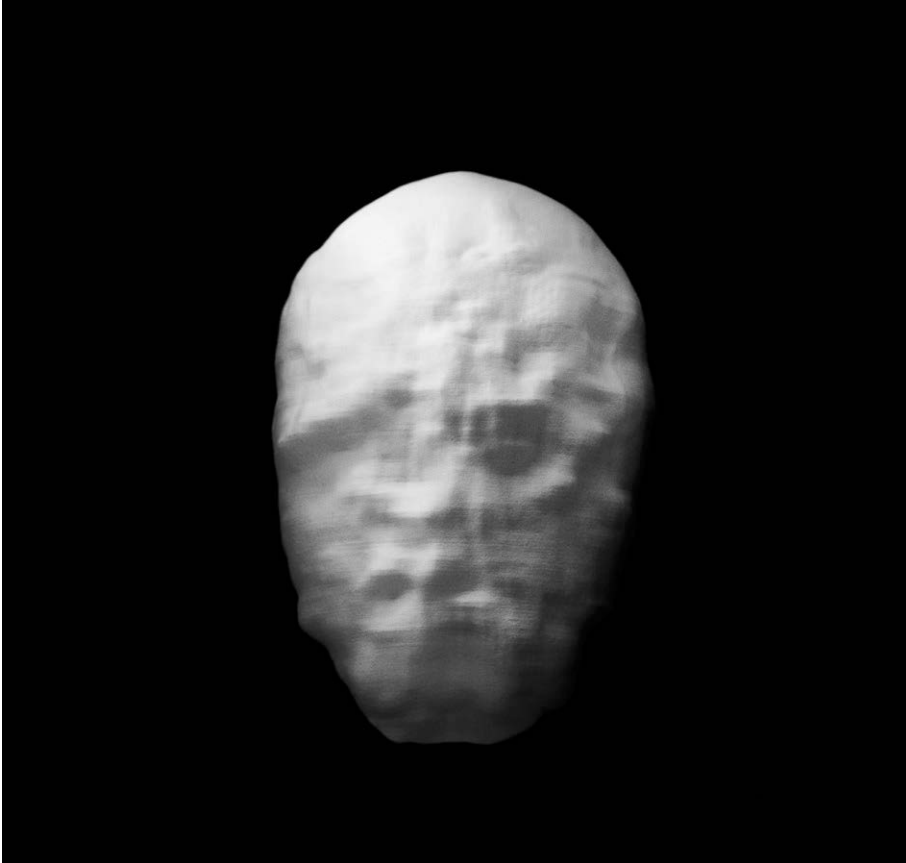
The text will not only use a contemporary perspective to address historical constellations unfolding around questions of material agency, plastic power, and human depictions, but also encourage alternative readings of recent artistic practices in light of their historical precursors. Positioning contemporary works within a historical perspective not only helps uncover discursive, conceptual, and aesthetic parallels to earlier understandings of plasticity but also qualifies the rhetoric of the 'new' which so often accompanies technological developments within contemporary art discourse.

Facing the mask, unmasking the face

Sterling Crispin's work *Data-Masks* (fig. 54) is composed of six amorphous and at times anthropomorphic white objects. The hollow oval shapes are mounted at eye level on six uniformly spaced wall-mounted mirrors. The serial installation, suspended between object and image, directs the gaze of the spectator. As you move along the displayed screens, the oval objects come to life in a sequence of perpetual morphosis.



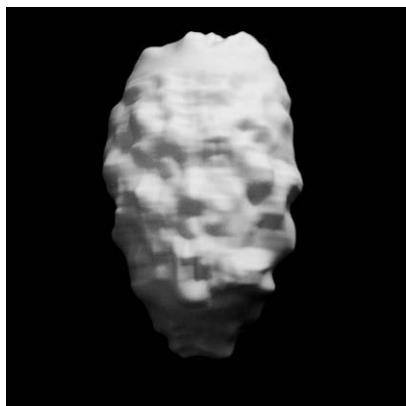
55, 56, 57 | Sterling Crispin, *Zuck Blister*, 2013–2015; *Kodama*, 2013–2015; *Void*, 2013–2015; 3D printed nylon, mirror, facial recognition and detection algorithms, genetic algorithms; 46 × 66 cm.



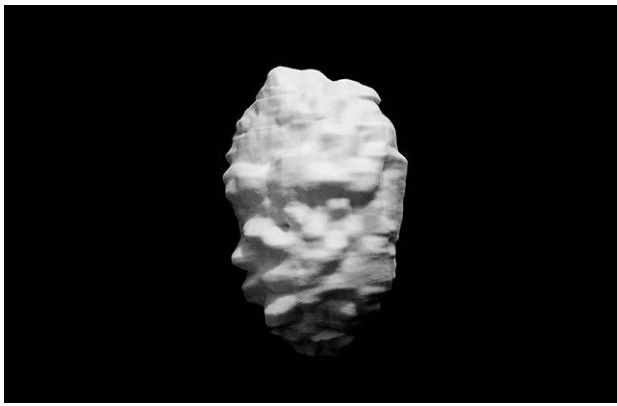
58 | Sterling Crispin, *Chronos*, 2013–2015; 3D printed nylon, mirror, facial recognition and detection algorithms, genetic algorithms; 46 × 66 cm.

Like individual film stills, the works capture particular states of an evolving form. Hovering between liquid and hardened states, tectonic or cellular structures, and geological and biological formations, each object carries its particular features and title. While *Zuck Blister* (2013–2015; fig. 55) appears like a meshwork of coral, *Kodama* (2013–2015; fig. 56) is poised between a reef-like underwater formation and a glimpse into the molecular structure of a virus. Round protrusions, reminiscent of drops or spheres, define the object's surface. It appears to be in a state of dissolution. In *Zuck Blister*, a natural appearance with references to marine biology prevails. *Kodama*, however, qualifies its natural appearance with an industrial, grid-like imprint coating the shape's surface.

Pixelated interfaces or a voxel terrain used to generate landscapes in 3D simulations come to mind. *Void* (2013–2015; fig. 57) and *Chronos* (2013–2015; fig. 58) follow the established aesthetic but also expand the visual references towards the domain of medical imaging technology. The arched and wavy surfaces of the two objects bear ghostly face-like features. In *Chronos*, an indentation on the level of the viewer's left eye appears like an eye



59 | Sterling Crispin, *Até*, 2013–2015; 3D printed nylon, mirror, facial recognition and detection algorithms, genetic algorithms; 46 × 66 cm.



60 | Sterling Crispin, *Sobek*, 2013–2015; 3D printed nylon, mirror, facial recognition and detection algorithms, genetic algorithms; 46 × 66 cm.

socket complemented by a nose-like elevation and a mouth-like indentation, so that the piece suggests a skull or an ultrasound image.

In *Até* (2013–2015; fig. 59) and *Sobek* (2013–2015; fig. 60), references to anthropomorphic forms have evolved towards geological and tectonic structures resembling the surface of a foreign planet, rock strata, or a topographic map of unknown territory. The objects' cool and distanced formal language is reinforced by the mirrors on which they are mounted, bestowing upon the works the impression of floating weightlessly on a liquid surface. The mirrors insert the viewer's upper body into the works. It places us in close bodily proximity to the exhibited objects, creating a moment of seduction and unease (fig. 61).

If one is positioned directly in front of the serial installation, the objects become masks covering the spectators' faces. Each mask is generated from genetic face detection and recognition algorithms, named after an animalistic deity, and then mounted on a mirror.

Chronos, the personification of time; *Até*, the goddess of mischief; and *Void*, the first primordial deity born from the cosmic void of Chaos, relate to Greek mythology. *Kodama*, a Japanese tree spirit, is also the name of the inventor of early 3D printing 'stereolithography'; and *Sobek* is the Egyptian crocodile god of strength and power. As *Zuck[erberg] Blister*, the pseudo-god of our present complements these five. By superimposing the spectator's mirror image on one of the six masks, the artist creates a tension between self and external perception. The masks invite communication but also create distance. The media theorist Erhard Schüttzel contextualizes such an experience when he remarks that masks historically either sided with a society or were seen to be opposed to society. On the one hand, masks linked to people and their societal role acted out against the inimical other, as Schüttzel examines them in relation to 'nature'.¹⁵ On the other hand, masks also took the side of a mag-

15 See Erhard Schüttzel, 'Medium Maske: Ein Kommentar zu Claude Lévi-Strauss' [The medium of the



61 | Sterling Crispin, *Chronos*, 2013–2015; 3D printed nylon, mirror, facial recognition and detection algorithms, genetic algorithms; 46 × 66 cm.

ically imbued 'nature' in opposition to a 'society'.¹⁶ The mirror, meanwhile, stages and negotiates the encounter between the familiar self and the unfamiliar other. In this double-play of consolidation and contrast, Crispin also plays on the dialectic of the mask, which is often described as both 'revealing and hiding'.¹⁷ He thereby affirms the mask's most 'fundamental meaning', namely its close connection to the face.¹⁸ While Crispin's *Data-Masks* cover our faces, they also become faces. The mask can be both experienced as protection of the face from an invisible surveillance system or as its precise embodiment. It begins to function as

mask: A commentary on Claude Lévi-Strauss], in Ulrich van Loyen, Michael Neumann, Frank Böckelmann, and Walter Seitter (eds.), *Tumult 31: Gesichtermoden* [Tumult 31: Facial fashions] (Berlin: Alpheus Verlag, 2006), 54.

16 See Schüttelpeitz, 'Medium Maske' [The medium of the mask], 54.

17 Richard Weihe, *Die Paradoxie der Maske: Geschichte einer Form* [The paradox of the mask: History of a form] (Munich: Wilhelm Fink Verlag, 2003), 13. Translation by Mara-Johanna Kölmel.

18 Hans Belting, *Faces: Eine Geschichte des Gesichts* [Faces: A history of the face], 2nd edn (Munich: C. H. Beck, 2014), 13.

62 | Sterling Crispin,
Chronos, 2013–2015;
 3D printed nylon, mirror,
 facial recognition and
 detection algorithms,
 genetic algorithms;
 46 × 66 cm.
 Installation view, ZKM
 Karlsruhe, *GLOBALE:*
Infosphere, Karlsruhe
 (Germany), 2015.



a mediating third term, as face and mask simultaneously, making us spectators and actors alike (fig. 62).

In Crispin's *Data-Masks*, mask and face coincide. His work thus reminds us of a long historical trajectory in which the two were never purely antitheses but acted as stand-ins for one another. As Richard Weihe points out, the Greek word *prósōpon* literally means 'that which is vis-à-vis the eyes (the other)' and does not distinguish between 'natural and artificial face'.¹⁹ The equation of the mask with the face, as in the cult and theatre of Greek antiquity, created a prosopic unity of face and mask which Crispin's work plays on.²⁰

Similar historical antecedents are conveyed in the word 'person', which derives from the Latin word for mask, *persona*.²¹ In contrast to Ancient Greeks, however, Ancient Romans distinguished between *persona* (mask), *facies* (face), and *vultus* (mien).²² In the modern era, this literary equation was slowly replaced by 'mask' and 'person', leading to the *homo duplex*. This model of the human combined nature and cultural techniques in the idea of the self as a role, as Weihe has highlighted.²³ As early as the Enlightenment the common pictorial char-

19 Weihe, *Die Paradoxie der Maske* [The paradox of the mask], 35 and 27. Translation by Mara-Johanna Kölmel.

20 See Weihe, *Die Paradoxie der Maske* [The paradox of the mask], 13.

21 'Person', *Oxford English Dictionary* online, https://www.oed.com/dictionary/person_n?tab=factsheet#30948551, accessed 13 December 2024.

22 'In the fact that the term 'person' derives from the mask, from the Latin *persona* – though unlike the Greeks, the Romans did distinguish between *persona* (mask) and *facies* (face) and additionally used *vultus* (mien) – etymology and terminological history reveal a fascinating array of interrelationships and tensions. Sigrid Weigel, 'Das Gesicht als Artefakt: Zu einer Kulturgeschichte des menschlichen Bildnisses' [The face as artefact: On a cultural history of the human image], in Sigrid Weibel (ed.), *Gesichter: Kulturgeschichtliche Szenen aus der Arbeit am Bildnis des Menschen* [Faces: Cultural-historical scenes from the work on the image of the human being] (Munich: Wilhelm Fink Verlag, 2013), 9. Translation by Mara-Johanna Kölmel.

23 See Weihe, *Die Paradoxie der Maske* [The paradox of the mask], 349.

acter and history of the face and the mask were denied: The face represented an 'image of the self', whereas masks were the 'counterfeit self'.²⁴

With facial detection and recognition technology, on the other hand, living faces are captured in time, creating frozen features that once again come to stand for a permanent representation of a person, as in the prosopic unity of Ancient Greek drama. In accordance with the reading of art historian Hans Belting, face and mask can be understood as images that appear on various surfaces – on natural skin or wood or printed nylon. In the case of Crispin's work, surveillance images are thus masks used to generate further masks that are then mounted on mirrors. It is a similar observation that leads Belting to argue that the history of the face is always already a record of masks that depict faces without being faces.²⁵ Alluding to this double-play, Crispin replaces the canvas, typically the portable medium of the depicted face, with a mirror to stage the encounter between multiple perceptual regimes and spheres of agency. The mirror thereby functions as a threshold both distancing and superimposing the human spectator and the technologically generated artefact. The viewer is caught between algorithmic and human agency, human and machine vision, and human face and data-mask.

Crispin's play of reflections enables us to perceive ourselves and the observed counterpart as if from a distance and thus be implicated in a complex nexus of relations. Our sight is blocked and reciprocated by an object embodying the mechanism of facial recognition and detection technology. In the face of the technological other, we are reminded that what constitutes our identity has come under question. Echoing the myth of Narcissus, the mirror in European cultural history serves as a metaphorical tool for contemplating how it (or, in a symbolic understanding, art) reflects the world and the legitimacy of this mimetic ideal.²⁶ Throughout the centuries, the story of the beautiful boy who tragically falls in love with his self-image has become a site to negotiate questions of identity, (self-)knowledge, desire, rejection, and self-delusion.²⁷ One could identify our present-day fascination with screens as another variation of the Narcissus myth, a twist on the cultural appropriation and interpretation of Ovid's complex story. If Narcissus is intrigued by the seemingly foreign, apparently three-dimensional and yet fatal images produced by the water's mirroring surface, so are we by the promise of technology. According to media theorist Marshall McLuhan, the myth of Narcissus can be read as the primal scene of the media experience. The promise and peril of Narcissus falling in love with his own self-image and, therefore, experiencing a delusion, as argued by McLuhan, permeate our relationship with (digital) technologies. In 'The gadget

24 Belting, *Faces*, 27.

25 See Belting, *Faces*, 27.

26 See on this topic Miranda Anderson (ed.), *The Book of the Mirror: An Interdisciplinary Collection Exploring the Cultural History of the Mirror* (Cambridge: Cambridge Scholars Publishing, 2007).

27 For an overview of the various facets of the myth of Narcissus throughout its history of reception see Almut-Barbara Renger, 'Vorwort: Narcissus "Selbsterkenntnis" und "Liebe als Passion": Gedankengänge zu einem Mythos' [Preface: Narcissus's 'self-knowledge' and 'love as passion': Thoughts on a myth], in Almut-Barbara Renger (ed.), *Narcissus: Ein Mythos von der Antike bis zum Cyberspace* [Narcissus: A myth from antiquity to cyberspace] (Stuttgart: Verlag J. B. Metzler, 2002), 2–6.

lover: Narcissus as narcissis', the fourth chapter of his seminal book *Understanding Media: The Extensions of Man* (1964), McLuhan writes:

The Greek myth of Narcissus is directly concerned with a fact of human experience, as the word Narcissus indicates. It is from the Greek word narcosis or numbness. The youth Narcissus mistook his own reflection in the water for another person. This extension of himself by the mirror numbed his perceptions until he became the servomechanism of his own extended or repeated image. The nymph Echo tried to win his love with fragments of his own speech, but in vain. He was numb. He had adapted to his extension of himself and had become a closed system. Now the point of this myth is the fact that men at once become fascinated by any extension of themselves in any material other than themselves....²⁸

In his self-reflection, Narcissus imagines a three-dimensional space. Due to an intense focus on his sense of sight, as McLuhan argued, Narcissus mistakes the flat mirror image for a three-dimensional depth. Indeed, 'he loves a bodiless dream. He thinks that a body, that is only a shadow,' Ovid writes.²⁹ For the myth and media thinker McLuhan, Narcissus is therefore the prototypical recipient.³⁰ Stunned and intoxicated by the water's surface, Narcissus demonstrates above all the effectiveness of media. Crispin's use of the mirror redeems media, however, unfolding itself between seduction and perception. By superimposing the spectator's mirror image with a mask or face produced through the mechanisms of machine vision, the mirror enforces the duality of self-observation and surveillance, the tension between self and external perception.

According to McLuhan's well-known formula, the medium is the message insofar as it transforms the self into the 'media-like' other. At the same time, it allows the other to identify with the self. Crispin stages precisely such an encounter with his *Data-Masks*. He employs face detection and recognition algorithms to dissolve and adapt the solidity of human features to create form-shifting, grotesque-looking data doubles. At this point, however, the spectators are unaware that Crispin has generated his *Data-Masks* using data from individual faces – one of which could be their own. As such, his masks are extensions of human beings. Just like Narcissus mistakes his counterpart in the mirror for a stranger, viewers do not initially recognize themselves in Crispin's technology. Instead, the viewer glimpses a supposedly strange being. As McLuhan argues in *Understanding Media: The Extensions of Man*, what remains unrecognized is the fact that media technology determines the human as much as natural organs do. All media cognition, therefore, relies first and foremost on a misunderstanding of the media. Which medium could be more suitable to verify such observation than a mirror with its inherent ambiguity oscillating between semblance and being? Crispin's *Data-Masks* stage us as profoundly entwined within the plasticity of a technological sur-

28 Marshall McLuhan and Lewis H. Lapham, *Understanding Media: The Extensions of Man* (Cambridge, Massachusetts: MIT Press, 1994), 41.

29 Ovid, *Metamorphoses*, tr. A. S. Kline (Ann Arbor, Michigan: Borders Classics, 2004), 410.

30 See Thomas Wegmann, 'Erkennen und Verkennen. Der mythische Narziß in der medialen Endlosschleife' [Recognizing and misconstruing: The mythical Narcissus in the infinite loop of media], in Almut-Barbara Renger (ed.), *Narcissus: Ein Mythos von der Antike bis zum Cyberspace* [Narcissus: A myth from antiquity to cyberspace] (Stuttgart: J. B. Metzler, 2002), 168.

veillance infrastructure, whether we recognize it or not. The serial use of the rectangular mirrors in Crispin's installation also points to the work's conception of our experiences in front of, through and mediated by computer screens. The mirror becomes the metaphor for a screen opening up to a virtual space. Like a painting or computer screen, the data-masks are situated in actual space while encapsulating an intangible world enclosed by demarcation. These are screens in 'portrait mode'. We see nothing less than a simulation emerging from an interactive and three-dimensional environment.³¹ Crispin materializes pieces of facial data and makes them visible to us – the mirror is linked to not only the works' conceptualization but also their materialization. As 3D prints, each object has emerged layer by layer from a Selective Laser Sintering process. The mirror stages the slow emergence of the shapes from the virtual realm into actual space, from image to object, from 'within' the screen into our three-dimensional space.

A different kind of plasticity

The concept of sculptural plasticity in Crispin's objects refers to more than the literal plastic compound resin used to materialize each digitally conceived object. The concept also points to the object's creation process, in which the plastic form is generated at the intersection of human and algorithmic realms of agency. The artist's production process involves the random generation of images and volumes, methods of measuring face-likeness with facial detection and recognition algorithms, and training those algorithms with the help of databases. In his material staging of those mathematically underpinned procedures, Crispin exploits the typical functioning of Facebook's *DeepFace* software.³²

Launched in 2014, *DeepFace* uses pattern recognition to detect and isolate a face in an image (fig. 63 a–b). It then measures 67 fiducial points describing the location of individual facial features before transposing a generic 3D face shape onto the image plane of the cropped face (fig. 63 c–d).³³ Mapping a simplified model of the face onto the 67 points, the

31 For a detailed account of the relationship between image and screen see Anne Friedberg, *The Virtual Window: From Alberti to Microsoft* (Cambridge, Massachusetts: MIT Press, 2009); Kate Mondloch, *Screens: Viewing Media Installation Art* (Minneapolis, Minnesota: University of Minnesota Press, 2010); Kate Ince, *The Body and the Screen: Female Subjectivities in Contemporary Women's Cinema* (New York, New York: Continuum, 2017).

32 The exploration of facial recognition methods in modern research began in the mid-1990s under the direction of the United States of America's Defense Advanced Research Projects Agency (DARPA). In the early 2000s, military authorities developed FERET, a database comprising tens of thousands of photographs, primarily featuring individuals employed at a military base in Maryland. See W. Zhao, R. Chellappa, P. J. Phillips, and A. Rosenfeld, 'Face recognition', *ACM Computing Surveys* 35, no. 4 (December 2003), 399–458, doi: 10.1145/954339.954342; Lucas D. Intra and David Wood, 'Picturing algorithmic surveillance: The politics of facial recognition systems', *Surveillance & Society* 2, no. 2/3 (2004), 177–198; Lucas D. Intra and Helen Nissenbaum, 'Facial recognition technology: A survey of policy and implementation issues', *Social Science Research Network* website (22 July 2009), <https://papers.ssrn.com/abstract=1437730>; Caroline Wilkinson and Christopher Rynn (eds.), *Craniofacial Identification* (Cambridge: Cambridge University Press, 2012).

33 Fiducials are reference points that denote fixed points or lines within a scene. They provide a framework against which other objects can be related or measured.

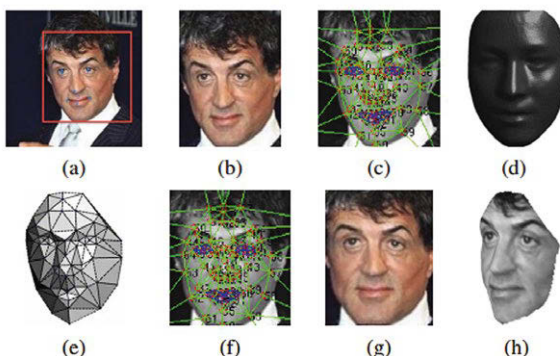


Figure 1. Alignment pipeline. (a) The detected face, with 6 initial fiducial points. (b) The induced 2D-aligned crop. (c) 67 fiducial points on the 2D-aligned crop with their corresponding Delaunay triangulation, we added triangles on the contour to avoid discontinuities. (d) The reference 3D shape transformed to the 2D-aligned crop image-plane. (e) Triangle visibility w.r.t. to the fitted 3D-2D camera; darker triangles are less visible. (f) The 67 fiducial points induced by the 3D model that are used to direct the piece-wise affine warping. (g) The final frontalized crop. (h) A new view generated by the 3D model (not used in this paper).

63 | Alignment pipeline chart illustration. From Yaniv Taigman et al., 'DeepFace: Closing the gap to human-level performance in face verification', 2014 IEEE Conference on Computer Vision and Pattern Recognition (Columbus, OH, 2014).

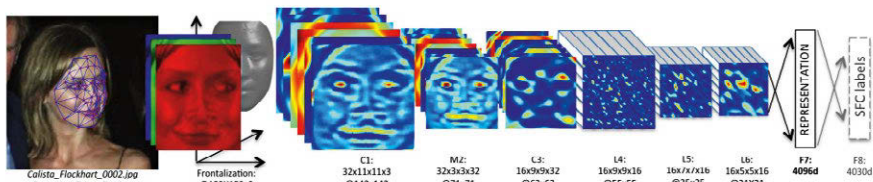
software applies the cropped face to the 3D shape as a texture so that it can be rotated to face front or any other view (fig. 63 e–h). As the developers write, its networked architecture is 'based on the assumption that once the (previously described) alignment is completed, the location of each facial region is fixed at the pixel level. It is, therefore, possible to have the algorithms "learn" an individual's facial features from the raw pixel RGB values of their image.³⁴ The verification of a person's identity relies on the summing of pixel values in subsections of an image. The sum of these values is used as a feature set to describe human identity through data (fig. 64). The data set becomes a 'descriptor', a 'classified identity' extruded through the instruments of mathematics and computation.³⁵ The human face dissolved into feature sets becomes input data for *DeepFace*'s multi-layered neural network, which contains more than 120 million parameters for describing a human face. Its interconnected neural nets are modelled and named after the neural circuits of the human brain. Researchers at Google Labs explain the functioning system of neural networks as follows:

We train an artificial neural network by showing it millions of training examples and gradually adjusting the network parameters until it gives the classification we want. The network typically consists of 10–30 stacked layers of artificial neurons. Each image is fed into the input layer, which then talks to the next layer, until eventually the 'output' layer is reached. The network's 'answer' comes from this final output layer.³⁶

34 Yaniv Taigman, Ming Yang, Marc 'Aurelio Ranzato, and Lior Wolf, 'DeepFace: Closing the gap to human-level performance in face verification', 2014 IEEE Conference on Computer Vision and Pattern Recognition, 1701, doi: 10.1109/CVPR.2014.220.

35 Taigman et al., 'DeepFace', 1703.

36 Alexander Mordvintsev and Mika Tyka, 'Inceptionism: Going deeper into neural networks', Google



64 | Alignment pipeline chart illustration. From Taigman et al., ‘DeepFace: Closing the gap to human-level performance in face verification’.

Once a database of this sparse representation of individuals has been computed, new images can be compared against it, resulting in either a positive or negative verification. For instance, the deep learning architecture of Facebook’s *DeepFace* software can now leverage the labelled datasets extruded from a collection of facial images of billions of Facebook users.³⁷

For the art historian Hans Belting, ‘faces are the body’s witness to the primeval sense of the image.’³⁸ Through the face – which can make faces and thus also functions as a mask – our bodies acquire an ‘iconic quality’.³⁹ It is precisely these iconic – and for Zuckerberg just as much monetary – qualities that contemporary surveillance systems take advantage of in order to capture and classify our identity. Crispin’s *Data-Masks* are an artistic medium for staging a dominant and contemporary perception of our faces as seen by machine vision.

At the same time, data sets function like masks, too. They are never a representation of a real face but are always already symbolic.⁴⁰ They could thus be considered facial ‘exarnations’, a term which in archaeology and anthropology describes stripping a dead body of any flesh so only the bones remain. The data sets, like masks, disembody faces to embody something else, namely a mathematical equation. We are mathematically reincarnated through facial detection and recognition systems based on a constellation between iconographic sign and measured trace. Translated into the feature set, we have quite literally ‘become one with the pixel’, as Hito Steyerl has observed in a different context.⁴¹

‘As the exterior view of a being gifted with affects and emotions’, Sigrid Weigel writes, ‘the face ... has become the condensed image of the *humanum*.’⁴² With the increase of

Research blog (18 June 2015, updated 13 July 2015), <https://research.google/blog/inceptionism-got-ing-deeper-into-neural-networks/>, accessed 13 December 2024.

37 See Taigman et al., ‘DeepFace’, 1703.

38 Belting, *Faces*, 26.

39 Belting, *Faces*, 26.

40 See Belting, *Faces*, 27.

41 Hito Steyerl quoted in Claire Bishop, ‘Technical Difficulties letter in response to Lauren Cornell and Brian Droitcour’, *Artforum* 51, no. 5 (January 2013), 38.

42 ‘Als Außenansicht eines mit Affekten oder Gefühlen begabten Wesens ist das Gesicht in der europä-

contemporary surveillance technology, can the compressed datasets now convey the 'condensed' image of humanity?

Considering that facial recognition and detection algorithms are trained using vast face databases such as Facebook's over 3.07 billion monthly active users, one could answer 'yes' to such a question.⁴³ Facebook archives the changing 'image of the *humanum*' just like the portrait galleries of the past did. In capturing human identity, portrait painting could be said to prefigure Facebook's extensive data storage. Would that make Crispin's *Data-Masks* the logical continuation of the history of portrait painting using facial detection and recognition technology? In such a comparison, however, portrait painting's manual attempt at visual similarity in depicting a subject would have given way to a 'classified subject' extruded through maths and computation. Crispin's data-masks are not portraits painted with paint and brush. They are artefacts made from a surveillance technology that captures and categorizes human identity based on data.

Painted portraits and Crispin's *Data-Masks* perhaps converge in that both create distance to the represented face. They thus turn it into a mask. Where non-European cultures prominently featured masks in their cultural histories, Europeans developed portrait painting as the counterpart to objects, Belting argues.⁴⁴ Both undertakings remind us that our facial expressions end in death: Our faces become lifeless masks that we perceive as emptied. The *Data-Masks* allude to such a tradition of death masks.⁴⁵ If painted portraits and death masks nourished an absence, namely the absence of the depicted, which they equally made present, Crispin's *Data-Masks* remind us of the absent presence not so much of individual faces as of collective ones. They are the combined sum of different faces arising at the moment an individual identity is captured and its play of expressions ends.

Yet, Crispin's death masks are fictions of scary, unrecognizable visages that never existed in the first place. In the absence of an individual or recognizable human face, his work *gives face* to the technological other. It highlights the functionality of a surveillance system, turning individual traits into quantifiable sets. This insight, however, stays concealed from those unaware of the artist's production process. To them, Crispin's *Data-Masks* remain six amorphous and at times anthropomorphic white objects mounted on mirrors. As such, his work also artistically alludes to a genuine threat. It highlights the surveillance system's opac-

ischen Kulturgeschichte zum verdichteten Bild des Humanum geworden.' See Weigel, 'Das Gesicht als Artefakt' [The face as artefact], 9. Translation by Mara-Johanna Kölmel.

43 This figure is accurate as of the first quarter of 2025. See Backlink Team, 'Facebook User & Growth Statistics', *Backlinko* website (30 January 2025), <https://backlinko.com/facebook-users>, accessed 2 February 2025.

44 Belting, *Faces*, 28.

45 For a short overview of the history of death masks see Katharina Sykora, 'Totenmaske, Endstation Gesicht?' [Death mask, the final stop of the face?], in Deutsches Hygiene-Museum and Sigrid Weigel (eds.), *Das Gesicht: Bilder, Medien, Formate* [The face: Images, media, formats] (Göttingen: Wallstein, 2017), 162–163, exhibition catalogue; Georges Didi-Huberman, *La ressemblance par contact : Archéologie, anachronisme et modernité de l'empreinte* [Resemblance through contact: Archaeology, anachronism, and the modern-ness of imprinting] (Paris: Les Éditions de Minuit, 2008).

ity, wherein every selfie or other picture shared on social media could potentially be transformed into a feature set to train and enhance the surveillance apparatus.

At the same time, Crispin's work could also be construed as a data visualization project. It makes the underlying mathematical structures and imperceptible dimensions of contemporary surveillance systems perceptible and tangible. Since algorithms can quantify and qualify the visual similarities between images and what are essentially objects, it is possible to reverse-engineer the process. To this end, Crispin employs the same algorithms used in facial detection and recognition software to form and evolve the anthropomorphic structures in 2D and 3D simulations based on existing feature sets – those classified identities describing humans as seen by machine vision. Scientists at Google call a related approach to creating an image or pattern from nothing but image noise, based on the random variation of brightness and colour information, 'inceptionism' or 'deep dreaming'. Here, neural networks are used to find and enhance patterns in images. Rather than recognizing existing patterns, these algorithms create a kind of pareidolia, a dream-like hallucinogenic appearance in deliberately over-processed images. Crispin's approach shows certain parallels to deep dreaming even though he uses a generative adversarial network and not a neural network.⁴⁶ What connects deep dreaming and Crispin's use of a generative adversarial networks is their similarity to pareidolic images of art history. Such images are no new phenomenon, as artists such as Albrecht Dürer, Salvador Dali, Giuseppe Arcimboldo, Markus Raetz, and M.C. Escher have established throughout art history.⁴⁷ When algorithms create such images, however, the images reveal the networked operations of computational image creation: their presets of vision, its encoded ideologies and often biased preferences.⁴⁸

One way to visualize what goes on is to turn the network upside down and ask it to enhance an input image in such a way as to elicit a particular interpretation. Say you want to know what sort of image would result in 'Banana': Start with an image full of random noise, then gradually tweak the image towards what the neural net considers a banana.... By itself, that doesn't work very well, but it does if we impose a prior constraint that the image should have similar statistics to natural images, such as neighbouring pixels needing to be correlated.⁴⁹

This process can be considered analogous to genetic evolution based on natural selection. For his approach in 2D, Sterling Crispin has developed a set of 'genetic' algorithms

46 Generative adversarial networks correlate changes directly to parameters, unlike neural networks, which improve fitness in a non-linear way.

47 See in this context for example Jean-Hubert Martin (ed.), *Une image peut en cacher une autre: Arcimboldo, Dali, Raetz* [One image may hide another: Arcimboldo, Dali, Raetz] (Paris: Réunion des musées nationaux, 2009), exhibition catalogue; Rudolf Arnheim, *Art and Visual Perception* (London: Faber, 1972); Ernst H. Gombrich, *Art and Illusion: A Study in the Psychology of Pictorial Representation* (New York, New York: Pantheon Books, 1960).

48 See also Hito Steyerl, 'A sea of data: Apophenia and pattern (mis-)recognition', *e-flux* online journal 72 (April 2016), <https://www.e-flux.com/journal/72/60480/a-sea-of-data-apophenia-and-pattern-mis-recognition/>, accessed 13 December 2024.

49 Mordvintsev et al., 'Inceptionism'.

which continuously evolve a static image.⁵⁰ The resulting variations are then measured against a facial recognition system to determine face likeness. Generative algorithms are mathematically modelled – with arguably ‘plastic’ principles helping to generate computational solutions to optimize processes and solve problems through mutation, crossover, and selection, a vocabulary borrowed from genetic evolutionary theory.⁵¹ Software is thus considered as an ever-evolving and mutating organism.⁵² ‘Generative algorithms are said to dissolve the opposition between mathematics and biology, between abstract models and concrete bodies. Just as matter has an abstract form, so too have software programs become evolutionary bodies,’ the cultural theorist Luciana Parisi lucidly observes in the context of their implications for architecture.⁵³ In Crispin’s case, the genetic and iterative algorithms written in JavaScript make the individual images evolve by changing pixel values and applying filters, geometrical structures, and other marks over several generations. Here, ‘parent’ images interact to generate ‘new’ image ‘offspring’ (fig. 65). As in natural selection, each generated image is accorded a fitness value, namely its fitness to qualify as a human face.

To determine the face-likeness, or fitness, Crispin uses an algorithm known as *Yet Even Faster Real-Time Object Detection* implemented by libccv.org, a computer vision library including ‘a close to state-of-the-art image classifier, a state-of-the-art frontal face detector, reasonable collection of object detectors for pedestrians and cars, a useful text detection algorithm, a long-term general object tracking algorithm, and the long-standing feature point extraction algorithm.’⁵⁴ Like the algorithms used in Facebook’s *DeepFace* recognition systems, *YEFRTOD* is a pixel-pair, feature-based detection algorithm that has a machine-learned model of what a face is.⁵⁵ To train the algorithm, Crispin used *Labeled Faces in the Wild*, a

50 In computer science, colours in digital images are often represented by HEX values, which encode precise colour information for each pixel using a combination of red, green, and blue values. This structured encoding allows Crispin’s genetic algorithms to manipulate these values directly, though the algorithm doesn’t inherently rely on HEX itself – any encoded data works. However, static images, with their fixed and clearly defined colour values, make an ideal input. The algorithm can easily read, mutate, and evolve these values, enabling a wide range of visual transformations. This stable data structure maximizes the algorithm’s ability to generate complex and varied image outputs.

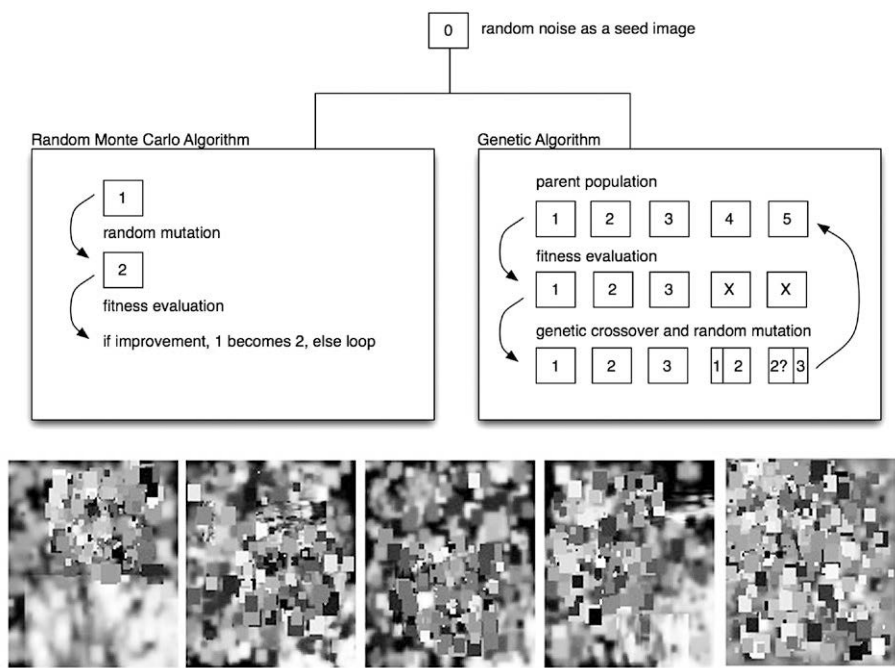
51 See Bernhard Schöneburg, Frank Heinzmann, and Sven Feddersen, *Genetische Algorithmen und Evolutionsstrategien: Scientific Computing* [Genetic algorithms and evolutionary strategies: Scientific computing] (Bonn: Addison-Wesley, 1996). The authors offer a comprehensive overview of the principles and histories of evolutionary algorithms. Throughout the discussion, the ‘plastic’ principles of algorithms are evoked.

52 See Gregory J. Chaitin, “Evolution of Mutating Software,” *Bulletin of the European Association for Theoretical Computer Science*, no. 97 (February 2009): 157–164.

53 Luciana Parisi, *Contagious Architecture: Computation, Aesthetics and Space* (Cambridge, Massachusetts: MIT Press, 2013), 2.

54 See Liuliu [pseud.], *ccv – a Modern Computer Vision Library* (date unknown), <http://libccv.org/>, accessed 12 December 2024.

55 See Sterling Crispin, ‘Data-masks: Biometric surveillance masks evolving in the gaze of the technological other’, Master thesis, University of California, Santa Barbara, California, 2014, 14, available at https://www.sterlingcrispin.com/Sterling_Crispin_Data-masks_MS_Thesis.pdf, accessed 13 December 2024.



65 | Sterling Crispin, *Data-Masks*, production image illustration. From Sterling Crispin, *Data-Masks: Biometric Surveillance Masks Evolving in the Gaze of the Technological Other*, master's thesis, University of California, Santa Barbara (CA), 2014, 16.

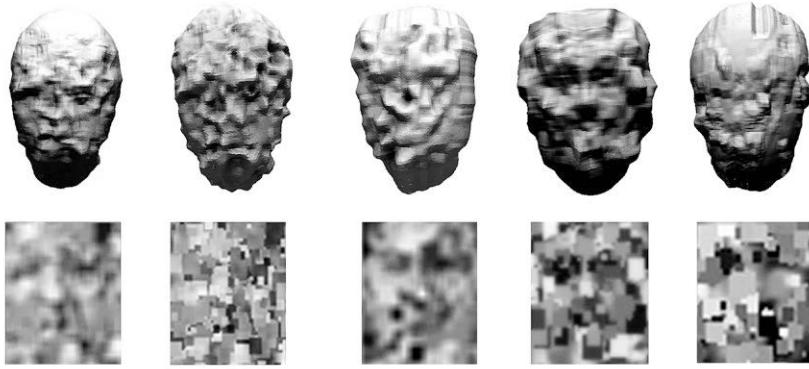
database that contains more than 13,000 images of labelled faces collected from the web.⁵⁶ Its pixel-pair features have been developed in *AdaBoost*.⁵⁷ The adaptive boosting generative algorithm helps produce a statistical model of what a face is. To achieve this, it examines thousands of images labelled as containing faces and thousands of images not containing faces to identify common features among the face-containing images.⁵⁸

In Crispin's production process, the algorithm examines the sign of the difference (i.e., positive or negative) between the individual pixel values of each generated image. The im-

56 See University of Massachusetts, 'Labeled faces in the wild database', project website (9 January 2018), <https://vis-www.cs.umass.edu/lfw/>, accessed 16 December 2024.

57 See Crispin, 'Data-masks', 15.

58 Processes in machine learning often suffer from the curse of dimensionality. This means that each sample may consist of a vast number of potential features, and evaluating every feature can reduce not only the speed of the classifier's training and execution but also its predictive power. The phenomenon is also called the Hughes Effect. The *AdaBoost* training process specifically picks features proven to enhance the model's predictive capability, thereby decreasing dimensionality. This has the potential to improve execution time, as irrelevant features do not need to be computed. See Stephen Marsland, *Machine Learning: An Algorithmic Perspective*, 2nd edn (Boca Raton, Florida: Chapman and Hall/CRC, 2014), 129 and 269–271.



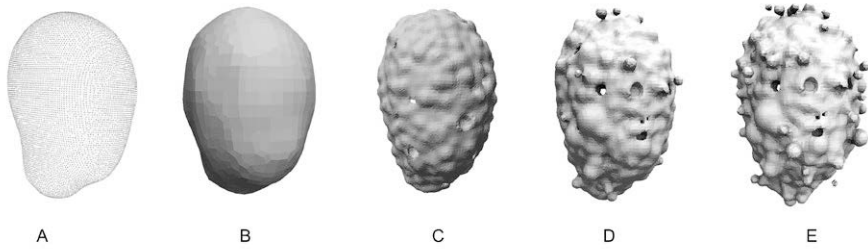
66 | Sterling Crispin, *Data-Masks*, production image illustration. From Sterling Crispin, *Data-Masks: Biometric Surveillance Masks Evolving in the Gaze of the Technological Other*, 37.

age combinations scoring highest in face-likeness, or fitness, are kept and further evolved by the algorithm while continuously being measured against the facial detection system until their face-likeness/fitness increases to around 80%. The static, algorithmically evolved image data, formed by algorithms to the point where it begins to qualify as a human face, is thus the raw and mutable matter of Crispin's artistic project. Emerging from pure image noise, the algorithmically modelled image generations, successfully recognized as faces, are then extruded from the surface. They are applied as a texture to an oval face-like shape, or a mesh made from 12,000 vertices describing its position in 3D simulated space (fig. 66).

The shape has been generated from an averaged 3D scan of the heads of ten people. The 2D images become a depth map in a 3D simulation, moving the vertices (positions in 3D space) of the averaged head mesh along their normal, directional vectors used to describe how light should interact with the surface. One can compare the process to a seal stamp embossing its features into liquefied wax. Brightness values below 127 in the image – values range from 0 to 255 – move a vertex negatively along its normal vector, pushing into the head. Values above 127 move a vertex in the positive direction of its normal vector (outward). The resultant object surfaces are reminiscent of medical images, tectonic structures, or geological formations, as seen with *Chronos*, *Sobek*, *Até*, and *Void*.

By contrast, the objects *Zuck Blister* and *Kodama* have emerged out of the sea of data like reef formations swept ashore.⁵⁹ These coarse, more protrusive faces seem blistered. Their features are dense and scattered like molecular structures. Whereas *Chronos*, *Sobek*, *Até*, and *Void* are derived from 2D images applied as a texture to a 3D head, *Zuck Blister* and *Kodama* have been conceived in a 3D simulation directly. They were created by collecting the vertices from an averaged human head, similar to the 2D approach, and then replacing each vertex

59 'Sea of data' is used here as a metaphor for the image noise on which Crispin's algorithmically modelled image generations are based. Indeed, these pixels relate to data and look like the surface of an ocean.



67 | Sterling Crispin, *Data-Masks*, production image illustration. From Sterling Crispin, *Data-Masks: Biometric Surveillance Masks Evolving in the Gaze of the Technological Other*, 36.

with a volumetric sphere (fig. 67).⁶⁰ Interestingly, the software mimics a traditional sculpting and painting environment by appropriating similar vocabulary and icons, creating confluences between what is physical and virtual, what is handmade and machine-produced, what is intuitive and what is logical-algorithmic. A ‘marching cubes’ algorithm is executed to calculate the surface of the volume, randomly displacing the spheres by changing their position and radius like the pixel values of the 2D image.⁶¹ First introduced by Lorensen and Cline in 1987 publication, the algorithm works by dividing an input volume into a discrete set of cubes.⁶² This process recalls a long art-historical trajectory of aggregating (human) forms via cubes, rings, or squares, as seen for example in Battista Bracelli’s *Bizzarie di Varie Figure* (‘Oddities of Various Figures’; 1624) or works of the Cubist movement.

In Crispin’s *Data-Masks*, the art-historical heritage of the ‘marching cubes’ has been coded into an algorithm which is further supplemented with a robust lighting method (ambient occlusion or global illumination) during the evolution of the form in the 3D simulation.⁶³ It yields a range of values sufficiently complex to reproduce a 3D structure, which can then be recognized as a face using the *YEFRTOD* as a fitness function.⁶⁴ After the successful detection of the first face, it undergoes further mutations until the frequency of successful attempts decays.

Such digital plasticity of data based on genetic algorithms performing codes coincides with a more formal plasticity when a small selection of the masks is actually materialized via selective laser sintering. Here, codes are translated into signals which guide a triangulated beam of UV light in a bed of powdered nylon to fuse precise amounts of material with high

60 Crispin, ‘Data-masks’, 35.

61 See Crispin, ‘Data-masks’, 35; for more information on the functioning mechanism of marching cube algorithms, see Giovanni Luca Masala, Bruno Golosio, and Piernicola Oliva, ‘An improved marching cube algorithm for 3D data segmentation’, *Computer Physics Communications* 184, no. 3 (2013), 777–782.

62 See William E. Lorensen and Harvey E. Cline, ‘Marching cubes: A high-resolution 3D surface construction algorithm’, in *Proceedings of the 14th Annual Conference on Computer Graphics and Interactive Techniques, SIGGRAPH ’87* (New York, New York: ACM, 1987), 163–169, doi: 10.1145/37401.37422.

63 See Crispin, ‘Data-masks’, 26.

64 See Crispin, ‘Data-masks’, 23.

accuracy. The laser scans cross-sections on the surface of the powdered bed, fusing the particles together in order to create a solid part. The powder has undergone preheating, easing the laser's ability to elevate temperatures in targeted regions of the powder bed during the model-tracing process.

After scanning each cross-section, the system lowers the powder bed by one layer of thickness and applies a new layer of material on top. The laser then scans the next cross-section of the work, repeating the process until the part is complete. After cooling, the part is removed from the printing chamber and transferred to a cleaning station, where any excess powder is removed. The final setup of the installation reflects this process, with masks seemingly emerging from the mirror, resembling how they gradually emerge from the resin powder in the printing station.

The final object versions thus contain the works' constant morphosis throughout the production process. The textual unfamiliarity of the object surfaces not only conveys the what Crispin terms the 'faint pixel-to-pixel, or voxel-to-voxel relationships machine vision expects in a human face'.⁶⁵ Their surfaces also testify to the printing process of the mask emerging layer by layer out of the powder bed. It is important to emphasize that Crispin's masks evolve as expressions of feature combinations based on 5,749 individuals.⁶⁶ They are fictionalized, artistically and algorithmically alienated versions of individuals used to train Crispin's face recognition and detection algorithms. Crispin's masks, therefore, not only represent a kind of 'machine pareidolia', as the artist points out, but demonstrate the form-generating and plastic potential of evolutionary algorithms and their perception, projection, and understanding of human form.⁶⁷

Plasticity in art history: A walk on the wild side

If plasticity, as its etymological origin in the Greek word *plassein* suggests, is understood as the capacity to give and receive form, Crispin probes this plasticity on the level of code and algorithmic control. In his *Data-Masks*, we are faced with a plasticity that is able to form-shift and metamorphose. His works educe a plasticity that arises both in virtual and actual space. Looking at these bodiless faces, Gibson's opening quotes come to mind again. 'The future is there,' Cayce hears herself say, 'looking back at us. Trying to make sense of the fiction we will have become.'⁶⁸ Indeed, how can we make sense of Crispin's objects and their particular plasticity in which concerns around agency, process, materiality, and the human body are interwoven? Throughout art history, sculptural plasticity has been deeply tied to materiality, mutability, agency, and the depiction of (human) form. The following short survey is based on comprehensive research into different yet intersecting concepts of plasticity. The inquiry into historical and recent debates on plasticity will help establish a frame of refer-

65 Crispin, 'Data-masks', 36.

66 See Crispin, 'Data-masks', 37. The number corresponds to the number of datasets of individuals available in the databases used to train Crispin's algorithms.

67 Crispin, 'Data-masks', 13.

68 Gibson, *Pattern Recognition*, 57.

ence against which the hybrid transformation of plasticity through digital technology can be traced and qualified.

Initially conceived as a formal–technical term derived from the Greek *plassein* ('to model or mould with tone or wax'), plasticity acquired significant aesthetic meaning under the German Romantics.⁶⁹ Referring to Greek sculpture, Romantic aesthetics connected sculptural plasticity with the embodiment of the ideal, reaching its zenith in the idealized forms of the human body and its archetypes. Since antiquity, the human figure has signified the very essence of plasticity. The 'plastic arts', or *les arts plastiques*, were attributed to the mind's sensuous perception and deeply tied to the forming powers of the subject. Platonic and Aristotelian philosophy considered the artistic material inferior to form, to be formless until 'animated' or ensouled by a spirit or (male) creator.⁷⁰ Vasari spoke of matter as the 'subject [*sugetta*] of form', which he equated with the respectable art form, namely drawing [*disegno*] and intellect.⁷¹ Thus it is not surprising that from the second half of the eighteenth century onward, the contemplation of art, including sculpture, was also linked to the formation of the subject. Art was seen a tool to develop self-awareness and interpret the self.⁷² Even if one could not completely overcome materiality, the goal was to reduce and subordinate it to form as much as possible.⁷³ This overcoming of the material was understood not as a quantitative reduction but as a sublimation, a transformation of the material from its natural state towards a higher and 'immaterial' dimension.⁷⁴ Such idealist aesthetics, linked as they were to Platonic and Aristotelian philosophy, significantly affected the notion of plasticity,

69 Hellenistic literature blurred the formal–technical origins of the term, since early antiquity distinguished between plastic art as the art of modelling (e.g., with clay) and sculpture as the art of cutting or carving (e.g., in stone). See Pfisterer, 'Plastisch/Malerisch' [Sculptural/painterly], 815–816.

70 See for example Aristotle's theory of hylomorphism. He articulates the concept of a soul as the vital force that animates a living being. Life, much like knowledge and health, is an intrinsic quality of living entities. Thus, a soul can be understood as a configuration – a delineating principle or causative factor – within a living organism. Moreover, Aristotle asserts that the soul is intricately linked to the body, comparable to the relationship between form and matter. Aristotle, *On the Soul*, tr. Thomas Taylor (Frome: Prometheus Trust, 2003).

71 Giorgio Vasari, *The Lives of the Artists*, tr. Julia Conaway Bondanella and Peter Bondanella, reissue (Oxford: Oxford University Press, 2008).

72 The German art historian Oskar Brätschmann contextualizes such development as a fundamental change of the way art was received. See Oskar Brätschmann, 'Pygmalion als Betrachter: Die Rezeption von Plastik und Malerei in der zweiten Hälfte des 18. Jahrhunderts' [Pygmalion as observer: The reception of sculpture and painting in the second half of the eighteenth century], in Wolfgang Kemp, Alois Riegl, and Wilhelm Pinder (eds.), *Der Betrachter ist im Bild: Kunstwissenschaft und Rezeptionsästhetik* [The observer is in the painting: Art history and the aesthetics of reception], 2nd ext. edn (Berlin: Reimer, 1992), 193.

73 'Herein, then, resides the real secret of the master in art: that he can make his form consume his material.' Friedrich Schiller, *On the Aesthetic Education of Man*, tr. Elizabeth M. Wilkinson and L. A. Willoughby (Oxford: Clarendon Press, 1967), 155–156. For the original German – 'Darin also besteht das eigentliche Kunstgeheimnis des Meisters, daß er den Stoff durch die Form vertilgt.' – see Friedrich Schiller, *Über die ästhetische Erziehung des Menschen*, ed. Benno von Wiese (Krefeld: Scherpe-Verlag, 1948), 548.

74 Günter Bandmann, 'Bemerkungen zu einer Ikonologie des Materials' [Remarks on an iconology of material], *Städte-Jahrbuch: Neue Folge*, vol. 2 (Munich: Prestel, 1969), 75.

which the German Romantics understood to as evidence of a person's reality, shaping power, and agency.⁷⁵

A significant precursor to the appearance of 'plastic/*plastisch*' in German aesthetic discourse was the revival of the antique concept of plastic power – *vis plastica* or *natura plastica* – in the work of the Cambridge Platonists and other anti-Cartesian thinkers.⁷⁶ Shaftesbury's *Soliloquy: Advice to an Author* actualized previous concepts of plastic power to describe the unlimited power of God, nature, and the human to form and conduct morphogenesis.⁷⁷ In the process, Shaftesbury introduced the concept of the human as a 'genius maker', significantly shaping the conceptual formation of 'plastic power' in German aesthetics, since the latter term was translated as *Einbildungskraft* ('imagination') or *anschauende Erkenntnis* ('intuitive knowledge', literally 'insight by looking at').⁷⁸ This still resonates in the English language today, where the adjective 'plastic' refers to the power to bestow form. 'Plastic' and its noun 'plasticity' began to thrive in German aesthetics and art theory of the eighteenth century. Here, the admiration for antique sculpture was combined with Lord Shaftesbury's aesthetics of genius.

The German philosopher Johann Gottfried Herder was among the first to separate the term 'plastic' from its original context in natural philosophy, natural sciences, and theology.⁷⁹ In his book *Plastik*, notably the first record of the word 'plastic' in German, Herder linked the antique notion of *plassein* to the concept of plastic power.⁸⁰ In Herder's view, art, particularly plastic art, resulted from a god-like creator leaving his trace in mutable matter, which could be discovered through the sense of touch.⁸¹ According to Herder, it was thus in sculpture and its plastic appearance that the creative power of the human was to be fully realized due to sculpture's unique relationship to tactility.⁸² Herder's understanding of sculpture foreshadowed the phenomenological approaches of the twentieth century.⁸³ Through the bodily experience of the sculptural body, the spectator would experience their physical presence both as subject and object; the perception of the other promotes self-awareness.⁸⁴ Herd-

75 See Dongowski, 'Plastisch' [Plastic], 815.

76 See Pfisterer, 'Plastisch/Malerisch' [Sculptural/painterly], 342.

77 See Anthony Ashley Cooper [Third Earl of Shaftesbury], *Soliloquy: or Advice to an Author* (London: John Morphew, 1710), 38–40.

78 Pfisterer, 'Plastisch/Malerisch' [Sculptural/painterly], 342; Cooper [Earl of Shaftesbury], *Soliloquy*, 19 onwards.

79 See Dongowski, 'Plastisch' [Plastic], 815; Rübel, *Plastizität: Eine Kunstgeschichte des Veränderlichen* [Plasticity: An art history of the mutable], 11.

80 See Pfisterer, 'Plastisch/Malerisch' [Sculptural/painterly], 343; Robert Thomas Clark, *Herder: His Life and Thought* (Berkeley, California: University of California Press, 1955), 57–58.

81 See Rübel, *Plastizität* [Plasticity], 11.

82 See Johann Gottfried Herder, *Sculpture: Some Observations on Shape and Form from Pygmalion's Creative Dream* (1778), tr. and ed. Jason Gaiger (Chicago, Illinois: University of Chicago Press, 2002), 40.

83 In his *Phenomenology of Perception*, Merleau-Ponty refers to Herder; see Maurice Merleau-Ponty, *Phénoménologie de la perception* [Phenomenology of perception] (Paris: Librairie Gallimard, 1945), 271, 276.

84 See Maurice Merleau-Ponty, *Phenomenology of Perception*, tr. Donald A. Landes (Abingdon: Routledge, 2012).

er's proposition to privilege the tactile over the visual sense resonated in art discourse and peaked in impressionist sculpture.⁸⁵ If, for Herder and his precursors, plasticity issued from an almost divine creator and had to be negotiated by an active viewer, another concept of plasticity became apparent in the second half of the nineteenth century.⁸⁶ With the industrial development and introduction of new materials such as latex and vinyl, these materials' ability to alter their own form enabled a conceptual shift in which the agency of a god-like creator was abandoned in favour of the domain of materials themselves. Plasticity was now thought to belong to the agential qualities of objects and their substances.⁸⁷ This new understanding ran counter to previous idealist conceptualizations of plasticity dating to the prehistory of modern aesthetics and their origins in antiquity.

Through the fundamental changes brought forth by natural sciences and industrialization in the nineteenth century, the material properties, inner energy, and economy of things began to take centre stage in discourses on sculpture. Accordingly, the notion of 'plasticity' underwent a change in meaning, as Dietmar Rübel has pointed out in his seminal book *Plastizität: Eine Geschichte des Veränderlichen* ('Plasticity: An art history of the mutable'). If the plasticity of materials was previously thought to be passive, plasticity now described the polymorphous properties of materials that can be formed and moulded, as well as their concrete, material presence and agency.⁸⁸ Günter Bandmann has conceptualized this change as an 'epistemological shift of modernity'.⁸⁹ Such development led from an idealistic system, which saw the main task of artistic labour as overcoming the material by privileging form over materiality, to a materialistic system, which tried 'to make the material speak' again.⁹⁰ According to Rübel, the change in the perception of plasticity also goes hand in hand with the introduction and production of all kinds of goods, a process which marks a significant change in the perception of the material world: Every substance becomes a raw material, a commodity for optimization, Rübel observes with reference to Karl Marx. According to the art historian, the artistic use of unstable and material substances increasingly presents an attempt to respond to the speed of modern society.⁹¹ The formation and mutability of these substances – their plastic potential – seems to indicate the transient nature of modernity driven by forces of industrialisation. As early as 1863, Charles Baudelaire conceptualized such a development within the visual arts as 'the transient, the fleeting, the contingent'.⁹²

85 See Rübel, *Plastizität* [Plasticity], 11.

86 Bandmann, 'Bemerkungen zu einer Ikonologie des Materials' [Remarks on an iconology of material], 76.

87 See Rübel, *Plastizität* [Plasticity], 11.

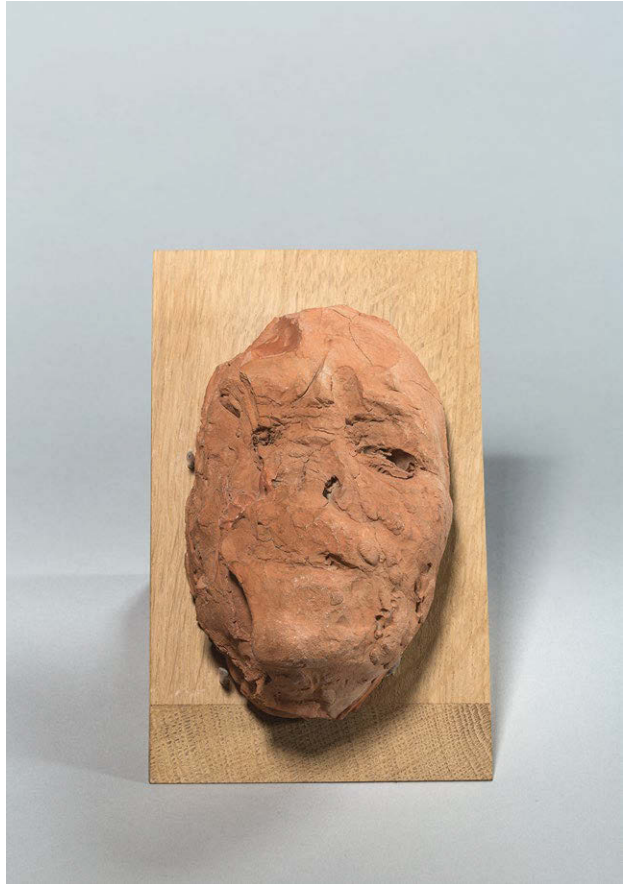
88 See Rübel, *Plastizität* [Plasticity], 32.

89 Günter Bandmann, 'Der Wandel der Materialbewertung in der Kunsttheorie des 19. Jahrhunderts' [The changing appraisal of material in nineteenth-century art theory], in Helmut Koopmann and J. Adolf Schmall gen. Eisenwerth (eds.), *Beiträge zur Theorie der Künste im 19. Jahrhundert: Studien zur Philosophie und Literatur des neunzehnten Jahrhunderts* [Contributions on the theory of the arts in the nineteenth century: Studies on the philosophy and literature of the nineteenth century], vol. 12 (Frankfurt am Main: Vittorio Klostermann, 1971), 130–131.

90 Bandmann, 'Bemerkungen zu einer Ikonologie des Materials' [Remarks on an iconology of material], 76.

91 See Rübel, *Plastizität* [Plasticity], 12–13.

92 Charles Baudelaire, *The Painter of Modern Life*, trans. P. E. Charvet (London: Penguin, 2010), 17.



68 | Auguste Rodin, *Mask of Hanako*,
Type B, ca. 1910–1911; baked clay;
15.7 × 9.5 × 6.5 cm. Musée Rodin, Paris.

The liquid modern

Despite their different research affiliations and interests, Julius Meier-Graefe, Max Osborn, and Georg Simmel have written texts that convey a significant change in the conceptualization of sculptural plasticity. Inspired by Baudelaire, the authors use metaphors such as ‘fluid’, ‘liquid’, ‘transformative’, and ‘fleeting’ to characterize modern sculpture. In doing so, they ascribe a dynamic, agential, and event-like quality to sculpture. These German thinkers thus anticipated Zygmunt Bauman’s concept of liquid modernity by nearly a century. Bauman observes the evolution from a state of ‘solid modernity’ to a more fluid social landscape in which the challenge of sustaining a stable identity that endures across time and space becomes more pronounced.⁹³ It is noteworthy how closely aligned this argument is with the observations made by Meier-Graefe, Osborn, and particularly Simmel. They discerned similar developments ninety-four years before Bauman while examining the fluid and liquified forms of sculptural production.

93 Zygmunt Bauman, *Liquid Modernity* (Cambridge: Polity Press, 2000).



69 | Auguste Rodin, *Mask of Hanako, Type C*, ca. 1910–1911; baked clay; 18.7 × 12.7 × 7.8 cm; Musée Rodin, Paris.

Max Osborn, for example, described modern sculpture in 1905 as ‘two words and two acrimonious enemies’ in which ‘the fluid, nervously moved, yearningly urging, seething, festering’ would oppose the ‘solid, ... cohesive, complete.’⁹⁴ Julius Meier-Graefe described Rodin’s technique as a ‘faster, more effective connection between matter and perception.’⁹⁵ The anticipation of the liquid modern is, however, best conveyed in Simmel’s descriptions of Rodin’s practice and the artist’s work from the early 1900s, such as the *Masque de Hanako* (ca. 1910–1911), type B (fig. 68) and type C (fig. 69).

94 ‘Moderne Plastik – das sind zwei Worte und zwei erbitterte Gegner. Dort das Fließende, nervös Bewegte, sehnsüchtig Drängende, Brodelnde, Gärende. Hier das Gefestigte, Ruhige, Sichere, in sich geschlossene, Fertige.’ Max Osborn, *Moderne Plastik* [Modern sculpture] (Berlin: Gose & Tetzlaff, 1905), 2. Translation by Mara-Johanna Kölmel.

95 ‘[Auguste Rodin] erfand eine schnellere, wirksamere Verbindung der Anschauung mit der Materie,’ Julius Meier-Graefe, *Entwicklungsgeschichte der Modernen Kunst*, ed. Benno Reifenberg and Annemarie Meier-Graefe-Broch (Munich: Piper Verlag, 1966), 475. Translation by Mara-Johanna Kölmel.

Rodin's art ... stands under the sign of modern Heracliteanism. For the worldview that can be described in this way, all substantiality and solidity of the empirical perspective have turned into movement. In restless transformation, a quantum of energy flows through the material world, or rather, is the material world. No formation is accorded even the slightest degree of permanence, and all the seeming unity of its contour is nothing other than vibration and surging movement of the exchange of forces.... Here form is therefore dissolved just as it is in Rembrandt. The world of Rodin's figures, however, is (according to their idea, which visual intuition only points out from the distance) precisely such an absolute flow: the abandonment of all solidity in which a before and an after – that is, time – could mark itself. Here, the fleeting moment of life is banished but in such a way that one really feels its passing, while the before, just like the after, remains sunk in impenetrable darkness. ... The human being in Rodin is dissolved in all the trembling and contradictions of becoming. He only exists, as it were, in the Heraclitan moment of becoming, but we do not feel the coming into being of this moment. He is also torn from his own past, which is to say that he is not an individual.⁹⁶

Before Simmel's publication, Henri Bergson's concept of *élan vital* (1907) had addressed a similar phenomenon in the self-organization and self-creative, spontaneous adaptation and morphogenesis of matter.⁹⁷ Jules Romains' poems *La Vie Unanime* (1904), too, had focused on questions of self-organization in the context of the rapidly changing socioeconomic and cultural texture of society.⁹⁸ His book evoked a simultaneous, self-creative, collective consciousness that emerged wherever groups formed, transcending the consciousness of the individual. Following such texts, it seems plausible that Simmel would have turned to sculpture as a seismographic radar for such developments. Like Bergson and Romains, Simmel was very much aware of modernity's technological dimension when he formulated his ideas on its liquids features in 1916. Simmel wrote that the transitory quality manifesting itself in the fluid forms of modern sculpture was to be understood as a reflection of the dynamics of mechanization and industrialization.⁹⁹ These developments led not only to a change in the perception of time, as Bergson had observed with *La Durée*, but also to the homogenization and depersonalization of the individual.¹⁰⁰

This historical constellation becoming evident in Simmel's writing seems to reappear in a changed figuration and under completely changed conditions when applying Simmel's descriptions of Rodin's practice to Crispin's work. Despite the historical distance between

96 Georg Simmel, *Rembrandt: An Essay in the Philosophy of Art*, tr. and ed. Alan Scott and Helmut Staubmann (London: Routledge, 2005), 105–106.

97 See Henri Bergson, *Creative Evolution*, tr. Arthur Mitchell (Mineola, New York: Dover Publications, 2003). First published 1907.

98 See Jules Romains, *La Vie Unanime: Poème* [Unanimist life: Poemes] (London: Forgotten Books, 2017). First published 1904.

99 See Georg Simmel, 'Die Kunst Rodins' [Rodin's art], in Rüdiger Kramme, Angela Rammstedt and Otthein Rammstedt (eds.), *Aufsätze und Abhandlungen, 1909–1918, Band I: Georg Simmel Gesamtausgabe Band 12* [Essays and treatises, 1909–1918, vol. I: Collected works of Georg Simmel, vol. 12] (Frankfurt: Suhrkamp, 1959), 34–35; Georg Simmel, *Die Großstädte und das Geistesleben* [Large cities and the life of the mind] (Frankfurt am Main: Suhrkamp Verlag, 2006), 8–10, first published 1903; George Simmel, 'Auguste Rodin: Part I-III', in Austin Harrington (ed.), *Georg Simmel: Essays on Art and Aesthetics* (Chicago, Illinois: University of Chicago Press, 2020), 304–306, 314, 317.

100 See Simmel, *Die Großstädte und das Geistesleben* [Large cities and the life of the mind], 10–12.

these two artists, Simmel's writing seems as though it describes not only the iconographic features of the *Data-Masks* – capturing restless, algorithmic transformations – but also the way the contemporary artist profiles and conceptualizes his work when he writes:

[*The Data-Masks*] are expressions of feature combinations between those individuals [used to train the biometric system], but are more like children of the total crowd itself than any individual. They are the biometric rejects, they are identities without bodies, they are people without a past or a future.¹⁰¹

Acknowledging, as Perry Anderson has shown, that 'eras are discontinuous with each other, and heterogenous within themselves,' the following comparisons aim to focus on aesthetic and thus qualitative similarities as well as differences rather than on understanding these works as chronologically related.¹⁰² The challenge is to hold together repetition and difference – that which is carried over from one epoch into another and that which complicates such an approach.

Like Crispin's *Data-Masks*, the amorphous masks of the artist Zach Blas (figs. 70–71) share in an amorphous 'Heraclitean' aesthetic. If, in accordance with Simmel, Rodin indeed captured in his mutable matter the change of subjectivity under the pressure of industrialization, a similar motivation can be seen in Blas's work. The artist uses the image of a liquified face to speak to a changing subjectivity under the pressures of our post-industrial surveillance state. His work is thus situated in a different temporal configuration and more complex context than Rodin's or Simmel's contributions. The masks of his series *Facial Weaponization Suite* (2012–2014), reminiscent of modern aesthetics, are modelled after distorted 3D biometric scans of human faces. While one of the masks, *Mask - May 31, 2013, San Diego, CA* (2013; fig. 70), explores the tripartite conceptions of blackness inscribed in the algorithmic commands of biometrics, *Fag Face Mask - October 20, 2012, Los Angeles, CA* (2012; fig. 71) is generated from the biometric facial data of queer men. It reflects on scientific studies that determine sexual orientation through rapid facial recognition techniques.¹⁰³ This line of research can be traced back to the invention of photography and its immediate use in criminology. The French criminologist Alphonse Bertillon devised the first modern mug shots as part of a classification system, which he based on the assumption that a person's physical measurements were as distinct as their fingerprints.¹⁰⁴ Like the English statistician and pioneer of eugenics Francis Galton, Bertillon discovered in photography an instrument

101 Crispin, 'Data-masks', 37.

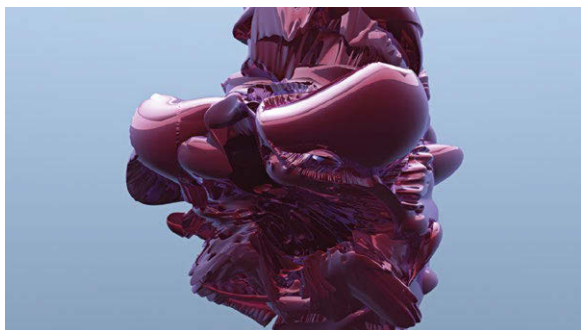
102 Perry Anderson, 'Modernity and revolution', *New Left Review* I, no. 144 (1984), 101.

103 See, for example, the study by Stanford University's Yilun Wang and Michal Kosinski, 'Deep neural networks are more accurate than humans at detecting sexual orientation from facial images', *OSF online repository* (15 February 2017, last updated 17 February 2023), doi: 10.17605/OSF.IO/ZN79K.

104 See Shawn Michelle Smith, 'The mug shot: A brief history', *Aperture* 230 (spring 2018), 31–32. For a more elaborate account on the history of mug shots see Nicolas Quinche (ed.), *Crime, science et identité: anthologie des textes fondateurs de la criminalistique européenne, 1860–1930* [Crime, science, and identity: An anthology of foundational texts of European forensic science, 1860–1930] (Geneva: Slatkine, 2006).



70 | Zach Blas, Mask – May 31, 2013, San Diego, CA, from *Facial Weaponization Suite*, 2013; painted, vacuum-formed recycled polyethylene terephthalate; 21.5 × 19 × 10.4 cm.



71 | Zach Blas, *Fag Face Mask* – October 20, 2012, Los Angeles, CA, 2012; painted, vacuum-formed recycled polyethylene terephthalate; 21.5 x 19 x 10.4 cm; *Facial Weaponization Communiqué: Fag Face*, 2012; HD video still.

of social control based on dubious pseudo-scientific principles.¹⁰⁵ Even though his system reflected racist applications of eugenics and phrenology, Bertillon laid the groundwork for similar problematic profiling techniques currently being explored and applied through facial recognition technology.¹⁰⁶ In Blas's work, the fluid forms of the masks produced by the algorithmic architecture of biometric technology become not only an emblem of the discriminatory nature of biometric technology but also an 'opaque tool of collective transformation' that undermines normative forms of political representation.¹⁰⁷

Like Crispin, Blas reflects on the human form as seen by the panopticon of the machine, which is deeply tied to our algorithmic and plastic contemporary. His arbitrarily distorted masks, often in bold colours, are, however, not generated by reverse engineering computer vision technology. Blas averages 3D scans of human faces and compiles them to artistically alienated masks. While Crispin's technologically advanced masks materially and visually resist detection, computer vision can still detect Blas's masks. Nevertheless, both artists play on the dialectic of mask and face. The mask is experienced as a tool to hide our faces from an invisible surveillance system or as a means to expose it. While Crispin's and Blas's works are the products of a time radically different from Rodin's, all three artists employ plasticity to explore depersonalized subjectivity. Their portrait subjects are caught literally in dissolution, metamorphosis, or – in the words of Simmel – 'torn from [their] own past, which is to say that he [or she] is not an individual!'.¹⁰⁸

Such observations also apply to the work of the Italian symbolist sculptor Medardo Rosso. The juxtaposition of his work with Crispin's alienated and anonymized faces yields a strange resemblance (figs. 72–73). Medardo Rosso's striking *fin de siècle* sculptures, formed from clay and then usually cast in wax or plaster and sometimes bronze, not only strongly resonate with the Simmel's, Osborn's and Meier-Graefe's characterizations of contemporaneous sculpture but also bear similarities to Crispin's aesthetic language.¹⁰⁹ The two artists use different methods to evoke a form that emerges out of the momentary state of the employed material substance. Although Rosso modelled his sculptures by hand, the sculptural plasticity of his work exhibits the properties of the materials used for it quite radically. Like Crispin's *Data-Masks* or the masks of Blas's *Facial Weaponization Suite*, Rosso's finely worked sculptures appear to be caught in a moment of transformation. Their plasticity resides in the

105 See Allan Sekula, 'The body and the archive', *October* 39 (1986): 3–64, doi: 10.2307/778312.

106 See for example Safiya Umoja Noble, *Algorithms of Oppression: How Search Engines Reinforce Racism* (New York, New York: NYU Press, 2018); Kate Crawford, 'Artificial Intelligence's white guy problem', *The New York Times* online (25 June 2016), <https://www.nytimes.com/2016/06/26/opinion/sunday/artificial-intelligence-white-guy-problem.html>, accessed 11 December 2024.

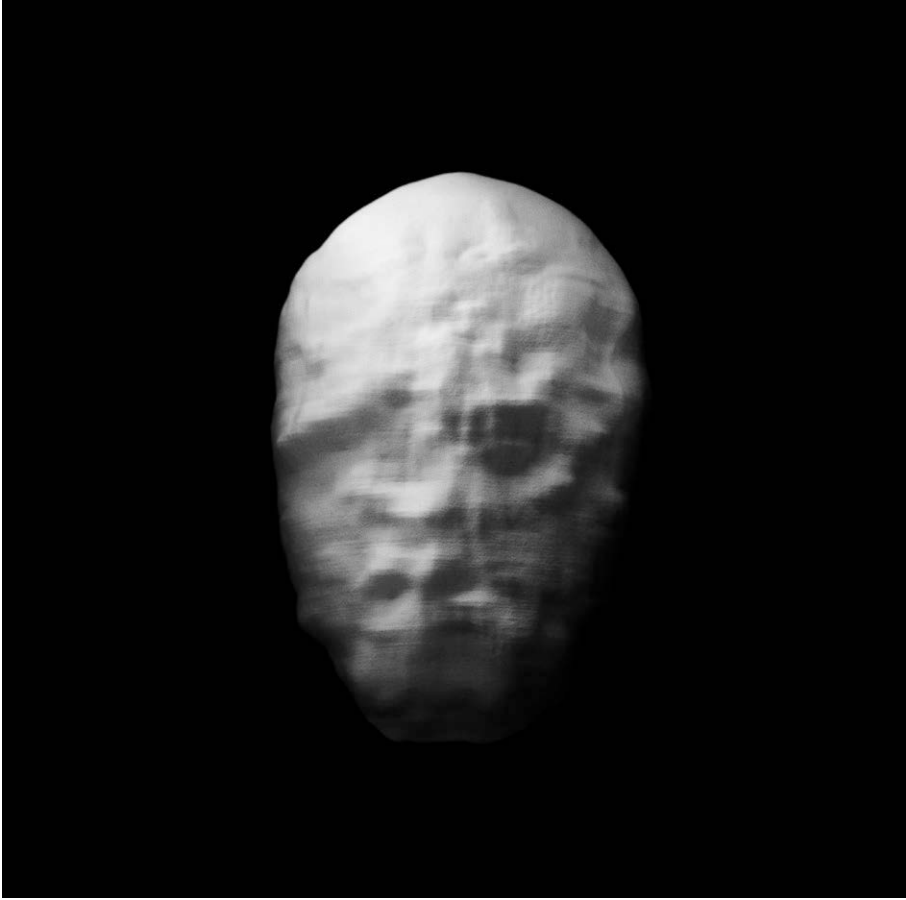
107 Zach Blas, 'Facial weaponization suite', artist's website (date unknown), <http://www.zachblas.info/works/facial-weaponization-suite/>, accessed 11 December 2024.

108 Simmel, *Rembrandt*, 106.

109 The myth persists that Medardo Rosso modelled his sculptures in wax over plaster, but in fact, written records confirm that he modelled in clay. See Sharon Hecker, 'Reflections on repetition in Rosso's art', in Harry Cooper and Sharon Hecker (eds), *Medardo Rosso: Second Impressions* (New Haven, Connecticut: Yale University Press, 2003), 31.



72 | Medardo Rosso, *Madame X*, 1896; modern contact print from original glass negative (c.1900); 18 × 13 cm. Private collection.



73 | Sterling Crispin, *Chronos*, 2013–2015; 3D printed nylon, mirror, facial recognition and detection algorithms, genetic algorithms; 46 × 66 cm.

mutability of the employed material. The plastic quality in Rosso's work becomes detached from a human maker and assumes a life of its own, a characteristic particularly evident in his works from 1882/83 onwards.¹¹⁰ Those works demonstrate a sacrifice of detail 'in favour of sketchy modelling, flattened planes, and gently modulated surfaces', which can be 'linked to his discoveries of French Impressionism' but also 'of alternative materials'.¹¹¹ 1883 marks the year when Rosso first started to make sculptures in wax.¹¹² Trying to capture a fleeting moment or rather 'an impression', as Rosso himself emphasized using a pictorial term, his

110 See Rübel, *Plastizität* [Plasticity], 45.

111 Hecker, 'Reflections on repetition in Rosso's art', 33.

112 It is interesting that since the eighteenth century, wax had lost its status in high art and had drifted towards the sphere of mass culture. Julius Schlosser calls this phenomenon the proletarianization of



74 | Medardo Rosso, *Bambino alle cucine economiche*, 1892–1893; wax with plaster interior; 46 × 49 × 37 cm.

forms seem in a state of coming into being or melting away (figs. 74–75).¹¹³ In such a context, a contemporary of Rosso, Ludwig Hevesi, described the plasticity of his works as implying a sense of a continuous flow, of an undefined state.¹¹⁴ Later, the art historian Georges Didi-Huberman characterized wax, referencing a passage from Sartre's *Being and Nothingness* (1943), as an agential 'substance in between two states' which would lead to the breaking down of stable subject–object relations.¹¹⁵ Elsewhere, he describes wax as

a material that is insensitive to the contradictions of its material qualities. Wax is solid, but it may easily be liquefied. It is impermeable, but it may easily be dissolved in water.... It may be worked either by hand or by means of all kinds of tools. It may be painted or tinted as a block, and given

wax sculpture; see Thomas Medicus and Julius von Schlosser, *Tote Blicke: Geschichte der Porträtbildnerei in Wachs* [Dead gazes: History of wax portraiture] (Berlin: De Gruyter, 1995), 104.

113 As Paola Mola Kirchmayr points out, Rosso's first recorded use of the word *impressione* occurred in 1887. He used the term in a letter to the author of a review of his work; see Paola Mola Kirchmayr, 'Gli anni della formazione di Medardo Rosso alla luce di un epistolario inedito' [Medardo Rosso's formative years in the light of an unpublished letter], quoted in *Medardo Rosso: Catalogo della mostra* [Medardo Rosso: Exhibition catalogue], ed. Luciano Caramel (Milano: Mondadori Electa, 1990), 45.

114 See a text by Ludwig Hevesi from 1905 reprinted in Dieter Schwarz, Christoph Brockhaus, and Birgit Brunk (eds.), *Medardo Rosso* (Winterthur: Richter Verlag, 2004), 136, exhibition catalogue.

115 Georges Didi-Huberman, 'The order of material: Plasticities, malaises, survival', tr. Jann Matlock and Brandon Taylor, in Brandon Taylor (ed.), *Sculpture and Psychoanalysis* (Aldershot: Ashgate Publishing, 2006), 199.

75 | Medardo Rosso, *Carne altrui* (*Flesh of Others*), 1883–1884; wax with plaster interior; 33 × 37 × 30 cm. Private collection.



either a matte or polished finish. It can be opaque or transparent, either smooth or sticky. Its consistency may be transformed indefinitely.... It is a fragile and temporary material, but most often used, because of the very richness of its textures, for the fabrication of objects intended to last.¹¹⁶

Wax would invert the idea of sculpture as a passive object animated by an active viewer, since wax has an agency, a power on its own.¹¹⁷ Huberman's conclusion is thus evocative of the observations of his predecessors who characterized the material properties of the liquid modern in similar terms.

Rosso's works *Bambino alle cucine economiche* ('Child to the cheap kitchens') (1893; fig. 74), *Carne altrui* ('Flesh of others') (1883–1884; fig. 75), *Se la fusse grappa!* ('If only it were grappa!') (1883), *Yvette Guilbert* (1895), and *Madame X* (1896; fig. 76) reflect such a dynamic understanding of plasticity. Here, vaguely recognizable characteristics of anonymous faces appear to be emerging from or melting into fluid mounds of matter. In *Madame X*, described by the art historian Paola Mola Kirchmayr as the remain of 'a future civilization'¹¹⁸ (a notion which could equally be applied to Blas's or Crispin's works), the wax is restored with a soft application near the upper right side of the forehead, extending close to the eye. Like some descendant of a 'perfectly symmetrical Cycladic idol', the work is without a base, fixed on an amalgam of plaster almost entirely hidden by jute.¹¹⁹ The outline of the patch is visible

116 Didi-Huberman, 'The order of material', 195.

117 Didi-Huberman writes: 'What does this preliminary look at the material wax teach us? First, its plasticity cannot be reduced to the canonical passivity of Madame Matter enduring the thrusting – and the pounding of seals – that Mister Form would forever subject her to. The reality of the material proves more disturbing: it possesses viscosity, a kind of activity or an intrinsic power, which is a power of metaporphosis [sic], of polymorphosis, of insensibility to contradiction (particularly to the abstract contradiction between form and formlessness)'. Didi-Huberman, 'The order of material', 202.

118 Paola Mola Kirchmayr, *Rosso: The Transient Form* (Milano: Skira Editore, 2008), 96, exhibition catalogue.

119 Mola Kirchmayr, *Rosso: The Transient Form*, 96.

against the dark and already cracked oval. Rosso does not mend the cheek. He leaves a gap so that the plaster may be seen, almost giving the work the appearance of a doubled-faced creature.

Comparing the work to Crispin's data-mask *Chronos* (fig. 73), one immediately notices the frontal view of both presentations. The almond-shaped forms hover between the human face and its obliteration, preventing any exchange of gazes. Their uneven object surfaces become a threshold in which the face or mask assumes the quality of a fluid, malleable, and barely modulated moving surface of matter. Crispin's *Chronos* could also be the abstracted face of a 'Monsieur X', while *Madame X*'s face appears like a mask (fig. 76). Scholarship on Rosso confirms such a reading. As Hecker writes, Rosso's works reveal his 'revolutionary idea of veiling as an erasure of transparency', which he infused into his sculptures as 'a metaphor for artistic opacity ... a threshold not only between seeing and invisibility, artist or viewer and the subject'.¹²⁰ While the veil is an old and established metaphor for opacity, it here becomes an essential figure of modernity.¹²¹ The veil is the emblem of an anonymous crowd.¹²² 'For the flaneur, the "crowd" is a veil hiding the "masses,"' Benjamin asserts in his reflections on Baudelaire.¹²³ By protecting the gaze of the beholder from detection by the figure and allowing the figure to accost the beholder visually, both Rosso and Crispin use a veiling effect to play on and address different regimes of vision, leading to a confusion of viewer and viewed, subject and object.

By contrast with Crispin's *Data-Masks*, *Madame X* still seems to display a scintilla of individuality. The finely crafted nose of Rosso's work, the subtlest hint of eyes and a mouth, and the amber-coloured wax whose discolorations appear like veins, give it a sense of humanity, even femininity. While the face of *Madame X* is faint, it 'still expresses a desire to connect with the other, without fearing exposure or forgetting difference' as Sharon Hecker lucidly observes.¹²⁴ If, in accordance with the American critic Max Kozloff, *Madame X* 'whittled down to even less than its existential minimum, [still] exists in a state of open possibility', then *Chronos* and the other *Data-Masks* instead convey a feeling of inhuman, powerless inanimateness. Their visual characteristics thus point to a different process of production. *Madame X*'s traits mirror Rosso's form-giving process, in which the material becomes receptive to the artist's humane touch. In contrast, the aesthetic features of Crispin's *Data-Masks* bear witness to the impersonal and distanced processes of digitized production. Here, the object's surface can be read no longer as an index of the artist's touch but as the optimized product of a multi-layered technological infrastructure.

120 Sharon Hecker, *A Moment's Monument: Medardo Rosso and the International Origins of Modern Sculpture* (Oakland, California: University of California Press, 2017), 141.

121 For the veil as a metaphor of opacity see Klaus Krüger, *Das Bild als Schleier des Unsichtbaren: Ästhetische Illusion in der Kunst der frühen Neuzeit in Italien* [The image as veil of the invisible: Aesthetic illusions in the art of early modern Italy] (Munich: Wilhelm Fink Verlag, 2001).

122 See Hecker, *A Moment's Monument*, 142.

123 Walter Benjamin, *The Arcades Project*, tr. Howard Eiland and Kevin McLaughlin (Cambridge, Massachusetts: Belknap Press, 1999), 334.

124 Hecker, *A Moment's Monument*, 142.



76 | Medardo Rosso, *Madame X*, 1896;
wax on plaster base; 30 × 19 × 24 cm.

This is also the case in Barry X Ball's interpretation of Rosso's work in his *Medardo Rosso Project*. Ball started using 3D scanning and printing technology to produce sculptural work in the 1990s.¹²⁵ At this point, the technology was not easily accessible and available to only the military or film industry. Ball started doing body scans in a film studio in Burbank, Los Angeles County. He subsequently became one of the first artists using 'CNC milling machines, scanners, and a robot wire' to treat stone at the Johnson Atelier in New Jersey, one of the largest art fabrication sites in the US at the time.¹²⁶ By contrast with Crispin's approach, Ball's fascination with 3D technology stems merely from its potential as a tool for the perfection of his sculp-

125 See Laster, 'Remastering masterworks'.

126 Ball quoted in Laster, 'Remastering masterworks'.



77 | Barry X Ball, *Madame X*, 2013–2019; translucent golden honeycomb calcite on white Vietnamese marble, stainless steel, wood, acrylic lacquer, steel, nylon, plastic; 29.2 × 18.8 × 22.8 cm (sculpture), 135.4 × 26 × 26 cm (pedestal).

tural productions. These, in turn, take as their departure point the Western male sculptural canon, including the works of Medardo Rosso. It is the declared goal of Ball to not only create a perfect copy but to use the technology to 'exceed what my forebears were able to achieve'.¹²⁷ He thus not only inserts himself in a Western sculptural lineage, one that appears to be defined by male white sculptors only, but intends to outdo his predecessors. However, with his technologically laborious and techno-enamoured replicas of Rosso's *Madame X* (2013–2019, fig. 77) and *Yvette Guilbert* (2013–2019, fig. 78), Ball misses the point of Rosso's approach. Unlike Rosso's carefully modelled and mended work, Ball's pieces have been milled on the basis of 3D scans of Rosso's sculptures and then further detailed, polished, and carved by the hands of Ball's many studio assistants – a process that can take up to 10,000 hours on each sculpture. The result resembles a 'Disneyfication' of Rosso's additive approach to sculpture – one that was interested in the forms that emerged out of momentary states of the material substance used for each work. While Crispin's and Rosso's works speak of the plasticity in the mutability of the employed material, Ball's sculptures emerge from a subtractive approach. They have sacrificed their aliveness in favour of machine perfection. Rather than appearing caught in

127 Ball quoted in Laster, 'Remastering Masterworks'.



78 | Barry X Ball, *Yvette Guilbert*, 2013–2019; ultra-translucent white Mexican onyx on white Vietnamese marble, stainless steel, wood, acrylic lacquer, steel, nylon, plastic; 40.5 × 34.3 × 24.6 cm (sculpture), 135.4 × 32 × 32 cm (pedestal). Private collection, New York.

a moment of material metamorphosis, they are static and sterile, and thus entirely different from Rosso's gently modulated and sketchy surfaces.

Interestingly, recent sculptural production revives the modernist aesthetic vocabulary by using not wax but digital data and plastic. Canadian artist Jon Rafman uses imagery from renowned modernist paintings sourced online as textures on 3D models obtained from Google 3D Warehouse.¹²⁸ These models, in turn, take on the appearance of modernist sculp-

128 At the time of completing this publication, Jon Rafman has faced accusations of sexual misconduct and emotional abuse by multiple women. I strongly condemn any form of abusive behaviour, assault, sexual harassment, and misconduct. For an overview of the accusations, see Valentina di Liscia, 'Three museums suspend Jon Rafman exhibitions following allegations of "predatory behavior"', *Hyperallergic* blog (29 July 2020), <https://hyperallergic.com/579110/jon-rafman-exhibitions-suspended/>, accessed 2 January 2025; Sarah Cascone, 'Three museums have cancelled planned Jon Rafman exhibitions following allegations of sexual misconduct', *Artnet News* blog (28 July 2020), <https://news.artnet.com/art-world/john-rafman-shows-cancelled-1897589>, accessed 11 December 2024; Sarah Bahr, 'Hirshhorn suspends Jon Rafman show after allegations of sexual misconduct', *The New York Times* online (28 July 2020), <https://www.nytimes.com/2020/07/28/arts/design/hirshhorn-museum-jon-rafman.html>, accessed 10 December 2024; Monopol, 'Museum und Galerie beenden nach Vorwürfen Zusammenarbeit mit Künstler Jon Rafman'



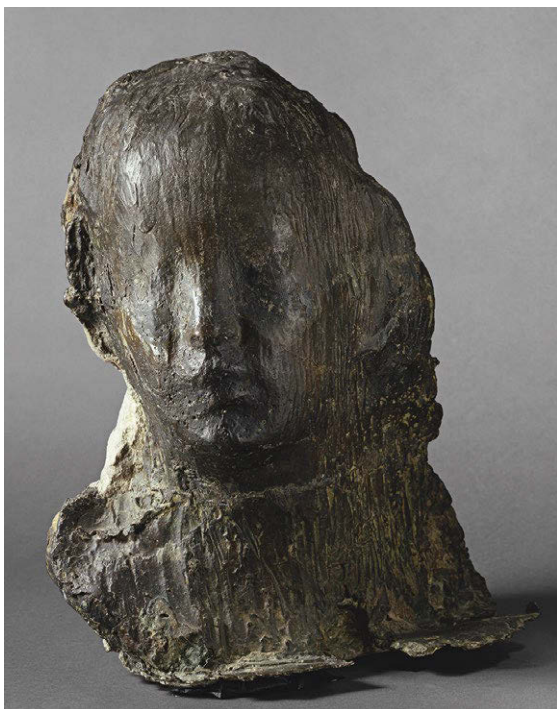
79 | Jon Rafman, *New Age Demanded (Swerveman Silicon)*, 2014; 3D photopolymer resin and silicone; 39.4 × 47.2 × 25.7 cm.

tures. Rafman thus transmutes the two-dimensional canvas into a three-dimensional object and back. While most of the works exist as online images or prints, some busts become three-dimensional via 3D printing, such as the eerie, mysterious, faceless figure busts *New*

[Museum and gallery, after allegations, end collaboration with artist Jon Rafman],” (23 July 2020), <https://www.monopol-magazin.de/museum-und-galerie-beenden-nach-vorwuerfen-zusammenarbeit-mit-kuenstler-jon-rafman>, accessed 13 December 2024. Rafman has since sued the *Montreal Gazette* for defamation over its coverage of the allegations, with the *Gazette* issuing a letter of apology as part of the settlement; see Tessa Solomon, ‘Kanye West teases new album with film by artist Jon Rafman’, *ARTnews* blog (25 January 2024), <https://www.artnews.com/art-news/news/kanye-west-vultures-jon-rafman-film-1234694207/>, accessed 2 January 2025.



80 | Jon Rafman, *Wavy Brut*, 2014; pigment print on aluminium (back-ground); and Jon Rafman, *New Age Demanded (Swerveman Silicone)*, 2014; 3D photopolymer resin and silicon. Installation view, Zabludowicz Collection, *One & Other*, London, 2017.



81 | Medardo Rosso, *Ecce Puer*, 1906; painted plaster; 50 × 32.5 × 38.5 cm.

Age Demanded (Swerveman Silicone) (2014; fig. 79) and *Wavy Brut* (2014; fig. 80), the latter still dripping after having emerged from the 'liquid' software world. These works are caught in the iridescent transformation between their modernist past, digital present, and sci-fi future. Like their predecessors, Crispin and Rafman evoke forms rising out of the momentary state of the employed polymorphic materials, though the artists use different methodological approaches.

Like the 'Heraclitean' forms of Rodin or Rosso's sculptures marked by 'restless transformation' and 'absolute flow', Crispin's *Data-Masks* (figs. 54–60), Blas's *Facial Weaponization Suite* (figs. 70–71) and Jon Rafman's *New Age Demanded* series (figs. 79–80) take on the aesthetic quality and plasticity of shape-shifting, fluid organisms open to material manipulation and metamorphosis.¹²⁹ These works' visually 'melting' elements enhance the sense of evanescence, providing an image of matter on the verge of engulfing the modelled form. Despite

129 Simmel, *Rembrandt*, 106.

their different approaches to production, the artists therefore use the agency inherent in their chosen materials to impart plasticity to their works.

A similar sense of plasticity through material agency can be felt in Rosso's work *Ecce Puer* (1906; fig. 81), which appears ghost-like and alien with an unnaturally curved forehead, a pointed chin, a neck draped with etchings, and an oblique eye like that of a faun. Rosso gave his *Ecce Puer* a reverberating presence by flattening the clay and covering it with repetitive, deeply scored vertical grooves. Like Crispin's pieces *Chronos*, *Até*, and *Sobek*, the face seems to penetrate through a surface of water or a veil. '*Ecce Puer* begins and ends on this surface. Nothing is implied beyond it,' the art historian Rosalind Krauss writes, trying to characterize the play of obscuring and shrouding mediated by a veil-like surface structure.¹³⁰

This observation also applies to the frontality of Rosso's works, intended by the artist to fix the spectator's viewing plane.¹³¹ The serial use of the mirror in Crispin's *Data-Masks* has similar effects. On the one hand, the mirrors relate the works to a pictorial and thus a surface-focused plane of viewing. On the other hand, they emphasize the object quality of the works, which are silhouetted against the mirror and thus assume a plastic nature. For Rosso, different possible views of his sculpture were unimportant. What counted was the 'impression' made in the first moment of viewing his work. In the scholarly literature, Rosso's conscious use of a pictorial term to describe his sculptures has been linked to a 'frustrated pictorial enterprise.'¹³² According to several experts, the artist substituted his interest in the image with a crucial extension of his practice through the 'new media of his time,' namely photography.¹³³ Rosso presented his photographs alongside his sculptures and perceived them as an important ensemble. Rosso's passion for photography has also been linked to his quest for dematerialization and a desire to find different ways to destabilize the object. Through the image, he could make the viewer forget the material of sculpture, as Sharon Hecker concludes.¹³⁴ It appears as if he made a sculpture almost for the purpose of capturing it on film under different conditions and interacting with the photographic image as with an object.¹³⁵ Inscribed into Rosso's sculptural plasticity is an interest not only in materiality

130 Rosalind E. Krauss, *Passages in Modern Sculpture*, 2nd edn (Cambridge, Massachusetts: MIT Press, 1981), 33.

131 See Cooper and Hecker, *Medardo Rosso*, 9.

132 Hecker, 'Reflections on repetition in Rosso's art', 31.

133 For more comprehensive accounts of the importance of photography in Rosso's work, see for example Nina Gülicher, *Inszenierte Skulptur: Auguste Rodin, Medardo Rosso und Constantin Brancusi* [Staged sculpture: August Rodin, Medardo Rosso, and Constantin Brancusi] (Munich: Silke Schreiber, 2011); Jane R. Becker, 'Medardo Rosso: Photographing sculpture and sculpting photography', in Dorothy M. Kosinski and Dallas Museum of Art (eds.), *The Artist and the Camera: Degas to Picasso*, (Dallas, Texas: Dallas Museum of Art, 1999), 159–175, exhibition catalogue; Gabriele Stix-Marget, *Maler ohne Pinsel: Der Bildhauer und Fotograf seiner Werke Medardo Rosso, 1858–1928* [Painter without a brush: The sculptor and photographer of his works Medardo Rosso, 1858–1928] (Munich: Utz, 1998); Dietmar Rübel, 'Die Fotogenese der Skulptur (molekulare Gemeinschaften)' [The photogenesis of sculpture (molecular communities)], in Ecker, Kummer, Lammert, et al. (eds.), *Lens-Based Sculpture*, 116.

134 See Hecker, 'Reflections on repetition in Rosso's art', 31.

135 See Jeffrey Weiss, 'Close up: The absent object', *Artforum International* 52, no. 2 (October 2013), 256.



82 | Sterling Crispin, *Data-Masks*; production video.

but also in its various forms of dematerialization. Crispin's *Data-Masks*, the work analysed at the start of this chapter, relates directly to a pictorial enterprise, much like Rafman's *New Age Demanded* series or the masks from Blas's *Facial Weaponization Suite*. In fact, all these works could more appropriately be termed 'image-objects', as they arise from the image plane before reaching objecthood. This is true on the very level of production: Layer by layer, each object is printed from more than a thousand different two-dimensional image layers. While Rosso explored questions of dematerialization by translating his objects into images, Crispin, Blas, and Rafman translate images into objects to explore the various forms of materialization underpinning digital technology. One approach pictorializes the sculptural object; the other objectifies the image. The importance of the relationship between image and object is evident in the final presentation of Crispin's *Data-Masks*. Here the objects seem to emerge not only from a mirror but from a screen. The artist further indicates such intimate links between image, object, and screen in a video showing the production process of his works (fig. 82). In a series of constantly changing pop-ups and windows on a computer screen, he enacts the production of the multi-layered algorithmic system underpinning the modelling of his work as superimpositions of images. Computer commands, codes, surface structures, and databases are juxtaposed here with snapshots of a constantly evolving data-mask.

Soft codes

The video demonstrates how the artist sculpts with the programmes of his time, which, like wax, are a type of software. The idea of staging the modelling act is reminiscent of Rosso's approach, which likewise emphasizes the process of his works. 'Rosso is going to cast tonight and he invited me,' begins a written record of one of Rosso's studio visits by Jehan

Rictus. His account highlights the performative and at the same time bodily dimension of Rosso's casting process:

There is Rosso who has again climbed up onto the edge of the well of the growling fire. More stabs with the poker. Then with a pair of tongs he pulls out a rather large crucible full of molten metal...and live red...There at the edge they tilt the crucible like a bowl...and the molten metal flows with blue flames...I am impressed by this work while sensing its theatrical and pretentious aspects.... He is in sweat; He drinks milk, Vichy [his assistant gives him] water. Then he offers us champagne.¹³⁶

Unlike his contemporary Rodin, Rosso cast and modelled most of his sculpture by himself and even staged his production process with an audience present.¹³⁷ The process of making sculpture was thus as important to the artist as the final product. Rosso's object surfaces were permitted to preserve and reveal the residual material of their creation in the form of a flash of clot.

While Rosso emphasizes the body of the sculptor performing the act of modelling and his 'plastic power', Crispin's *Data-Masks*, Blas's *Facial Weaponization Suite*, and Rafman's *New Age Demanded* series distance themselves from the subjectivity of a human maker. Their formal language is rather cool and sterile at times. The accidental and unorthodox treatment of matter as registered in Rosso's unconventional marks of process, such as 'knife slashes from cutting away moulds, air-bubble holes, raised lines from mismatched moulds, holes from core pins, casts of rods and sprues and trickles and globs of solidified liquid matter' has given way to calculated, lean, and clean processes.¹³⁸ One could argue that manipulating the mesh of polygons or applying various surface textures (named according to concrete materials such as marble, bronze, or wax) to the digital object is somewhat akin to physically modelling with materials like clay or wax. At the same time, the familiar sculptural vocabulary used in modelling programmes like Z-Brush hides how these acts are mere stand-ins for algorithmic processes.¹³⁹ The fluid, morphing, and distanced features that mark the aesthetics of the more recent objects hint at the agency and plasticity of the technological (surveillance) system. Crispin's, Blas's and Rafman's works thus attest to the destabilizing nature of data. They are based on algorithms performing codes that have also come to shape our digitally supersaturated surroundings.

There has not yet been a thorough scholarly assessment of how these recent developments affect the image of the individual. However, the Chinese government's 'Sharp Eyes Project' may already allow observers to draw some tentative assumptions. The programme employs facial recognition and artificial intelligence to analyse and make sense of captured

136 Jehan Rictus quoted in Hecker, 'Reflections on repetition in Rosso's art', 23.

137 See Hecker, 'Reflections on repetition in Rosso's art', 23.

138 Hecker, 'Reflections on repetition in Rosso's art', 24.

139 The software mimics a traditional sculpting and painting environment by appropriating similar vocabulary and icons, creating confluences between what is physical and virtual, what is hand-treated and digitally generated, what is intuitive and what is algorithmic.

video evidence, using it to 'track suspects, spot suspicious behaviours and even predict crime; to coordinate the work of emergency services; and to monitor the comings and goings of the country's 1.4 billion people, [as] official documents and security industry reports show'.¹⁴⁰ The declared goal is not only to combine these sources into a vast database encompassing every citizen and their criminal and medical records, online purchases, and social media comments – but also to link them to identity cards and essentially their faces, aiming to orchestrate a "single social credit score" based on whether the government and their fellow citizens consider them trustworthy.¹⁴¹ This omnipresent surveillance network reduces the facets and complexity of human identity to general recognition features. This, in turn, raises significant questions about our human existence, the image of the individual, as well as the interfaces between individuality and general perceptibility, akin to the questions prompted by Crispin's and Blas's masks.

By rendering visible the multi-layered algorithmic system underpinning the modelling of his work, Crispin's video not only underlines the strong relationship of his work to the screen and image plane. It also demonstrates that his employed 'material' does not initially create visible, three-dimensional space. The digital plasticity of his work primarily resides within the flatness of a vertical plane, abstract and rich with information. It is inherently transformed into geometries and images for human vision. This serves as a reminder that the data space of the computer world, where 'numbers themselves turn into space,' as Matteo Pasquarelli writes, evokes a distinct kind of topology.¹⁴² Crispin's work centres on making precisely such a space and its different characteristics sensible and visible. The *Data-Masks* are not so much about using an image or object to replace something lost but rather about highlighting the physical presence of something that is invisible yet constantly present.

Despite such drastic differences in the conceptualizations of plasticity, it should nevertheless be noted that Rosso, like other artists and theorists around his time, discovered the performative and agential properties of his artistic materials. Issuing from industrialization and new modes of merchandized production, the idea of a liquid modern thus conveyed a deep interest in plasticity, derived from various material flows and agencies. By highlighting the form-shifting and form-giving qualities of the sculptural material, these artistic and theoretical contributions pointed to an understanding of plasticity that would slowly decouple the notion of form from the authority of a human maker. The artists' interest in the plasticity of their employed materials thus also indicated a shift away from the notion of sculpture as a passive object animated by an active viewer.

140 Simon Denyer, 'China's watchful eye: Beijing bets on facial recognition in a big drive for total surveillance', *Washington Post* online (7 January 2018) https://www.washingtonpost.com/news/world/wp/2018/01/07/feature/in-china-facial-recognition-is-sharp-end-of-a-drive-for-total-surveillance/?utm_term=.c1c83adf0dbb, accessed 11 December 2024.

141 Denyer, 'China's watchful eye'.

142 Matteo Pasquinelli, 'The spike: On the growth and form of pattern police', in Grégoire Chamayou, Anselm Franke, Stephanie Hankey, and Marek Tuszynski (eds.), *Nervous Systems: Quantified Life and the Social Question* (Leipzig: Spector Books, 2016), 250.

In recent sculptural discourse, this understanding resurfaces through conceptual, discursive, and aesthetic parallels but presents itself in a different, digitally mediated reconfiguration. I refer to this hybrid transformation of plasticity through the digital as 'digital plasticity'. In their attempt to visualize the invisible plasticity of a digitally driven system, Crispin's *Data-Masks* participate in a particularly Western strain of art history, namely the 'representation of the invisible and its most supreme sense'.¹⁴³ Within art history's continuing project of visualizing the invisible, or materializing the immaterial, the icon of Christ plays a key role. It is stylized to embody the 'paradoxical search' of Christian iconography for the representation of a body that had disappeared from Earth only to return in a different form.¹⁴⁴ As Hans Belting has shown, the icon of Christ, therefore, never filled the gap left by the loss of a body; rather, it served as symbol of life by recording that past life.¹⁴⁵ It vouched for a lost body and represented the very proof of the existence of Christ's earthly body despite the empty grave.¹⁴⁶ The sacred Shroud of Turin, the alleged relic of Christ's impressed face, exhibits surprising parallels to Crispin's more recent visualization project. Both assume the reality of a body based on the mechanical trace that this body, particularly its face, has left.¹⁴⁷ The bodies' trace is not so much a portrait but evidence of a bodily and material existence.¹⁴⁸ Compared to the supposed trace left by Christ's body, Crispin's *Data-Masks* are not only indexes of bodies but traces of the technological infrastructure and its material presence. Both shroud and Data-Mask are defined by an 'indexical truth' which goes beyond a pure effigy.

The artist Trevor Paglen observes that visual culture 'has become detached from human eyes and has largely become invisible. ... The overwhelming majority of images are now made by machines for other machines, with humans rarely in the loop.'¹⁴⁹ Despite this invisible visual culture, we are not confronted with an entirely new historical constellation. Visual culture has always maintained a productive relationship with the invisible and its various visualization processes.¹⁵⁰ In today's world, seeing alone isn't enough.

143 Patrik Reuterswärd, *The Visible and Invisible in Art: Essays in the History of Art* (Vienna: IRSA, 1991), 7.

144 See Hans Belting, 'Face oder Trace: Zur Anthropologie der frühen Christus-Porträts' [Face or trace: On the anthropology of early portraits of Christ], in Sigrid Weigel (ed.), *Gesichter: Kulturgeschichtliche Szenen aus der Arbeit am Bildnis des Menschen* [Faces: Cultural-historical scenes from work on the human image] (Munich: Wilhelm Fink Verlag, 2013), 91.

145 See Hans Belting, 'Face or trace? Open questions around the prehistory of Christ's icon', ed. Alexander B. Strakhov, *Palaeoslavica. International Journal for the Study of Slavic Medieval Literature, History, Language and Ethnology* 10, no. 1 (2002), 2.

146 See Belting, 'Face oder Trace: Zur Anthropologie der Frühen Christus-Porträts' [Face or trace: On the anthropology of early portraits of Christ], 93.

147 In Crispin's work, 'the body' encapsulates both the captured human bodies and the technological body of the surveillance system.

148 See Belting, 'Face oder Trace: Zur Anthropologie der frühen Christus-Porträts' [Face or trace: On the anthropology of early portraits of Christ], 93.

149 Trevor Paglen, 'Invisible images (your pictures are looking at you)', *The New Inquiry* website (8 December 2016), <https://thenewinquiry.com/invisible-images-your-pictures-are-looking-at-you/>, accessed 13 December 2024.

150 For further reading on this topic, see Anja Rathmann-Lutz, *Visibilität des Unsichtbaren: Sehen und Ver-*

Strictly speaking, in Paglen's example we are dealing not with images but rather with data sets. Perhaps Paglen deliberately deploys the notion of the image to orchestrate a more fundamental observation. Besides visual culture's advances in the spheres of invisibility, his text speaks of a shift of agency that also permeates the works of Crispin, Blas, and Rafman. If 'Turing's revolution displaced the human from the hegemony of cognition' through an 'accumulation of information that exceeds the scale of human memory and as a growth in computing power that exceeds the scale of human thought,' the artists demonstrate that it has also replaced us from the hegemony of vision, of agency and of 'plastic' power.¹⁵¹ The biometric technology underpinning the production of Crispin's work contributes to this argument in that it brutally divorces the image of a person from its traditional spatial coordinates and turns it into a data set. This process remains a mere process until someone makes sense of the flow of data or information they have arrested, sculpted, and stabilized by rendering it into geometry. Their sense-making work becomes the visible indicator of an otherwise invisible formation and, thus, a plastic process. Functioning similarly to the Shroud of Turin, these works bring the materiality of a body, the body of the technological system, into the space of the sensible. The works thereby become indices and evidence of a new kind of plasticity. Developing the Christian concept of the *cheiro-poieton* (an image made by divine hands), these works witness the presence of a different type of plastic power. They speak of a digital plasticity that emerges from the flatness of our computer screens into the world, like Christ from a piece of cloth.

Crispin, Rafman, and Blas intuitively connect historical concepts of plasticity, materiality, and corporeality to recent sculptural concerns by referencing and revising such aesthetic vocabulary in their recent sculptural productions. As this chapter has shown, their works cannot be simply subsumed under the rhetoric of the 'new' and digital, nor can they be placed within a chronological reading of historical progress. Their artistic and theoretical contributions to the discourse of modern sculpture point to an understanding of plasticity that would start to decouple the notion of form from the authority of a human maker, indicating a shift away from sculpture being considered a passive object. While Rosso and Rodin still strongly emphasized the sculptor's body and his 'plastic power' when modelling the material, Crispin, Blas, and Rafman distance themselves from the subjectivity of a human maker. Not only is their works' formal language somewhat cool and sterile, but the 'sculptural' vocabulary of the modelling programmes they employ also serves as mere stand-in for unseen algorithmic processes. This hybrid transformation of plasticity through the digital is truly a 'digital plasticity'.

The transitory and mutable, exemplified in the fluid forms of modern sculpture, was once understood as a reflection of the dynamics of mechanization and industrialization. However, the amorphous masks created by Crispin, Blas and Rafman now speak not only to a changing subjectivity but also to a digital plasticity transforming under the pressures

stehen in Mittelalter und Früher Neuzeit [Visibility of the invisible: Seeing and understanding in the Middle Ages and early modernity] (Zurich: Chronos, 2011).

151 Pasquinelli, 'The spike', 250.

of our post-industrial surveillance state.¹⁵² Nevertheless, the artists' use of rapid facial recognition techniques can be traced back to the invention of modern photography and its immediate use in the realm of criminology and eugenics. While Rosso and Rodin dove into questions of dematerialization by translating their objects into images, Crispin and his peers take a different approach. They translate images into objects to explore the various forms of materialization that underpin digital technology.

In other words, modern sculpture pictorialized the sculptural object; contemporary sculpture objectifies the image. The works of this group of artists could then more appropriately be termed 'image-objects' as they arise from the image plane before reaching objecthood through 3D printing or CNC milling.¹⁵³ The plasticity of their works activates the compressed mathematical and invisible space underpinning contemporary surveillance systems and renders it visible. Crispin's *Data-Masks* are thus less concerned with the dematerialization of image or object than with making the material presence of something invisible yet pervasive perceptible. Their digital plasticity unfolds predominantly within a flat, vertical surface. The material used does not initially generate a visible, three-dimensional form; rather, it has already been transformed into geometries and images to be accessible for human vision.

The following section proceeds with an examination of the digital plasticity evident in Crispin's objects and those of his peers against the backdrop of debates on (im)materiality. It thereby connects the aesthetics of their sculptures and their links to the discourse of modern sculpture to the (re-)emergence of the metaphors of the fluid and liquid in debates around digital objects. Following an examination of the discourses on the liquid modern, it is thus at the intersecting points of art-historical and technological discourses that the concept of digital plasticity in recent sculptural production can be further elucidated. If plasticity, as has been shown here, is historically linked to the potential of matter to evolve, how can we develop a rigorous reading of the materiality defining the works of Crispin and his peers.

2.2 A sea of noise: Liquid fantasies and digital matters

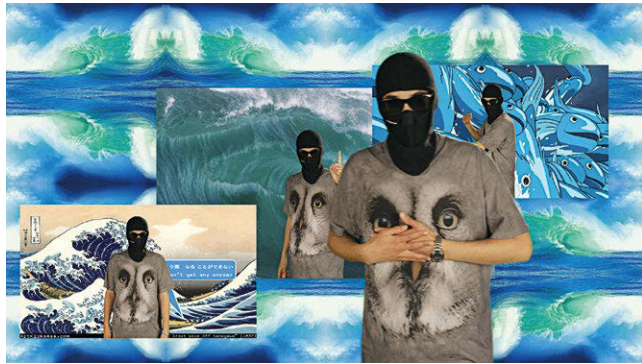
Empty your mind. Be formless, shapeless, like water. Now you put water into a cup, it becomes the cup; you put water into a bottle, it becomes the bottle; you put it into a teapot, it becomes the teapot. Now water can flow or it can crash. Be water, my friend.¹⁵⁴

Martial arts legend Bruce Lee's thoughts on the properties of water are a suitable metaphor to describe digital objects and their basic substance information. Building on the manifold that circumscribes the art-historical and technological space between the past and the pres-

152 See Simmel, *Die Großstädte und das Geistesleben* [Large cities and the life of the mind].

153 For the concept of the image-object see Vierkant, 'The image object post-internet'.

154 See Bruce Lee, 'Be as water my friend' [video], *YouTube* (15 August 2013), <https://www.youtube.com/watch?v=cJMwBwFj5nQ>, accessed 12 December 2024. Lee elaborates on his observations in Bruce Lee, *Tao of Jeet Kune Do* (Milwaukee, Wisconsin: Ohara, 1975).



83 | Hito Steyerl, *Liquid-ity Inc.*, 2014; stills from single-channel HD video; 00:30:00 min.

ent, this chapter situates Crispin's and his peers' practices in the context of debates on digital objects, their agency, materiality, and mutability. By considering how Crispin and his peers negotiate the plasticity of their objects on the level of code before these objects reach a physical manifestation, the chapter develops a complex notion of materiality. This forms the base of an examination of recent concerns related to sculptural plasticity. A central point will be that code needs to be rethought in contemporary art production as both artistic material *and* mutable matter.

As early as 1942, Norbert Wiener observed that cybernetics, 'the science of communication and control', depended upon the flow of information, which 'in scientific or aesthetic inquiry can be modelled via conceptual communication and conscious cognitive control of information'.¹⁵⁵ It comes as no surprise, then, that the word 'cybernetics' derives from the Greek word *kybernetes*, which literally means 'steersman', and has thus inscribed into its etymology an association with water.¹⁵⁶ Wiener not only invoked the qualities of water to describe the

155 Norbert Wiener quoted in Heinz von Foerster (ed.), *Cybernetics of Cybernetics: The Control of Control and the Communication of Communication*, 2nd edn (Minneapolis, Minnesota: Future Systems, 1995), 7.

156 For the etymology of cybernetics, see Norbert Wiener quoted in von Foerster (ed.), *Cybernetics of Cybernetics*, 7. The steersman/helmsman also becomes a metaphor for the two signal elements of cybernetics: feedback and control. The steersman needs to control any adverse consequences of his previous



84 | Petra Cortright, *The Infinite Sculpture Garden without the Boundaries Torn and Ripped into the Vacuum of Emptiness*, 2010; series of digital images.

properties of information but also associated information with mutability that can be modelled like a material. Such parallels between water and the mutable information 'as a kind of ... fluid that circulates effortlessly around the globe while still retaining the solidity of a reified concept', as N. Katherine Hayles has observed, surface not only in the iconographic features of Crispin's *Data-Masks* but also in the way the artist profiles them.¹⁵⁷ According to the artist, the 'amorphous fluid-like faces' have emerged from a 'sea of noise' and look like they are penetrating the surface of 'a pool of water'.¹⁵⁸

The imagery of liquid as both an aesthetic feature and a metaphor for infinite malleability, variability, and remixability is also found in the practice of other contemporary artists



85 | Oliver Laric, *Versions*, 2010; stills from single-channel HD video; 00:09:06 min.

actions and predict the future implications of his current decisions.

157 Hayles, *How We Became Posthuman*, 246.

158 Crispin, 'Data-masks', 1, 36, 42.

such as Petra Cortright (born 1986 in Santa Barbara, California, USA), Hito Steyerl, and Oliver Laric. According to Domenico Quaranta, Petra Cortright explores 'the liquid nature of digital images [by] literally liquefying found photographs of models, still-lives or landscapes'.¹⁵⁹ This approach is evident in her work *The Infinite Sculpture Garden without the Boundaries Torn and Ripped into the Vacuum of Emptiness* (2010; fig. 84). The same observation also applies to Hito Steyerl's video essay *Liquidity Inc.* (2014; fig. 83) and Laric's *Versions* videos (2009, 2010, 2012; fig. 85). While Laric parallels the introductory Bruce Lee quote on the properties of water with poetic-visual characterizations of data, information, and communication, Steyerl's *Liquidity Inc.* juxtaposes the exact same quote with the fluid forms that populate her cinematic essay, including a flood of memes, images of transpacific migrations, liquidity of finance systems, the dissolution of communications, and the flowing but violent gestures of martial arts. Similarly, Laric's *Versions* videos, each a transubstantiation of its predecessor, splice together recurrent image sequences working as vignettes in combination with quotes by Bruce Lee, Henry James, Gertrude Stein, Jorge Luis Borges, James Brown, Lyn Collins, and Rob Base & DJ E-Z Rock. The series examines the performativity and mutability at play in image reproduction and proliferation. Here, subjects, signs, and soundtracks are sporadically fragmented and dissolve into one another as if mixed in a watery solution.

Liquid objects

Lev Manovich confirms this image when he writes that characterizations such as 'mutable', 'liquid', and 'variable' are 'often used in relation to new media'.¹⁶⁰ In his pioneering book, *The Language of New Media*, Manovich outlines what he maintains are the fundamental principles that distinguish new media from analogue objects. Published in 2001, the text remains relevant for its basic outline of what media objects are. Firstly, media objects are represented numerically. They are 'described using a mathematical function', and thus, they can be manipulated algorithmically and 'become programmable'.¹⁶¹ Secondly, as Manovich points out, they are modular. Media objects do not appear as self-contained entities; rather, a new media object is 'represented as collections of discrete samples' and can be 'assembled into larger-scale objects' while each element retains its own identity.¹⁶² The textures of Crispin's, Rafman's, or Blas's objects, for example, can be modified independently of their form and then sampled as a whole. Thirdly, 'numerical coding' and 'modular structure' allow for the 'creation, manipulation, and access' of new media objects without direct human interaction.¹⁶³ Human agency is thus subjected to algorithmic processes, as evident in Crispin's work based on genetic algorithms. Manovich calls this principle 'automation'.¹⁶⁴ A further principle, 'transcoding', relates to the ability of a digital object to negotiate multiple

159 Domenico Quaranta, *In Your Computer* (Brescia: LINK editions, 2011), 163–164.

160 Lev Manovich, *The Language of New Media*, rev. edn (Cambridge, Massachusetts: MIT Press, 2002), 36.

161 Manovich, *The Language of New Media*, 27.

162 Manovich, *The Language of New Media*, 30.

163 Manovich, *The Language of New Media*, 32.

164 Manovich, *The Language of New Media*, 32.

layers in a computer's internal architecture, but also facilitates the relationships between the systems of organization of culture and the means by which we affect those systems in computing.¹⁶⁵

Perhaps closest to the origins of plasticity within art-historical discourse, however, is Manovich's fourth principle, 'variability'. For Manovich, variability is understood as the mutability of a material and its agency. The modularity and numerical representation of digital objects produces variability in the context of Manovich's theory.¹⁶⁶

Old media involved a human creator who manually assembled textual, visual, and/or audio elements into a particular composition or a sequence ... [whereas New Media objects,] stored in some material and able to produce identical copies,... give rise to many different versions... often in part automatically assembled by a computer.¹⁶⁷

Media objects are not fixed entities with a determined form. Like Crispin's *Data-Masks*, they can 'exist in different, potentially infinite versions', which are automatically composed and can be customized by a computer.¹⁶⁸ Thus the principle of variability is, for Manovich, closely linked to that of automation. If, however, the algorithmic processes that govern the conception of digital objects, along with the communication of machines and networks, are designed to be mutable and malleable, could digital plasticity be added to his conceptual vocabulary?¹⁶⁹ Plasticity is, as the previous chapter shows, historically linked to the potential of matter to evolve. How, then, can we conceptualize the materiality at play in the works of Crispin and his peers?

Matter of concern

According to Hayles, the metaphor of the 'liquid' vaporized the material of information – leading to its perception as being 'immaterial'.¹⁷⁰ In this context, it is interesting to highlight the understanding of information as plastic, mutable, and part of an open, dynamic, and evolutionary system, a view seen above in relation to second-order cybernetics. This perspective has led cultural theorists to emphasize that digital information, far from being immaterial, 'is always already another form of matter'.¹⁷¹ One cannot help thinking of the art-historical discourse, which since antiquity has considered a material's materiality as the very evidence of its plasticity and vice versa. Since the 1980s, such observations have been the subject of academic research on digital materiality, increasingly gaining attention since the 2000s.¹⁷²

165 Manovich, *The Language of New Media*, 46.

166 Manovich, *The Language of New Media*, 36.

167 Manovich, *The Language of New Media*, 36.

168 Manovich, *The Language of New Media*, 36.

169 As Johnny Ryan observes, Web 2.0 takes such ideas to their logical conclusion, see Johnny Ryan, *A History of the Internet and the Digital Future* (London: Reaktion, 2010), 139.

170 See Hayles, *How We Became Posthuman*, 246.

171 Parisi, *Contagious Architecture*, 2.

172 See Nathalie Casemajor, 'Digital materialisms: Frameworks for digital media studies', *Westminster Papers in Communication and Culture* 10, no. 1 (15 September 2015).

Scholars from this tradition link digital information and communication to material presence and physical implications. The following short detour on the debates over digital materiality will help to describe the complex notion of materiality at play in recent sculptural productions by Crispin, Rafman, Laric, and Blas. It will also shed light on the relationship between digital materiality and immateriality, a characteristic often ascribed to digital objects.

Intellectually heterogeneous research communities have formed under the heading of 'digital materialism'. In Germany, the Berlin School of Media was led by Friedrich Kittler.¹⁷³ In America, scholars in the fields of software studies and science, technology, and communication studies have actively discussed the materiality of the digital.¹⁷⁴ The literary critique of electronic texts proposed by Kathrine N. Hayles; the forensic approach encouraged by Matthew G. Kirschenbaum, Jean-François Blanchette, and Johanna Drucker; as well as the new materialist media ecology represented by Diana Coole, Samantha Frost, and Lisa Gitelman, are all distinct and partly contrasting frameworks for thinking about the materiality of digital media.¹⁷⁵ Related reflections are also found in the field of Marxist critical studies.¹⁷⁶ These various formations of thought reject the idea of 'pure' and disembodied information by emphasizing the very material side of the digital. This emphasis has in turn inspired an interest in the 'materiality

173 See Friedrich A. Kittler, *Literature, Media, Information Systems*, ed. John Johnston (London: Routledge, 1997); Friedrich A. Kittler, *Gramophone, Film, Typewriter*, tr. Geoffrey Winthrop-Young and Michael Wutz (Stanford, California: Stanford University Press, 1999); Geoffrey Winthrop-Young, *Kittler and the Media* (Cambridge: Polity, 2010).

174 See for example Matthew Fuller, *Behind the Blip: Essays on the Culture of Software* (New York: New York: Autonomedia, 2003); Matthew Fuller, *Media Ecologies: Materialist Energies in Art and Technoculture*, rev. edn (Cambridge, Massachusetts: MIT Press, 2007); Matthew Fuller and Andrew Goffey, *Evil Media* (Cambridge, Massachusetts: MIT Press, 2012); Manovich, *The Language of New Media*; Noah Wardrip-Fruin, *Expressive Processing: Digital Fictions, Computer Games, and Software Studies* (Cambridge, Massachusetts: MIT Press, 2012); Noah Wardrip-Fruin and Nick Montfort (eds.), *The New Media Reader* (Cambridge, Massachusetts: MIT Press, 2003); Nick Montfort et al., *10 PRINT CHR\$(205.5+RND(1)): GOTO 10* (Bellingham, Massachusetts: MIT Press, 2012).

175 See Hayles, *How We Became Posthuman*; N. Katherine Hayles and Anne Burdick, *Writing Machines* (Cambridge, Massachusetts: MIT Press, 2002); Matthew G. Kirschenbaum, *Mechanisms: New Media and the Forensic Imagination* (Cambridge, Massachusetts: MIT Press, 2008); Matthew G. Kirschenbaum, Richard Ovenden, and Gabriela Redwine, *Digital Forensics and Born-Digital Content in Cultural Heritage Collections*, research assistance from Rachel Donahue (Washington, DC: Council on Library and Information Resources, 2010); Jean-François Blanchette, 'A material history of bits', *J. Am. Soc. Inf. Sci. Technol.* 62, no. 6 (June 2011), 1042–1057, doi: 10.1002/asi.21542; Johanna Drucker, 'Performative materiality and theoretical approaches to interface', *DHQ: Digital Humanities Quarterly* 7, no. 1 (2013), <http://www.digitalhumanities.org/dhq/vol/7/1/000143/000143.html>, accessed 11 December 2024; Anne Burdick, Johanna Drucker, Peter Lunenfeld, Todd Presner, and Jeffrey Schnapp, *Digital Humanities* (Cambridge, Massachusetts: MIT Press, 2016); Diana Coole and Samantha Frost (eds.), *New Materialisms: Ontology, Agency, and Politics* (Durham, North Carolina: Duke University Press, 2010); Lisa Gitelman, *Always Already New: Media, History, and the Data of Culture* (Cambridge, Massachusetts: MIT Press, 2008).

176 See Hans Ulrich Gumbrecht and K. Ludwig Pfeiffer, *Materialities of Communication* (Stanford, California: Stanford University Press, 1994); Timothy Lenoir, *Inscribing Science: Scientific Texts and the Materiality of Communication* (Stanford, California: Stanford University Press, 1998); Phillip Thurtle and Robert Mitchell (eds.), *Data Made Flesh: Embodying Information* (New York, New York: Routledge, 2003).

of the medium, of information, and of communication' ranging 'from the material stratum of media to the human body's interaction with technology to the socioeconomic systems which support such interaction,' as Bill Brown observes.¹⁷⁷

Im-materiality in materiality

Challenging the trope of immateriality, these various intellectual positions reject the notion that digital materiality consists of abstract entities, instead emphasizing the material bits, as exemplified by Jean-François Blanchette in his seminal text, 'A material history of bits.'¹⁷⁸ As these scholars point out, the trope of immateriality has been ascribed to electric technologies since the telegraph and further nourished by an understanding of information as liquid, 'transferring from vessel to vessel.'¹⁷⁹ 'By annihilating space and time,' such myths of immateriality allowed 'humankind to escape physical limitations.'¹⁸⁰ This logic also pervades Marshall McLuhan's understanding of electricity as the ultimate medium, 'since with electricity we extend our central nervous system globally, instantly interrelating every human experience.'¹⁸¹ At the same time, McLuhan's media theory turned to the medium's materiality by highlighting how physical processes shape information. In a manner slightly reminiscent of Herder's argument cited earlier, McLuhan ennobles tactility as the 'integral sense.'¹⁸² 'Touch is the sense of multimedia, the immersive simulations of cyberspace, and the connections, switches, and links of all nets. Communication cannot be caught by the gaze, but it always a matter of getting in touch,' Sadie Plant writes so eloquently.¹⁸³ Cybernetic theory, too, was very much aware of the physical constraints of electronic systems issued forth by material phenomena and thus emphasized the physicality of (digital) media. Such reflections might have also motivated Jean-François Lyotard's exhibition *Les Immatériaux*, curated with Thierry Chaput at the Centre George Pompidou in 1985.¹⁸⁴

'Why Immaterials'? Research and development in the technoscience, art and technology, yes even in politics, give the impression that reality, whatever it may be, becomes increasingly intangible.... The good old matter itself comes to us in the end as something which has been dissolved and reconstructed in complex formulas.¹⁸⁵

177 Bill Brown, 'Materiality', in W. J. T. Mitchell and Mark B. N. Hansen (eds.), *Critical Terms for Media Studies* (Chicago, Illinois: University of Chicago Press, 2010), 50.

178 Blanchette, 'A material history of bits'.

179 Brown, 'Materiality', 50.

180 Shawn Rosenheim, *The Cryptographic Imagination: Secret Writing from Edgar Poe to the Internet* (Baltimore, Maryland: Johns Hopkins University Press, 1997), 93.

181 Marshall McLuhan, *Understanding Media: The Extensions of Man* (New York, New York: Sphere Books, 1967), 395.

182 McLuhan, *Understanding Media*, 77.

183 Sadie Plant, 'On the matrix: Cyberfeminist simulations', in Robert M. Shields (ed.), *Cultures of Internet: Virtual Spaces, Real Histories, Living Bodies* (London: SAGE Publishing, 1996), 179.

184 The exhibition took place in the main gallery on the fifth floor from 28 March to 15 July 1985. It was developed by the Centre de Création Industrielle (CCI) for the Centre National d'Art et de Culture Georges Pompidou, with Jean-François Lyotard serving as the lead organizer.

185 Jean-François Lyotard, Jacques Derrida, and F. Burkhardt, *Immaterialität und Postmoderne* [Immateriality and postmodernity], tr. Marianne Karbe (Berlin: Merve Verlag, 1985), 10.

With the concept of 'immaterials', Lyotard argues that the relationship between human and material, and significantly human self-conception, would alter to the extent that technology would be able to reassume the abilities of the *logos* by storing and processing dematerialized data.¹⁸⁶ In light of this increasing penetration of mind and matter, Lyotard's neologism, *Les Immatériaux*, expressed that the material could no longer be viewed as an inert object opposing an intelligent subject, but instead now as 'cousins in the family of "Immaterials"'.¹⁸⁷ This dawning postmodern condition was translated into a labyrinthine exhibition environment, an uncanny data space, comprising a large number of computers, projectors, and other pieces of high-tech equipment, besides sculptures, paintings, conceptual art, video projections, documentaries, scientific experiments, holograms, contemporary music scores, architectural drawings, refrigerators, and robots.¹⁸⁸ Encouraging a state of unease and disarray, *Les Immatériaux* was meant to sensitize the visitor to the developments arising from the dissolution of the concept of matter as a solid building material of reality.¹⁸⁹ Lyotard posits that digitalization marks the ultimate level of abstraction in this process, as it enforces a finite encoding scheme that substitutes tangible matter with the language of an abstract universal code – the digital code, devoid of any direct analogy to its origin.¹⁹⁰ Such consecration of digital codes as 'existing independently of the usual material constraints and determinants, such as material bodies, politics, and the economy' enabled art historian Monika Wagner to argue that the exhibition was 'less received as a critical examination of an assailed notion of materiality but rather as a confirmation of the overcoming of the old physical world through information technology'.¹⁹¹ Reminding us of the idealist tradition of aesthetic theory that referenced Aristotle and Plato, Lyotard too subjects materiality to sublimation, a transformation of the material from its natural state towards a higher dimension.¹⁹²

'While Lyotard and his peers – very much in tune with the predominant fantasies of their period – mused about a future without material objects, the very title of the project pointed towards the incorporation of the virtual into the material world,' Marianne van den Boomen highlights.¹⁹³ Experts on the exhibition, including Antonia Wunderlich, Andreas Broeckmann, and Yuk Hui, have all implied that Lyotard understood the digital not as immaterial

186 Jean-François Lyotard, 'Les Immatériaux' [The immaterials], in Reesa Greenberg, Bruce W. Ferguson, and Sandy Nairne (eds.), *Thinking about Exhibitions* (London: Routledge, 1996), 162.

187 Lyotard, 'Les Immatériaux' [The immaterials], 159.

188 See Lyotard, 'Les Immatériaux' [The immaterials], 165.

189 See Lyotard, 'Les Immatériaux' [The immaterials], 170.

190 'The model of language replaces the model of matter'; see Lyotard, 'Les Immatériaux' [The immaterials], 164.

191 Monika Wagner, 'Material', in Karlheinz Barck, Martin Fontius, Dieter Schlenstedt, Burkhardt Steinwachs, and Friedrich Wolfzettel (eds.), *Ästhetische Grundbegriffe: Historisches Wörterbuch in sieben Bänden* [Foundational concepts in aesthetics: Historical dictionary in seven volumes], 867.

192 For the conception of materiality in idealist aesthetics, see Bandmann, 'Bemerkungen zu einer Ikonologie des Materials' [Remarks on an iconology of material], 75.

193 Marianne van den Boomen, *Digital Material: Tracing New Media in Everyday Life and Technology*, 2nd edn (Amsterdam: Amsterdam University Press, 2014), 9.

but as deeply material.¹⁹⁴ Yuk Hui states, 'The term *les Immatériaux* was strategically chosen in order to disrupt the modern concept of matter ... the immaterial designates a new material, which could not and should not be the continuation of the traditional conception of matter.'¹⁹⁵ The immaterial, undergoing a transformative shift into materiality while retaining its original essence, gave rise to a novel framework where the conventional separation of mind and matter became untenable. Language was fundamental to Lyotard's formulation of the new material, in which 'the model of language replaces the model of matter'.¹⁹⁶ This is also evident in his conceptualization of the new materiality according to five categories: *Matériau* ('support'): the medium by which the message speaks; *Matériel* ('receiver'): the destination which the message addresses; *Maternité* ('sender'): the origin in the name of which the message speaks; *Matière* ('referent'): the contents of which the message speaks; and *Matrice* ('code'): the manner in which the message speaks.

The cyberculture which was emerging in the 1980s did not adopt Lyotard's thinking. Instead, it revived the notion of the immaterial digital. This notion is exemplified by John Barlow's 'Declaration of the Independence of Cyberspace', which states in part that 'there is no matter' in cyberspace.¹⁹⁷ William Gibson, too, fuelled such visions in his book *Neuromancer* (1984), which depicts a global computer network called the 'Matrix' wiring together brains and machines into a 'consensual illusion' located in 'the nonspace of the mind [made of] clusters and constellation of data'.¹⁹⁸ According to the founder of the MIT Media Lab, Nicholas Negroponte, the conceptual shift from 'atoms to bits' leads to the gradual dematerialization of advanced society.¹⁹⁹ Left behind, the body remains inert, while 'a disembodied subjectivity inhabits a virtual realm'.²⁰⁰ For Hayles, this image becomes the ultimate metaphor to describe the unjust distinction between materiality and information that has succeeded the Cartesian mind/body split.²⁰¹ By getting 'rid of the decay and inertia of material reality', as Slavoj Žižek writes, the image achieves what Dan Thu Nguyen and John Alexander call

194 See Yuk Hui and Andreas Broeckmann (eds.), *30 Years after 'Les Immatériaux': Art, Science, and Theory* (Lüneburg: meson press, 2015); Antonia Wunderlich, *Der Philosoph im Museum: Die Ausstellung 'Les Immatériaux' von Jean François Lyotard* [The philosopher in the museum: The exhibition 'Les Immatériaux' by Jean-François Lyotard] (Bielefeld: transcript Verlag, 2008).

195 Yuk Hui, 'Towards a relational materialism', *Digital Culture & Society* 1, no. 1 (2015), 131–132, doi: 10.14361/dcs-2015-0109.

196 Lyotard, 'Les Immatériaux' [The immaterials], 164.

197 John Perry Barlow, 'A declaration of the independence of cyberspace', *Electronic Frontier Foundation* website (date unknown, written 8 February 1996), <https://www EFF.org/cyberspace-independence>, accessed 10 December 2024.

198 William Gibson, *Neuromancer* (New York, New York: Berkley Publishing Group, 1989), 128.

199 Nicholas Negroponte, *Being Digital*, new edn (Rydalmere: Coronet Books, 1996).

200 Hayles, *How We Became Posthuman*, 379.

201 See in this context also the opening chapter of Hayles's book, where she writes 'Second, the post-human view considers consciousness, regarded as the seat of human identity in the Western tradition long before Descartes thought he was a mind thinking, as an epiphenomenon, as an evolutionary upstart trying to claim that it is the whole show when in actuality it is only a minor sideshow'. Hayles, *How We Became Posthuman*, 3.

'the human dream of transcending materiality at unforeseen cost.'²⁰² Similarly limited understandings of immateriality have also populated other areas of research. Colin Renfrew, one of the founding figures of cognitive archaeology, speaks of a 'dematerialization of material culture.'²⁰³ Here the 'physical, palpable material reality is disappearing,' marking an increased separation of 'substance' and 'communication.'²⁰⁴

A summary of these diverse positions is given by the literature critic Bill Brown. He speaks of the 'dematerialization hypothesis' comprising three main concepts.²⁰⁵ First, for Brown, such mythologies understand the digital as divorced from material constraints, thereby neglecting the materiality of communication (Barlow, Gibson, Negroponte). Secondly, they dismiss that reality is always mediated via media, thereby artificially demarcating mediality from reality (Žižek, Renfrew). Most prominently, Baudrillard claimed that the image has 'no relation to any reality whatsoever, it is its own pure simulacrum.'²⁰⁶ Thirdly, ideas of dematerialization tend to be built on a techno-deterministic hypostatization of the immaterial – they frame discourses of hypertext, virtual reality, and cyberspace outside a known materiality and as operating autonomously of material determinacies. Such prognoses often go hand-in-hand with arguments that the loss of reality is indicated by a loss of tactility in favour of the visual (Baudrillard). In the era of the 'hyperreal', materiality is merely a remnant of the past.²⁰⁷

Given these discourses on the dematerializing and immaterial aspects of the digital, Lyotard's ambitious *Les Immatériaux* can today be seen as the ancestor to more recent discussions around 'digital materialism'. The diverse debates have continued to evolve towards 'mapping out how new media can be traced as digital material ... by showing how technology is interwoven with material bodies, politics, and the economy.'²⁰⁸ These newer positions can be summarized as propelling a 'material turn' within various disciplines ranging from art history, anthropology, history, and media studies to the history of science and literary and cultural studies. While the various approaches within the field of materialist media studies may collectively explore the material substrates of digital culture, they significantly differ in their objects of study, methodologies, and theoretical approaches.

In trying to come to terms with the complex notions of materiality and plasticity at play in the works by Sterling Crispin and his peer group, it is fruitful to turn to two conceptualizations of digital materiality by Matthew Kirschenbaum and Bernard Stiegler. In his book *Mechanisms: New Media and the Forensic Imagination*, Kirschenbaum focuses on storage and the

202 Dan Thu Nguyen and Jon Alexander, 'The coming of cyberspacetime and the end of polity', in Robert M. Shields (ed.), *Cultures of Internet: Virtual Spaces, Real Histories, Living Bodies*, (London: SAGE Publishing, 1996), 99; Slavoj Žižek, *On Belief* (London: Routledge, 2001), 33.

203 Colin Renfrew, *Figuring It Out: What Are We? Where Do We Come From?*, new edn (London: Thames and Hudson Ltd, 2006), 185–186.

204 Renfrew, *Figuring It Out*, 185–186.

205 Bill Brown, 'Materiality', 49.

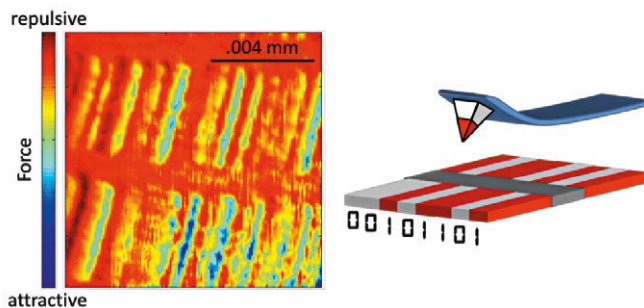
206 Jean Baudrillard, *Simulacra and Simulation*, tr. Sheila Glaser (Ann Arbor, Michigan: University of Michigan Press, 1994), 6.

207 Baudrillard, *Simulacra and Simulation*, 6.

208 Van den Boomen, *Digital Material*, 8.

inscription of digital information on hard drives. Prompted by Kittler's unsatisfying narrative of 'the universal ones and zeros of digital computation', he aims to uncover 'the heterogeneity of digital data and its embodied inscriptions' read through the framework of the hard drive.²⁰⁹ His theory on the status of digital inscription is based on a vocabulary borrowed from forensic expertise. The physical and chemical analyses used in criminology for reconstructing digital evidence allow Kirschenbaum to shift attention to the physical properties of digital inscription, a dimension also relevant for archival preservation. 'Every contact leaves a trace,' he states.²¹⁰ Once again, the Shroud of Turin comes to mind, as the supposed evidence of the materiality of an invisible being through the concept of trace. Kirschenbaum states, 'a forensic perspective furnishes us with two key concepts for an alternative approach to electronic textual studies: trace evidence and individualization.'²¹¹ The model he proposes distinguishes between *forensic* materiality and *formal* materiality. Forensic materiality rests upon the idea that bits are inscribed in the form of individualized physical traces and that 'no two things in the world [even the micron-sized residue of digital inscription] are ever exactly alike.'²¹²

Take, for example, the digital files of Crispin, Blas, or Rafman: These are typically stored on a hard drive where individual bit representations deposit discrete legible trails that can be observed with the aid of a technique known as microscopy.²¹³ Figure 86 is an example of a microscopic image that shows two rows of bits that encode a tiny fraction of a digital object, like those by Crispin and his peer group. The digital ones and zeros are depicted as alternating red and blue stripes. These colours symbolize the forces acting on the microscope lever: blue for zeros, which attract the lever, and dark red for ones, which repel it. In the illustration,



86 | Close-up image of bits seen through microscopy. From Andy Berger, 'Here's what the data on your hard drive looks like', *D-Brief* blog (31 July 2015).

209 Kirschenbaum, *Mechanisms*, 6.

210 Kirschenbaum, *Mechanisms*, 25 onwards.

211 See Kirschenbaum, *Mechanisms*, 19.

212 Such forensic materiality reveals itself in the 'surfaces, substrates, sealants and other material that have been used over the years as computational storage media, and in the engineering, ergonomic, and labour practices that attend computation'. See Kirschenbaum, *Mechanisms*, 10.

213 Kirschenbaum, *Mechanisms*, 10.

the lever is shown suspended above a hard drive sample, being deflected by the magnetic bits.²¹⁴ Kirschenbaum sees these physical remnants of the digital inscription as the indicators of *forensic* materiality that leaves physical traces in the matter.

Formal materiality, on the other hand, characterizes the state of bits as symbols, series of ones and zeros, manipulated by the computer. It describes the 'imposition of multiple relational computational states on a data set or digital object' and is therefore not an 'absolute term'.²¹⁵ These two categories do not precisely reproduce the distinction between hardware and software 'because the lines between hardware and software are themselves increasingly blurred, as is manifest in so-called firmware, or programmable hardware'.²¹⁶ The source code of the printable STL-files of Crispin's *Data-Masks*, for example, features a list of symbols and letters describing a series of points in space that are connected via triangulation (fig. 87). They represent the surface geometry of a three-dimensional object, reminding us that 'instead of manipulating matter, the computer allows us to manipulate symbols'.²¹⁷ Such files are typically regarded as carriers of information about the object itself, presenting a condensed and sign-based representation of the object's digital plasticity. At the moment of printing, this representation transforms into an actual, physical *gestalt*. The file can, however, also carry metadata (embedded as plain text in the file's header, for example), which is only revealed in a suitable software environment.

[illegible]

87 | Example of a 3D printable .STL file in binary format.

214 See Andy Berger, 'Here's what the data on your hard drive looks like', *D-Brief* blog (31 July 2015), <https://www.discovermagazine.com/technology/heres-what-the-data-on-your-hard-drive-looks-like>, accessed 6 January 2025.

215 Kirschenbaum, *Mechanisms*, 13.

216 Kirschenbaum, *Mechanisms*, 12.

217 Woodrow Barfield and Thomas A. Furness (eds.), *Virtual Environments and Advanced Interface Design*
(New York, New York: Oxford University Press, 1997), i.

Suddenly, the file reveals more (hidden) data than initially expected. Kirschenbaum's notion of *formal* materiality thus 'tries to capture something of the procedural friction or perceived difference – the torque – as a user shifts from one set of software logic to another.'²¹⁸ Kirschenbaum designates such materiality 'a relative or just-in-time dimension of materiality, one where any material particulars are arbitrary and independent of the underlying computational environment and are instead solely the function of the imposition of a specific formal regimen on a given set of data and the resulting contrasts to any other available alternative regimens.'²¹⁹

With Kirschenbaum, it can be observed that the algorithmic systems underpinning the digital plasticity of Crispin's, Blas's, or Rafman's works, systems that 'we call virtual[,] are in fact *physical* phenomena lacking the appropriate mediation to supplement wave-lengths optics; that is, the naked eye.'²²⁰ Their digital plasticity (in Kirschenbaum's terminology, their formal materiality) lacks the dimension of touch until it is matched or instanced in a physical and tactile counterpart. Inasmuch as objects, images, and texts take on the same material but invisible nature, the materiality of these works of art needs to be considered anew. Stiegler, expanding on Lyotard's notion of *Les Immatériaux*, comes to a similar observation, introducing his notion of the *hypermateral*. His emphasis is not so much on dematerialization in light of digital technologies, as Lyotard might suggest. He instead argues for an increasing superposition of the realms of information and materiality:

I call hypermatter a complex of energy and information where it is no longer possible to distinguish its matter from its form – what first appears with quantum mechanics, necessitating the abandonment of what Simondon called the hylomorphic scheme. This is the manner of thinking according to a pairing of concepts, form (*morphè*) and matter (*hylè*), which are thought as opposed to each other. I call hypermaterial a process where information – which is presented as a form – is, in reality, a sequence of states of matter produced by materials and apparatuses, by technological diapositives in which the separation of form and matter is also totally devoid of meaning. In terms of everyday life, we are not a part of a dematerialization at all but rather, quite to the contrary, a hypermaterialization: everything is transformed into information, which is to say into states of matter[,] by the intermediaries of materials and apparatuses, and it is this which makes everything controllable at the level of the nanometres and the nanosecond. This process leads to a considerable expansion of increasingly accessible states of matter which carry form, which is henceforth able to work in the infinitely small and the infinitely brief. As a result, matter is becoming invisible.²²¹

Stiegler's introductory words to his concept of the hypermaterial here recall Didi-Huberman's meditations on the plasticity of wax, one of Medardo Rosso's favourite preferred mu-

218 Kirschenbaum, *Mechanisms*, 13.

219 Kirschenbaum, *Mechanisms*, 13.

220 Kirschenbaum, *Mechanisms*, 19.

221 Bernard Stiegler, *Economie de l'hypermateriel et psychopouvoir: Entretiens avec Philippe Petit et Vincent Bontems* [Economy of the hypermaterial and psychopower: Interviews with Philippe Petit and Vincent Bontems] (Paris: Mille et une nuits, 2008), 110–112. The translation is from Sam Kinsley, 'Stiegler on "immateriality" and "virtual spaces"', Sam Kinsley personal website (12 August 2013), <http://www.samkinsley.com/2013/08/12/stiegler-on-immateriality-and-virtual-spaces/>, accessed 6 January 2025.

table matters. Didi-Huberman opens 'The Order of Material', initially published in 1999, with a similar observation. Wax, Didi-Huberman argues, overcomes the traditional hylomorphic structure 'deduced from the polarity of Matter/Form ... and Matter/Spirit', that had been invented in 'a Platonic context, popularized by Vasari at the moment of birth of the academic discourse called art history finally transported into the twentieth century by Panofskyian neo-Kantianism'.²²² Wax, in its 'paradox of consistency', its 'malleability', and its power of 'resemblance' presents itself instead as a 'substance between two material states'.²²³ It thereby moves 'between resemblance and formlessness'.²²⁴ As such, wax is characterized in a manner astonishingly similar to how the materiality of the digital has been described by, among others, Stiegler (whose 'hypermateral' is also conceived as a sequence of states of matter), Lyotard (whose 'immaterial' is 'a matter which has been dissolved and reconstructed in complex formulas'), and Kirschenbaum (for whom forensic materiality is not an absolute concept but rather seeks to encapsulate aspects of procedural resistance or perceived distinctions). Code, like wax, threatens the idealist concepts of form and matter, and matter and spirit, dichotomies which also nourished and sustained the all too physical and material productions of the immaterial. If one were to replace the word 'wax' with the word 'code' in the following quote taken from Huberman's text, it would serve as an ideal introduction of an anthology to digital materiality:

When one reads the technical writings of people who work with wax [code], one comes away with the strange impression that wax [code] is characterized only by being uncharacterizable: each time we recognize a material quality in wax [code], we immediately see another quality that is exactly opposite. Wax [code], emerges therefore as a material that is insensitive to the contradictions of its material qualities. It may be sculpted, modelled, or cast and is thus insensitive to the contradictions as well as the traditional hierarchies of plastic arts.²²⁵

Had he lived a century later, would Rosso have modelled with data and essentially in code? Reading the works of Crispin, Laric, or Rafman through the lens of recent debates on digital materiality, we are not only faced with states of matter beyond visibility but with a form of matter that shifts between material states. Following leading thinkers in the debates on digital materiality, it can therefore be argued that the algorithmic systems underpinning the digital plasticity of works by Crispin, Blas, or Rafman are physical but remain beyond the scope of human vision.²²⁶ These works are not so much symptoms of a dematerialization in light of digital technologies; rather, they are exemplars of the increasing superposition of the realms of information and materiality. Digital code – not unlike the mutable matters of wax and gesso used by modern sculptors – threatens the idealist concepts of form and matter and of matter and spirit – a dichotomy which also nourished and sustained the all too

222 Didi-Huberman, 'The order of material', 195, 203.

223 Didi-Huberman, 'The order of material', 202.

224 Didi-Huberman, 'The order of material', 200.

225 Didi-Huberman, 'The order of material', 200.

226 See Kirschenbaum, *Mechanisms*, 19.

physical and material productions of the immaterial. In recent sculptural production, code has, therefore, become not only an artistic material but also a mutable matter. Such observations complicate the notion of materiality at play in the sculptural production of Crispin and his peer group, significantly impacting any understanding of plasticity.

If code has become an artistic material, how can we conceive of code's mutability? The following section traces the morphological understanding of digital materials from a historical perspective, beginning with cellular automata, moving on to early digital art in the 1960s, and culminating in the 3D printed 'digital sculptures' of the 1990s. This exploration highlights the need to reconsider the notion of plasticity in contemporary sculptural production in '(post-) digital' terms.

2.3 Algorithmic visions: Towards a digital plasticity

The imperative of information processing has turned culture into a lab of generative forms that are driven by open-ended rules. Whether we are speaking about DNA, bacteria, or stem cell cultures, cultures of sounds and images, time-based cultures, or cultures of spatial modelling, algorithms now explain evolution, growth, adaptation, and structural change. Algorithms, therefore, have become equated with the generative capacities of matter to evolve.²²⁷

This lucid reflection on the ontological and epistemological transformations of architecture through (digital) technology comes from the cultural theorist Luciana Parisi, in the introduction to her book *Contagious Architecture: Computation, Aesthetics and Space*. Her thoughts can be read in conjunction with a larger paradigm shift in architecture as summarized by architect Paul Wintour:

Architecture has recently undergone a paradigm shift from being based on purely visual concerns towards an architecture justified by its performance. This shift privileges material performance over appearance and process over representation (Leach, 2009, p. 34). The resulting design process can be described as an interest in morphogenesis.²²⁸

Processuality, mutability, and generative malleability – characteristics that strongly resonate with the history of plasticity at the turn of the twentieth century – return in more recent debates across fields ranging from architecture and design to art. The following section traces the mutability and materiality of code from second-order cybernetics to software studies, and from discussions on algorithmic art to parametric architecture. The goal is to develop a nuanced understanding of digital plasticity and its relationship to various reproductive technologies from a historical perspective. Questions surrounding authorship permeate the

227 Parisi, *Contagious Architecture*, 1.

228 Greg Lynn bases his observations on a text by Neil Leach, 'Digital morphogenesis', *Architectural Design* 79, no. 1, Special Issue: Theoretical Meltdown (January/February 2009), 32–37, doi: 10.1002/ad.806. See Paul Wintour, 'The Big Bang of architectural evolution', *Parametric Monkey* website (2 January 2015), <https://parametricmonkey.com/research/the-big-bang/>, accessed 12 December 2024.

88 | Quayola, *Laocoön Fragments*, 2016; iron-filled resin, mirror-polished steel slates. Installation view, Bitforms Gallery, New York, 2016.



discussion of digital plasticity and its relationship to technology, demonstrating that a generalized consideration of the subject matter is not sufficient. It also highlights the significant role of women in the development of computing, emphasizing their crucial contribution to any conceptualization of digital plasticity.

Furthermore, an understanding of historical contingencies will help to further refine the understanding and conceptualization of plasticity in recent artistic productions. How does the digital plasticity of Crispin and his peers build on and distinguish itself from previous digital plastic concerns?

Unsurprisingly, Parisi's and Lynn's characterizations apply intuitively to Crispin's *Data-Masks*. Crispin employs generative algorithms to evolve image data until such data begins to qualify as a human face (see fig. 66). Algorithmic 'deep dreaming' based on performativity and processuality is part of the work, determining its final appearance: face-like masks caught in metamorphosis. Another artist for whom Parisi and Lynn provide critical understanding is the Italian sculptor Quayola. Influenced by architectural concerns, particularly parametric architecture, Quayola uses genetic software to create and manipulate his digital forms. In *Laocoön Fragments* (2016), his appropriation of the Hellenistic sculpture *Laocoön and his Sons* (second century BCE), Quayola interweaves sculptural approaches and digital technology to produce a simulated archaeology.²²⁹

Presented as if unearthed from a fictional future, six sculptural fragments are arranged across a mirror-polished table (fig. 88). Each object captures one version of Laocoön's head caught in a strange metamorphosis, oscillating between abstraction and figuration, destruction and construction, stereometric fragmentation and organic representation (fig. 89).

229 See Quayola's statements quoted in Wall Street International, 'Quayola: Fragments', *Wall Street International – Art blog* (23 February 2017), <https://wsimag.com/art/23816-quayola-fragments>, accessed 16 December 2024.



89 | Quayola, *Laocoön Fragment # B_004.002*, 2016; iron-filled resin; 51 × 47 × 43 cm.

Unlike the careful studies of the *Laocoön* group through drawings or cast making – typical in the approaches by artists such as Michelangelo, El Greco, or Rubens – Quayola's working process begins with quantitative data capture. He uses photogrammetry and online imagery of the sculpture at the Vatican Museum to generate a 3D reconstruction.²³⁰ The careful scanning of the object quite literally translates the plasticity of the object into digital space. The antique work, itself a copy and fragment, begins to exist both in the digital and physical realms, as real and virtual versions, without having Quayola assign more importance to whichever version he decides to materialize. Quayola translates formal and actual plasticity into digital plasticity, negotiated on the level of the objects' source codes. The resulting data set of spatial coordinates, a list of numbers in ASCII text comprising millions of points with XYZ coordinates on the surface, is then rendered as a point cloud.²³¹ Once the object becomes removed from its original materiality, it can be displayed in various formats (such as text or simulation). 'Sign' and 'signified' are now inseparably linked, challenging our understanding of text and material.

After isolating *Laocoön*'s upper body, Quayola transfers the file into the 3D animation software Houdini. In collaboration with a programmer, Quayola has customized parts of the

230 Bernard Andreae, *Laokoon und die Gründung Roms* [Laocoön and the founding of Rome] (Mainz: Verlag Phillip von Zabern, 1988), 13.

231 Due to limited access to the original sculpture, the data is insufficient to generate an accurate sculpture model via the photogrammetric process. The generated model, therefore, needs to be supplemented and further cleaned up in ZBrush. For instance, if image data is missing, then geometry overlaps, surfaces need to be softened and smoothed, or the number of polygons that define the texture of the object surface must be adjusted. Divorced from its original materiality, the object becomes infinitely malleable and composed in digital code.



90 | Screenshots of Quayola's short film *Matter*, 2013; 00:03:07 min.

software. By adding scripted code, he has created an algorithmic system allowing for the manipulation of the *Laocoön Fragments*. It is interesting to note that already at the simulation level, the artist adds new details like hair or muscles which do not exist on the original sculpture's monumental features. As such, the artist creates not a realistic cast of the statue but rather an artistic fiction. Through different filters, splits, and points of impact, the algorithms stereometrically fracture and transform the object's surface, vantage points, and scale. Quayola has captured this morphological approach to his digital material in a short film called *Matter* (2013, fig. 90).²³²

The object surfaces intuitively resemble the parametric designs of architects such as Frank Gehry, Coop Himmelb(l)au, Herzog and de Meuron, and Zaha Hadid. Their buildings are the visible indicators of an otherwise invisible formation and thus the plastic process. Like Quayola or Crispin, these architects use the generative power of algorithms as exploratory tools and thus shift parts of their artistic autonomy to the technological system.²³³ Much like

232 See Quayola, 'Matter (excerpt)' [video], *Vimeo* (16 March 2012), <https://vimeo.com/38651080>, accessed 6 January 2025.

233 See Ingeborg M. Rocker, 'When code matters', *Architectural Design* 76, no. 4 (1 July 2006), 23, doi: 10.1002/ad.289.



91 | Documentation of *Laocoön Fragments* production process: Application of patina on iron-filled resin casts, 'Laocoön Fragments: Quayola 2016–2017', Factum Arte blog.

the plasticity of parametrically designed buildings, the plasticity of Quayola's *Laocoön Fragments* is mediated by algorithmic processes. They outline interactions and movements between elements within parameters. The artist or creator thus retains significant aesthetic and conceptual input. They not only encode their creative intentions and design parameters into algorithms and design workflows but also make aesthetic choices which reveal their artistic attitudes, personal styles, and processes of reflection. One could think of the computational infrastructure as a 'synthesizer', an instrument that allows 'co-creation between artist and algorithmic system', as Quayola explained to me. The process remains random until the artist makes sense of the various versions through deliberate selection. From the vast number of *Laocoön* versions generated from the applications of fractures and filters, Quayola realizes only a small number in actual physical material – either in the form of 2D or 3D prints.

In the case of *Laocoön Fragments*, the artist materializes the digitally computed versions with a Selective Laser Sintering process, the same method used by Crispin for his *Data-Masks*. As part of the process, the fragment is further fragmented to enhance the accuracy of printing. Once printed in three dimensions, the surfaces of the prints are smoothed and then used to create silicone moulds in preparation for casting in an epoxy resin filled with iron. After casting the objects in iron-filled resin, their parts are reassembled and then finished with a patina (fig. 91). Like Crispin's objects and selected sculptures by Laric or Rafman, their digital plasticity is doubled up and made durable with a formal plasticity realized in actual materiality. Their works, computed on almost all production levels, now exist somewhere between physicality and virtuality. At the heart of his making process resides not a physical object but its virtual iteration.²³⁴

Early digital plasticity: Cellular automata

Significant precursors to the morphogenic approaches in recent cultural production are the process-oriented, generative, and self-replicating cellular automata and the perceptron.²³⁵ As an essential subject of research in the early 1950s, these technologies were used to determine possible models for biological systems, thus foreshadowing Crispin's genetic algorithms.²³⁶ At its core, a cellular automaton can be defined as a set of coloured cells arranged on a designated grid shape, undergoing discrete time steps and evolving based on a predefined set of rules influenced by the states of neighbouring cells. Here, the patterns become,

234 See Victor Buchli, *An Archaeology of the Immaterial* (Milton Park: Routledge, 2015), 144.

235 Stephen Wolfram, *A New Kind of Science* (Champaign, Illinois: Wolfram Media, 2002), 48.

236 This historical development marks the initial point for the genetic algorithms employed today. For further reading see Lawrence Jerome Fogel, Alvin J. Owens, and Michael John Walsh, *Artificial Intelligence Through Simulated Evolution* (New York, New York: Wiley & Sons, 1966); Ingo Rechenberg, *Cybernetic Solution Path of an Experimental Problem* (Hampshire: Ministry of Aviation, 1965); Hans-Paul Schwefel, *Numerical Optimization of Computer Models* (Chichester: Wiley & Sons, 1981); David E. Goldberg, *Genetic Algorithms in Search, Optimization, and Machine Learning*, 13th edn (Reading, Massachusetts: Addison Wesley, 1989); John H. Holland, *Adaptation in Natural and Artificial Systems: An Introductory Analysis with Applications to Biology, Control, and Artificial Intelligence*, new edn (Cambridge, Massachusetts: MIT Press, 1992).

as in Crispin's work, the 'visible indicator for an otherwise invisible algorithmic operation'.²³⁷ The rules are then applied iteratively for as many time steps as desired. The system's defining characteristic is the self-replication of its own process, made possible by the mutating and malleable nature of its code. The theoretical groundwork for cellular automata was established by the mathematician Alan Turing, and their practical implementation was anticipated by Norbert Wiener's cybernetic research on feedback systems. It is worth noting that both Turing's and Wiener's investigations originated within the military-industrial complex. The historical context holds importance, emphasizing that the aims of digital adaptability were predominantly moulded by the military and aviation industries until artists became interested, introducing novel applications for pre-existing technologies.

Turing, who was prosecuted for 'homosexual acts' by the British government and forced to undergo chemical castration treatment, died two years after his punishment from cyanide poisoning. He never conceptualized his Turing machine as an operating, practical computer technology.²³⁸ Turing envisioned it as a 'thought experiment' that offered a 'precise definition of a mechanical procedure – an algorithm'.²³⁹ In his paper *Cybernetics: Or Control and Communication in the Animal and the Machine*, initially published in 1948, Wiener contended that feedback could be incorporated into the control system of Turing's machine.²⁴⁰ Consequently, the machine could adjust its behaviour in response to changes in the environment, just like a human or animal, and thereby function autonomously and successfully on its own. John von Neumann, who developed the first two-dimensional self-replicating automaton, the *Universal Copier and Constructor*, referenced and extended Turing's and Wiener's models.²⁴¹ He introduced a system that would constantly modify each code and operation, resulting in a successive iteration that visually manifested itself in evolving and changing patterns.²⁴² Wiener and von Neumann had met at the Los Alamos National Laboratory when consulting for the Manhattan Project. At this secret facility in New Mexico, launched to design and build an atomic bomb, von Neumann had been involved with developing the mathematical model that underpinned the development of the critical lenses focusing the explosion of the Fat Man bomb dropped on Nagasaki. Prior to creating one of the earliest cellular automata in the 1950s, von Neumann played a key role in the creation of the Electronic Numerical Integrator and Computer (ENIAC) during the 1940s. ENIAC, an

237 Rocker, 'When code matters', 21.

238 See Alan M. Turing, 'On computable numbers, with an application to the "Entscheidungsproblem"', *Proceedings of the London Mathematical Society* s2-42, no. 1 (12 November 1937), 230–265, doi: 10.1112/plms/s2-42.1.230. Nevertheless, Turing considered his machine universal, as it had the ability to simulate all other calculable machines; he thus saw the ground-breaking potential of his invention.

239 Rocker, 'When code matters', 20.

240 Norbert Wiener, *Cybernetics: Or Control and Communication in the Animal and the Machine*, 2nd edn (Cambridge, Massachusetts: MIT Press, 1961).

241 See John von Neumann, *Theory of Self Reproducing Automata* (Champaign, Illinois: University of Illinois Press, 1966).

242 See Moshe Sipper, 'Fifty years of research on self-replication: An overview', *Artificial Life* 4, no. 3 (1 June 1998), 240, doi: 10.1162/106454698568576.

early forerunner of contemporary computers, was initially conceived to calculate firing tables for artillery by the United States Army's Ballistic Research Laboratory.²⁴³ Von Neumann's work on the cellular automaton was also profoundly inspired by the mathematical works of Warren S. McCulloch and Walter Pitts, who in 1943 had published on neural networks that can be seen as the precursors of the neural networks used for facial recognition technology like Facebook's *Deep Face* technology.²⁴⁴ In particular, Frank Rosenblatt's perceptron, the first operating artificial neural network, is one of the most influential precursors of machine learning. The machine, inspired by the brain's functioning, was designed for image recognition using learning algorithms.²⁴⁵ It could be trained to recognize shapes and determine whether a pattern fell within a specific class. For example, it could ascertain whether an image depicted a circle or not. The perceptron functioned as a 'binary classifier', meaning that if the input image was recognized as belonging to a certain class, it produced the result '1'.²⁴⁶ If not, it returned '0'. However, this was a linear classification achieved with a binary single-layer neuron model, which stands in stark contrast to the multilayer neural networks used in machine learning today.

Yet Rosenblatt engineered his device not only to memorize specific patterns but also with the aim of enabling it to learn and recognize any potential pattern. To this end, the device progressively adjusted the values of its nodes to resolve a large numerical input (a spatial matrix of four hundred numbers) into a simple binary output ('0' or '1').²⁴⁷ As Matteo Pasquinelli observes, 'the Perceptron marked not a biomorphic turn in computation but a topological one; it signified the rise of the paradigm of "computational space" or "self-computing space." This turn introduced a second spatial dimension into a paradigm of computation that until then had only a linear dimension (see the Turing machine that reads and writes 0 and 1 along a linear memory tape).'²⁴⁸ This topological turn indicates the beginning

243 James Bridle describes the environment at the Ballistic Research Laboratory as follows: 'In 1948 the ENIAC was moved from the University of Pennsylvania in Philadelphia to the Ballistic Research Laboratory in Maryland. The monstrous machine consisted of 18,000 vacuum tubes, 700,000 resistors, 10,000 capacitors and 6,000 switches. It was about two feet across and three feet deep and ten feet high. It consumed 140 kilowatts of power. To reprogram, it, it was necessary to turn hundreds of ten-pole rotary switches by hand, the operators moving between the stacks of equipment, connecting cables and checking hundreds of thousands of hand-soldered joints.' James Bridle, *New Dark Age: Technology and the End of the Future* (London: Verso Books, 2018).

244 See Herbert D. Landahl, Warren S. McCulloch, and Walter Pitts, 'A statistical consequence of the logical calculus of nervous nets', *The Bulletin of Mathematical Biophysics* 5, no. 4 (1 December 1943), 135–137, doi: 10.1007/BF02478260; Warren S. McCulloch and Walter Pitts, 'A logical calculus of the ideas immanent in nervous activity', *The Bulletin of Mathematical Biophysics* 5, no. 4 (1 December 1943), 115–133, doi: 10.1007/BF02478259.

245 See Frank Rosenblatt, 'The perceptron: A probabilistic model for information storage and organization in the brain', *Psychological Review* 65, no. 6 (1958), 386–408, doi: 10.1037/H0042519.

246 Matteo Pasquinelli, 'Three thousand years of algorithmic rituals: The emergence of AI from the computation of space', *e-flux* online journal 101 (June 2019), <https://www.e-flux.com/journal/101/273221/three-thousand-years-of-algorithmic-rituals-the-emergence-of-ai-from-the-computation-of-space/>, accessed 13 December 2024.

247 Pasquinelli, 'Three thousand years of algorithmic rituals'.

248 See Pasquinelli, 'Three thousand years of algorithmic rituals'.

of a significant shift, namely from modelling with 'passive information' to modelling with 'active information'.²⁴⁹ The perceptron ushered in an era in which a visual matrix is no longer only computed by a 'top-down algorithm' comparable to editing images in a graphic image programme such as Adobe Photoshop. Rather, the perceptron organized the pixels of the visual matrix according to their spatial disposition. The algorithm's operation is shaped by the spatial relations inherent in the visual data it processes.

This modelling with active, vivid information informs the digital plasticity emerging in recent artistic productions. Cellular automata based on Neumann's research were tested in the natural sciences from the 1960s through the 1970s and used to simulate the evolution of natural processes. Alongside the research on neuron networks by Rosenblatt, Warren S. McCulloch, and Walter Pitts, these devices anticipated the genetic and object-oriented algorithms used in contemporary times.²⁵⁰ These automata and devices showcased the potential of evolving code and active information, which could be visualized on the screen and materialized through the digital medium.

Plasticity in early computer art

Such processuality and mutability of digital code, which mark central concerns in recent sculptural productions of Crispin and his peers, also featured strongly in the early days of computer art in the 1960s. Influenced by the conceptual practices of artists such as Sol LeWitt, Victor Vasarely, Jean Tinguely or Jean-Pierre Hébert, the early digital artists – including Manfred Mohr, Vera Molnár, Frieder Nake, Georg Nees, A. Michael Noll, Lillian Schwartz, Agnes Denes, and Sonia Landy Sheridan – showed a deep interest in how codes and algorithmically-driven processes could determine the outcome of artworks. This post-cybernetic notion of information that had led to the rapid rise of conceptual art and the reveries of a dematerialized world imbued with information could now finally be probed in the digital medium. The early pioneers of digital art shared an exploration of generative approaches to building serialized models – however, not through analogue means like Sol LeWitt, but through digital ones. Anticipating the practices of contemporary artists, the efforts of early digital practitioners rehearsed the malleability of code that arises from reducing one's referent to binary data. By allowing software algorithms to design primitive generic forms, these artists fundamentally questioned the modalities of the conception and reproduction of an artwork. In what he called 'programmed expressionism', the German artist Manfred Mohr explored a novel form of art-making, employing self-written software to generate works.²⁵¹

249 Pasquinelli, 'Three thousand years of algorithmic rituals'.

250 Fuelled by a rapid proliferation of publications on the biological growth and form in physico-mathematical terms, such as D'Arcy Thompson's *On Growth and Form*, first published in 1917, scientists like John Conway (inventor of *Game of Life*) used computational L-systems for modelling the growth of plants. L-systems consist of four elements: a starting point, rules or syntax, constants, and variables. They grow by writing and rewriting the code, and the expression of the code depends on the graphical command selected.

251 Manfred Mohr quoted in William Fowler, 'Manfred Mohr: The groovy German who taught computers to make art', *The Guardian* online (12 February 2016), <http://www.theguardian.com/artanddesign/2016/feb/12/manfred-mohr-the-man-who-taught-computers-to-make-art>, accessed 11 December 2024.



92 | Manfred Mohr, *P-026-028*, 1970; computer-generated plotter drawing, ink on paper; 56 x 46 cm each.

Through iteration of code based on rules he defined, Mohr generated an algorithmic 'alphabet of arbitrarily generated elements' which he called 'aesthetic filters' (fig. 92).²⁵² All works were generated by the computer in accordance with the final programme and accepted unconditionally as legitimate results. He referred to his two-dimensional works as '*êtres graphiques*', which, according to Thomas Kurtz, 'attributing to them a development and a history of their own resulting from the "program[me] dialogue", and thus a real life of their own, regarding them as bearers of individual esthetic information'.²⁵³

This generative programming approach also allowed Mohr to create a series of images that were all instances of one original idea altered by random selection principles built into his algorithms – 'versions', as artist Oliver Laric would say. 'The algorithmic principle had entered the world,' the artist Frieder Nake observes in retrospect, calling it a 'revolutionary act' which was disguised by the superficial label 'computer art' assigned to his work and that of his peers in the mid-sixties.²⁵⁴ Algorithms now generated signs mediated by process signals,

252 Marion Keiner, Thomas Kurtz, and Mihai Nadin (eds.), *Manfred Mohr* (Weiningen-Zürich: Waser Verlag 1994), 45.

253 Thomas Kurtz, 'Mut zur Konsequenz / The courage of one's convictions' in Keiner et al. (eds.), *Manfred Mohr*, 22.

254 Frieder Nake, 'Paragraphs on computer art, past and present', in Nick Lambert, Jeremy Gardiner, and Francesca M. Franco (eds.), *CAT 2010: Ideas Before Their Time: Connecting the Past and Present in Computer Art: Index* (London: Computer Art and Technocultures AHRC Project, 2010), 55, doi: 10.14236/ewic/CAT2010.0.

and thus shifted the artist's creation process towards the writing of programmes. The materialization of the work was a central concern, too. Mohr, Molnár, Nake, Nees, and Sheridan implemented their work with early plotter technology, a mechanical device connected to a computer that controls the movements of a pen or brush.

Counter to the dematerializing phantasies of their time, these artists not only explored code's specific materiality that was imprinting itself on the face of the artwork but also its plastic potential. This approach becomes most evident in the personal diaries of artist Vera Molnár, published and researched by the art historian Pierre Braun. Molnár diligently records the stages of conceptualization of her work, which is often drawn from geometrical forms, altered and manipulated according to Molnár's rules, and processed by a computer.²⁵⁵ According to Braun, these sources cast light on Molnár's 'plastic', 'generative', and 'tangible' approach to coding.²⁵⁶ A page of Molnár's *Diary No. 2* (1984–1987) juxtaposes two types of drawings (fig. 93), one made by the artist's hand, the other produced by a plotter. Both drawings show a serial and seemingly evolving structure of similarly sized rectangles. The artist's sketch serves as the starting point for an algorithmic process, through which Molnár translated her drawing into instructions for a plotter. It is interesting to note that while Vera Molnár adjusted the code, she didn't actually write the programs herself. Instead, she preferred to ask friends or students of her husband, François Molnár, to do the coding.²⁵⁷ Figure 94 illustrates the code for her plotter drawing, written in the 'computer language BASIC and implemented under MS-DOS'.²⁵⁸ It conveys a series of commands in which each rectangle is transcoded as a slight configuration and modulation of the previous one. It is based on the mathematical function of the type $y = \sin(x)$ – the height of the curve at every point is the line value of the sine – and translates the code into the tracing steps of the plotter.²⁵⁹

In this transcoding from one representation to another, certain graphic elements are preserved while others seem to disappear in the translation process. The creative dialogue between artist and machine results in 'an organizational logic that gradually develops micro-narratives based on structural arrangements of elementary geometrical shapes'.²⁶⁰ The difference between handmade and plotted drawings could thus be understood as demonstrating the artistic autonomy of the machine. At the same time, the signs used to instruct

255 See Pierre Braun, 'Véra Molnar: atlas génératif et stitch up graphique' [Vera Molnár: Generative atlas and graphical stitch-up], *Computer Drawing* blog (19 December 2011), <https://computerdrawing.hypotheses.org/197>, accessed 11 December 2024.

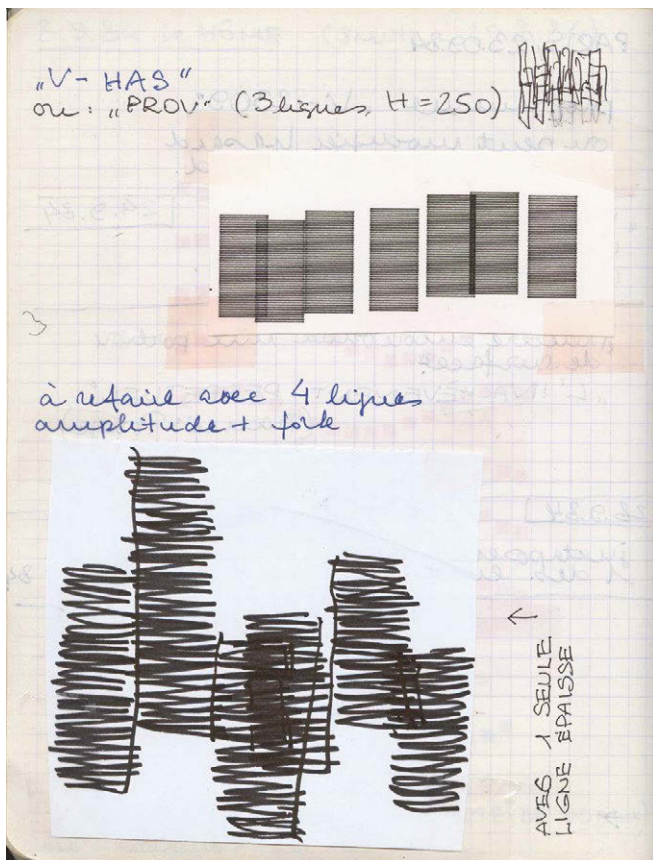
256 Pierre Braun, 'Véra Molnar: Enquête sur le code et l'archive' [Vera Molnár: Overview of code and archive] in Vincent Baby, Pierre Braun, Amely Deiss, et al. (eds.), *Véra Molnar: une rétrospective, 1942–2012* [Vera Molnár: A retrospective, 1942–2012] (Paris: Chauveau, 2012), 50–51.

257 My thanks to Pierre Braun, who pointed this out to me in an email.

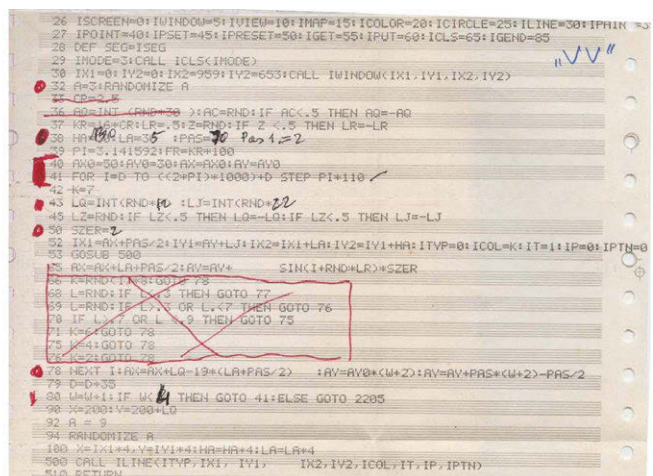
258 Braun, 'Véra Molnar: Enquête sur le code' [Vera Molnár: Overview of code], 51. Translation by Mara-Johanna Kölmel.

259 See Braun, 'Véra Molnar: Atlas génératif' [Vera Molnár: Generative atlas]. Translation by Mara-Johanna Kölmel.

260 Braun, 'Véra Molnar: Atlas génératif' [Vera Molnár: Generative atlas]. Translation by Mara-Johanna Kölmel.



93 | Vera Molnár, page of diary
no. 2, entry from 02.10.1984.



94 | Vera Molnár, Instruc-
tions for plotter drawing
on CD-Rom, diaries 1976–
2003.

the plotter assume a 'tangible' quality.²⁶¹ Braun concludes that it is these material 'assemblages of plastic and mental operations' that make up Molnár's and much of the early computer-generated work.²⁶² Her creations embrace both the limitations and the possibilities of code, with or without the direct use of a computer. In this way, her work stands as an early testament to digital acculturation, exploring the intersection between painting and art in the digital age (Fig. 95).

Women played significant roles in the development of computing and, thus, the conceptualization of a digital plasticity – take Ada Lovelace's development of the first software for the programmable computer or Adele Goldstein's contribution as software developer for the early ENIAC. Concomitantly, women also participated in the computer art and technology movement from the first decade and contributed to this emerging digital plasticity. For example, Lillian Schwartz's early kinetic sculptures fused mechanics with computational mathematics. Schwartz worked at Bell Labs in 1968 alongside several digital pioneers experimenting with creative processes and the computer.²⁶³ Schwartz collaborated with distinguished scientists, mathematicians and artists – among them Ken Knowlton, the author of BEFLIX, one of the original animation programming languages. In 1972, Schwartz started working on a five-storey computer-controlled kinetic sculpture commissioned by AT&T in honour of physicists Clinton Davisson and Lester Germer, who discovered the wave–particle duality of matter fundamental to the development of the electron microscope (fig. 96).²⁶⁴ Her proposed work consisted of sixteen rectangular, highly polished aluminium panels hung from a frame within which each panel was to be controlled by a motor. In the spirit of Davisson and Germer's research, Schwartz designed her sculpture to mirror light waves off its reflective surfaces, resulting in an intricate interplay of reflections and evolving patterns across the walls of the exhibition space. The sculpture's unique feature, however, was its computer-controlled movement that used algorithmic instructions to create an infinite series of patterns. Schwartz worked with scientists Bill Blumberg and Dave Zuckerman, who 'interfaced each motor with its own microprocessor and wrote a program[me] so that the degree, duration, and direction of a rotation could be controlled on the basis of a single panel's motion and its motion in relation to the other panels. A personal computer ran the operation but was later replaced by a control box with toggle [sic] switches.'²⁶⁵ The company divested before completing this version of the sculpture. In 1987, the piece, now named *Waves*, underwent a revision with the assistance of Dan Nachbar, who was then a computer

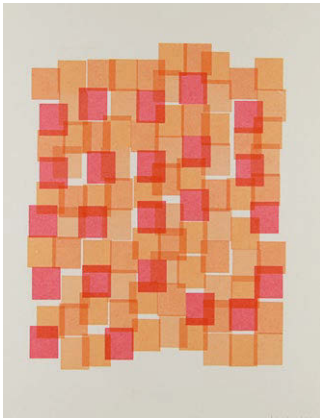
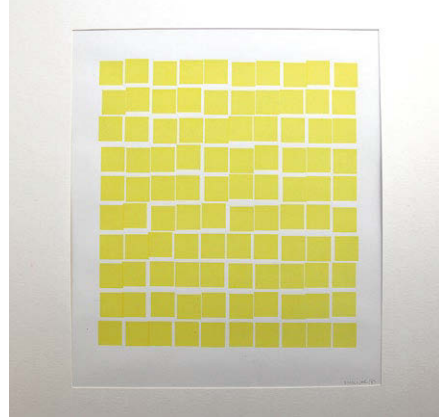
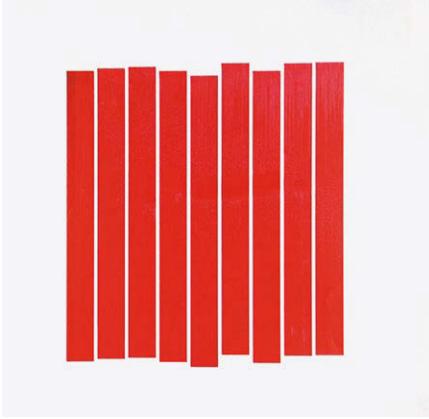
261 See Braun, 'Véra Molnar: Atlas génératif' [Vera Molnár: Generative atlas]. Translation by Mara-Johanna Kölmel.

262 Braun, 'Véra Molnar: Atlas génératif' [Vera Molnár: Generative atlas]. Translation by Mara-Johanna Kölmel.

263 See Patric D. Prince, 'Women and the search for visual intelligence', in Judy Malloy (ed.), *Women, Art, and Technology* (Cambridge, Massachusetts: MIT Press, 2003), 6.

264 See C. J. Davisson and L. H. Germer, 'Reflection of electrons by a crystal of nickel', *Proceedings of the National Academy of Sciences of the United States of America* 14, no. 4 (April 1928), 317–322.

265 Lillian F. Schwartz on her work *Waves* (1987). See Lillian Schwartz, 'Sculpture', artist's website (date unknown), <http://lillian.com/sculpture-2/>, accessed 13 December 2024.



95 | Clockwise from top left:

Vera Molnár, *9 rectangles rouges*, 1987; plotter drawing on paper; 25 × 25 cm.

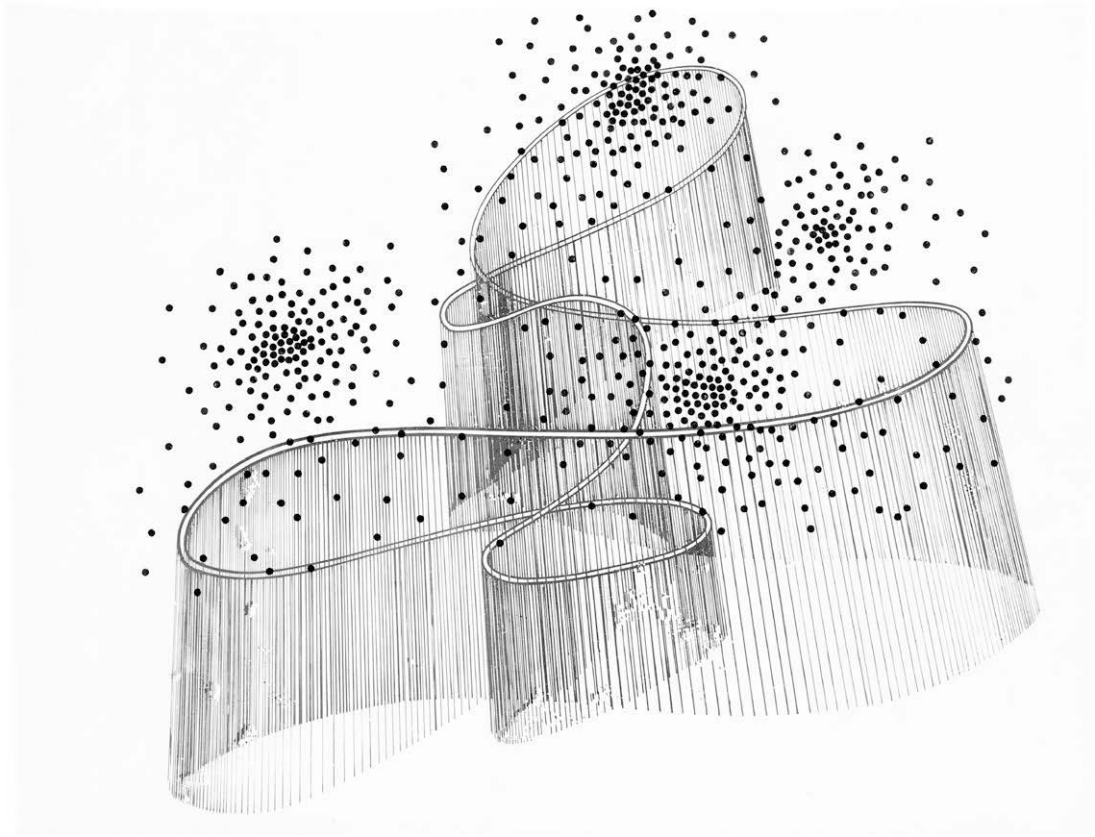
Vera Molnár, *Interstices orange*, 1989; plotter drawing on paper; 49.5 × 37.5 cm.

Vera Molnár, from the series *Ostinato*, 1985; plotter drawing on paper; 45 × 35 cm.

Vera Molnár, from the series *Structure de quadrilatères*, 1987; plotter drawing on paper; 45 × 45 cm.

scientist at Bell Communications Research. This update was carried out in preparation for an exhibition at the Morris Museum of Art and Science in New Jersey. The panels were painted matte black on one side to create a distinctive appearance when light (now slides) was projected onto the moving surfaces. Nachbar constructed a computer using 'Programmable Read-Only Memories' (P-ROMs) to oversee a new and more extensive choreography for the work, and additional features such as magnets and switches were incorporated.²⁶⁶ Arno Penzias replaced the motors as part of the preparation for the *Waves* exhibition at the Computer Museum in Boston. A microprocessor programmed the computer to rotate any of the panels

²⁶⁶ Schwartz, 'Sculpture'.



96 | Lillian Schwartz, *Waves*, 1987; design of a five-storey high entrance to the computer-controlled kinetic sculpture. The Henry Ford, Dearborn (USA).

a full 360 degrees in accordance with any mathematical expression. Using precise feedback mechanisms, the sculpture demonstrated complex, interactive behaviours, resulting in the creation of new intricate choreographies. For instance, the computer was programmed so that the reflective side of all sixteen panels could point directly at a spectator, who could passively or actively determine the presentation of the work. The sixteen panels would then follow the person as they moved back and forth in front of the sculpture. The flexibility of constructing a work the programming of which could be changed and updated to accommodate future variables and/or additions is an example of artists exploring early digital plasticity.

In 1954, artist Victor Vasarely had observed: 'The era of plastic projections on the screen, two-dimensional and in-depth in daylight or darkness, is beginning.'²⁶⁷ Meredith Hoy writes

267 Victor Vasarely, 'Notes for a manifesto' in Anthony Hill (ed.), *Data: Directions in Art, Theory and Aesthetics* (London: Faber & Faber, 1968), 102.

that in his writings and his experiments with abstraction, Vasarely, who reportedly never used a computer in his practice, developed crucial 'artistic forays into digital systems using analogue tools'.²⁶⁸ His optical paintings foreshadowed the 'graphical indexes of computation' before they became established in the early years of computer art, as seen in Mohr's or Molnár's practice.²⁶⁹ In 1954, Vasarely realized that he was able to build spaces 'which no longer owed anything to Euclidean perspective, or to any other kind of perspective' simply by superimposing thin layers of plexiglass that contained delicate tracings of drawings, which he called 'networks'.²⁷⁰ Vasarely's work *Helios* (1967) displays a complex interplay of superimposed, silk-screen-printed layers containing green optical shapes against a transparent background. The networked structure appears to warp and bend, constantly creating new forms capable of being viewed from all angles. Shifting slightly from each point of observation, the images present a captivating visual puzzle, engaging the viewer in efforts to comprehend its complexity. Consequently, the structure casts shadows against the white background, combining and diverging to create the illusion of three-dimensionality.

In a conversation with the art critic Jean Louis-Ferrier, the artist elaborates on this series:

Here I was combining two spaces, and the transparency permitted me to inscribe the plane in real space and to translate real space into a plane. The very condition of illusionism had been radically changed....²⁷¹

One could argue that the artist pioneered an early version of digital plasticity, as the superimposition of two-dimensional layers 'produces an illusion of three-dimensionality or virtualization,' as noted by Hoy. This achievement is accomplished without relying on Cartesian perspectival spatializing techniques, ultimately resembling computer graphics.²⁷² Indeed, as the images shift slightly from each point of observance, one is reminded of Crispin's static and algorithmically evolved production images that form the creative process of his *Data-Masks* (fig. 65).

Five years later, Vasarely pointed out significant parallels between art and the applied technical sciences by drawing a vivid comparison between the scientists who are 'building electronic chess-playing "brains"' and the artists 'also engaging in their own assays with the possibility of a new visuality governed by binary code'.²⁷³ He followed up by stating: 'For quite a long time now, one branch of the plastic arts has been working on plastic language that can be encoded as a binary system'.²⁷⁴ This focus on 'cybernetic-influenced pan-computalism' reached its peak in a series constructed as 'rigorous machines,' adopting the form of notational schemata that incorporated a decimal-based scale of colour-form permuta-

268 Meredith Anne Hoy, *From Point to Pixel: A Genealogy of Digital Aesthetics* (Hanover, New Hampshire: Dartmouth College Press, 2017), 81.

269 Hoy, *From Point to Pixel*, 100.

270 Vasarely quoted in Gaston Diehl, *Vasarely* (New York, New York: Crown, 1979), 55.

271 Vasarely quoted in Diehl, *Vasarely*, 55.

272 Hoy, *From Point to Pixel*, 82.

273 Hoy, *From Point to Pixel*, 70.

274 Hoy, *From Point to Pixel*, 82.

tions.²⁷⁵ His goal was to create a 'plastic unity' based on instantiations of his 'plastic alphabet'.²⁷⁶ He notated discrete, articulate, and interchangeable elements, out of which, often through algorithmic processes, an image or a visual field could be constructed. The duality of form and colour was resolved and propounded as the binary equation $1 = 2 \cdot 2 = 1$. This 'combination, which is both formal and coloured [...] ... I call algorithm or permutation', the artist concluded.²⁷⁷

His architectonic, rather than mimetic, approach involves breaking images into grammatical units and constructing them in complex architectures, not unlike the voxels in the raster-based 3D computer models of Crispin's *Data-Masks*. As Hoy concluded, Vasarely's art and writing are permeated by 'an understanding of a world that is fundamentally calculable, that all natural and artificial forms and all events are susceptible to calculation'.²⁷⁸ According to the artist, this would eventually culminate 'in the development of a new visuality aligned with and attributable to a numerical/numericized universe'.²⁷⁹ This visionary thinking is exemplified in a comment made by Vasarely in 1968:

The celebrated transition from representational to non-representational art is only one of the stages in a profound transformation taking place in the plastic arts. The term 'abstract' in painting refers not to an established fact, but to an irresistible trend toward plastic creation different from the kind we already know.²⁸⁰

This statement can be directly associated with what I have termed digital plasticity. Vasarely continues:

The abstract movement will inexorably pass through the following phases ... 1) the plastic unit becomes unidentifiable (that is, non-representational) [see the works of Crispin and his peers, where the plasticity of their work is partly negotiated beyond the sphere of the visible]; 2) exterior vision is transformed into interior vision (early abstract phase); 3) abandonment of the conventional workmanship of painting – touch, glazes, materials, and other elements – for pure colour, pure composition; 4) abandonment of all inherited techniques – canvases, pigments, brushes – and the advent of new materials [in Crispin's case, inherited techniques are replaced

275 Diehl, *Vasarely*, 60.

276 Vasarely quoted in Diehl, *Vasarely*, 64.

277 'Once I had discovered my alphabet, I hastened to put it into material form. I selected six basic colours: a chrome yellow, an emerald green, an ultramarine, a cobalt violet, a red, and a grey. From it I obtained six scales, each with 12 or 13 nuances, ranging from light to dark, and I added coloured blacks – a blue black, a red black, a green black, and so on. Then I had tens of thousands of sheets printed by the serigraphic process, and had all the units of my alphabet punched out of them. Placed in cases, like type characters, they are so many form-colours, which form the surest and fastest method of realizing my programming executed on scale paper. By simple collage, I obtain exactly what I want, that is, a combination which is both formal and coloured, and which I call algorithm or permutation. But these collages are not yet definitive plastic functions. They constitute the tangible results of basic research, they are starting point "prototypes".' Vasarely quoted in Diehl, *Vasarely*, 64.

278 Hoy, *From Point to Pixel*, 81.

279 Hoy, *From Point to Pixel*, 81.

280 Vasarely quoted in Diehl, *Vasarely*, 13.

with genetic facial detection and recognition algorithms]; 5) abandonment of the two-dimensional surface as an end in itself, thus opening up the supradimensions of space–movement–time (urban and architectonic functions, telecinematic projection, expansion through the Museum without Walls).²⁸¹

Alongside his artistic attempts to produce an encodable, binary, electronically storable plastic language, Vasarely's significant contribution was the production of an exhaustive archive of all plastic possibilities discoverable within the breakneck computations of the electronic brain.²⁸² In imagining and articulating a theory of plasticity in digital terms, he foreshadowed an altered understanding of matter and form that marked the dawning digital age and is of central concern in recent plastic productions. 'There are groups of young artists among whom everything happens as if they were feverishly taking inventory of all of plasticity's possibilities. This is a matter for an electronic brain, for a future plastic bank,' Vasarely concluded, with an almost prophetic quality.²⁸³

Code to contour

As the technical abilities of digital media expanded over the decades from pixelated, discrete bitmapped graphics to perspectival illusionism, so did the potential of a digital plasticity and its possibilities for a realization in three dimensions. While the early pioneers of digital plasticity rehearsed the plastic potential of code on the image plane, building two-dimensional object worlds through plotters or printers, the introduction of digital prototyping technologies to the field of arts allowed such digital plasticity to be translated into the third dimension.

As early as 1967, Robert Mallary, then a professor in the arts department at the University of Massachusetts, began to turn to computer programmes for designing sculptures. Doing so allowed him to update earlier reflections on sequential contour projection and to apply them to computerized sculpture. To this end, he developed a computer programme called TRAN2, a computer-assisted tool for sculptural modelling and shaping. He summarized it as follows.

TRAN2 is a computer graphics program[me] with twenty sub-routines to generate sculpture. The program[me] presupposes a means of compiling form description data for use by the computer. This is done by breaking down the solid into a regular series of parallel cross-sections, or contour 'slices', which are then graphed and digitized as X, Y, and Z coordinates and transferred to punch cards. A sequence of mathematical transformation procedures is brought to bear on the contour sections whereby the computer, in effect, models and reshapes the contour sections into an original sculpture. The computer plotter reproduces a series of perspective views of the generated form together with a complete set of the transformed contour sections. These are used as patterns to complete the sculpture in some appropriate material.²⁸⁴

281 Vasarely quoted in Diehl, *Vasarely*, 13.

282 In 2019, the Centre Pompidou dedicated a retrospective to his work; see Michel Gauthier Collectif, Arnaud Pierre, Serge Lasvignes, and Bernard Blistène (eds.), *Vasarely: Le partage des forms* [Vasarely: Sharing forms] (Paris: Centre Georges Pompidou Service Commercial, 2019), exhibition catalogue.

283 Diehl, *Vasarely*, 15.

284 Robert Mallary quoted in Paul Crowther, *Digital Art, Aesthetic Creation: The Birth of a Medium* (Abingdon-on-Thames: Routledge, 2018), 136–137.

Mallary's series *Quad 1–3* notably documents this pioneering use of computer technology, allowing him to match his digitally created sculptural forms with a physical counterpart. To this end, Mallary generated a sequence of 48 forms derived from four ellipses on the computer along a vertical axis. The input was varied in three different ways to produce three different sculptural objects. The designs were then plotted and formed the basis for his patterns. This set of contours was subsequently 'photographed as an 8×10-inch positive transparency, inserted into an overhead projector, projected onto some appropriate material such as wood or plastic, and traced'.²⁸⁵ The process was followed by cutting the patterns out in laminated veneer and stacking them over a metal rod on top of each other. Finally, they were glued and laminated together, smoothed, and polished.

In its aesthetic appearance, marked by strict concentricity and a smooth, mechanical surface, the work suggested a computerized principle of organization. It could thus be seen as an early manifestation of a digitally driven plasticity. *Quad 1* (1968; fig. 97) was first shown at *Cybernetic Serendipity*, curated by Jasia Reichardt in London in 1968. *Quad 3* (1968; fig. 98) was showcased at the Whitney Museum in 1968 and now forms part of the collection at Tate Modern.²⁸⁶ Like Jack Burnham, Mallary saw sculpture as the reflection of 'the technological level and character of the society in which the sculptor worked'.²⁸⁷ In his contribution to *Artforum* 1969, he argued that there would be a shift on the horizon in which the computer would no longer be merely the sculptor's tool but a co-author, eventually even stimulating living systems.²⁸⁸

Around the same time, Alfred Duca, an IBM programmer, made a large spherical sculpture carved directly out of steel by a tape-driven machine tool. Similarly, Charles Csuri – who would later become a professor of arts education and, in 1986, a professor of computer information science at Ohio State University – produced a wooden sculpture called *Numeric Milling* (1968; fig. 99). Csuri recalled:

This work made use of the Bessel function to generate the surface. The computer program then generated a punched tape to represent the coordinate data. Included were instructions to a 3-axis, continuous-path, numerically controlled milling machine. While the device was capable of making a smooth surface, I decided it was best to leave the tools marks for the paths.²⁸⁹

285 Robert Mallary, 'Computer sculpture: Six levels of cybernetics', *Artforum* 7, no. 9 (May 1969), 32.

286 Robert Mallary, 'Computer art', artist's website (date unknown), <https://www.robertmallary.com/computer-art>, accessed 12 December 2024.

287 Mallary, 'Computer sculpture: Six levels of cybernetics', 29.

288 'So far the discussion has dealt with a single area of potential computer sculpture involvement – namely kinetic light-and-sound environments. But the computer will be used in a great variety of ways, in connection with many different kinds of sculpture, and new mediums will be developed to exploit in different ways the many-sided capabilities of the computer itself.' Mallary, 'Computer sculpture: Six levels of cybernetics', 31.

289 Charles A. Csuri, 'Charles A. Csuri Project', *Ohio State University College of Arts and Sciences* website (date unknown), <https://csuriproject.osu.edu/index.php/Detail/objects/768>, accessed 11 December 2024.



97 | Robert Mallery, *Quad I*,
1968; TRAN 2 computer-gen-
erated sculpture constructed
with layered plastic disks;
82 × 55 cm.



98 | Robert Mallery,
Quad III, 1968; plywood,
metal and resin on
plywood base; 213 x 35 x
33.6 cm.

Numeric Milling stands out as one of the early computer sculptures, crafted using a computer-controlled milling machine.

It is important to highlight that during his tenure as a professor at Ohio State University, Csuri received funding from the National Science Foundation. The objective was to implement innovative technological infrastructures, enabling artists to subject drawings to mathematical transformations, construct multi-dimensional pictorial spaces, virtually render sculptures for automated milling, and create objects capable of movement in space, allowing real-time manipulation.²⁹⁰ Between 1965 and 1972, Csuri actively collaborated with programmer James Shaffer and mathematics professor Dr Leslie Miller to write computer programmes that could realize his vision.²⁹¹ Csuri was, therefore, pivotal in adapting computer technologies, at this time used mainly in the military and automobile industries, for artistic production. He defined new goals for interactive graphic systems and computer simulation that would also shape the plasticity of subsequent artistic objects. Even though the early digital sculptural works by Mallery, Csuri, Duca, and others involved several steps, their aesthetics and production methods crucially resemble and anticipate the 3D sculpted and printed topological surfaces that have come to mark our digital age.

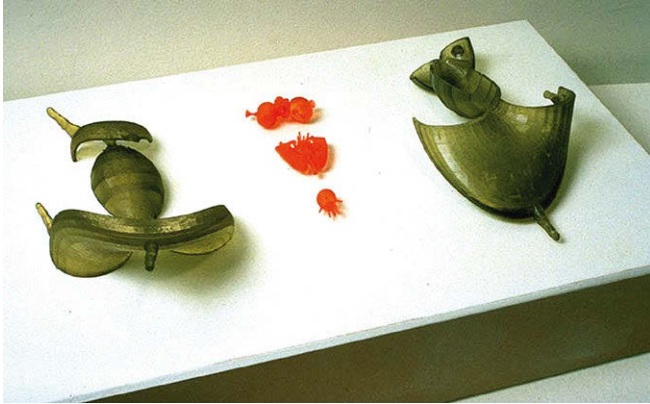
Around 1993, the American sculptor and pioneer of 3D printing Michael Rees started using rapid prototyping to create a series of objects that borrowed from medical anatomo-



99 | Charles Csuri, *Numeric Milling*, 1968; wood, 3-axis milling machine; 33 × 56 × 22 cm. In the collection of Ms. Csuri of the CsuriVision Estate.

290 See Margit Rosen, 'A record of decisions', in Janice M. Glowski (ed.), *Charles A. Csuri: Beyond Boundaries, 1963–present* (Columbus, Ohio: College of the Arts, Ohio State University, 2006), 27.

291 See Rosen, 'A record of decisions', 35.



100 | Michael Rees, *The Aqualine Creature*, 1995; stereolithography, SLA 500 from 3D systems; 46 × 36 × 15 cm.



101 | Michael Rees, *Ajna Spine*, 1996; stereolithography and CAD drawing, SLA 500 from 3D systems.

my to explore what he referred to as 'spiritual/psychological' themes. His surrealist *Aqualine Creature* (1995; fig. 100) and *Ajna Spines* (1996–2011, fig. 101) combine anatomical illustrations of Western science with the metaphysical imageries of Eastern mysticism, reflecting Rees's interest in Indian art. They were modelled in Platform C, a 3D modelling programme co-developed by modernist architect Peter Eisenman, one of the precursors of topological architecture.²⁹² Not only was the programme's point-line-plane geometry 'rather clumsy'

292 This is based on a verbal statement by the artist on 5 March 2018 in New York City.

102 | Karin Sander, *Persons 1:10*, 1998–2006; 3D body scans of living persons, FDM (fused deposition modelling), ABS (acrylonitrile butadiene styrene), airbrush; scale 1:10, ca. 16–18 cm each. Installation view, Galería Helga de Alvear, Karin Sander, Madrid, 1999–2000.



compared to digital sculpting programmes like Z-Brush, employed by Crispin, Rafman, or Blas, materializing the virtual work was also highly challenging.²⁹³

Similar observations have been made by the German artist Karin Sander. Notably, as one of the pioneering female sculptors to embrace 3D scanning and prototyping technology, Sander began exploring these then-burgeoning technologies in the mid-1990s.²⁹⁴ For the *7th Triennale for Small-scale Sculpture* in the German town of Fellbach, she proposed to develop a 3D printed sculpture – that is, to 3D scan the curator of the show, Werner Meyer, with laser beams and translate the data set into a 3D print of Meyer. His scanned countenance was reconstructed on a 1:10 scale and exhibited on a pedestal in the show (fig. 102). The artist thus exhibited the curator, rather than the curator exhibiting the artist, turning the typical relationship between artist and curator on its head. More scans of friends, fellow artists, colleagues, acquaintances, and even visitors to Sander's exhibitions

293 This is based on a verbal statement by the artist on 5 March 2018 in New York City.

294 See in this context, for example, Friedrich Meschede, '1:1 vs. 1:10, oder wie Werner Meyer einer Veränderung im Werk Karin Sanders Modell stand / 1:1. vs. 1:10: Werner Meyer as the model for a new direction in the art of Karin Sander', in Gudrun Inboden (ed.), *Karin Sander: Staatsgalerie Stuttgart* (Ostfildern: Hatje Cantz, 2002), 68–79, exhibition catalogue.

followed and attracted worldwide attention to her work. In line with her previous sculptural interventions, Sander's body scans stage and transform relationships between the human and the technological gaze. As a viewer, one closely examines Sander's scans, focusing on individuals' features and unique traits. Simultaneously, there is an attempt to understand why each person chose to be captured and willingly placed themselves in the mise-en-scène of Sander's project. The experience transforms one into both a voyeur and an empathetic observer.

With each work named after its protagonists, Sander's body scans are as much portraits as self-portraits. Her sculptures are in some sense neutral and objective, as Sander is not physically involved in their production process. The works explore the elusive nature of a machine gaze while still retaining a profound sense of humanity. In this process, Sander's personal interpretation or subjectivity takes a back seat to a seamlessly advanced technological approach. This involves the meticulous scanning of bodies using up to twenty-six cameras, translating the scans into 3D wire models, reconstructing these models three-dimensionally in layer upon layer of ABS plastic using a computer-driven extruder, and finally having a skilled technician apply finishing touches with airbrush colours.

She sees her series as 'self-portraits' realized by the 'most precise [means] that technology can do right now.'²⁹⁵ This goal becomes evident in her use of 3D scanning and printing possibilities and the way she approaches her exhibition sites. Her artistic strategy involves working in dialogue with materials, objects, and occasionally people found on site. In her series *Visitors on Display. 981 Museum Visitors and 3 dogs 1:8* (2008–2013; fig. 103), Sander puts the museum's audience on display – they are no longer mere observers but active participants in her work. Visiting the museum, they not only visit Sander's work but themselves. For Sander, her 3D body scans serve not only to document the state of the technology she employs but, more significantly, to capture the process of transmitting and rendering reality. Early on, by urging her technical collaborators to innovate new software tools and production methods, Sander's approach was groundbreaking not just for adopting emerging technologies, but also for leveraging them in sculpture production, paving the way towards a novel plasticity.²⁹⁶

In 1981, Dr Hideo Kodama of the Nagoya Municipal Industrial Research Institute in Japan developed a rapid prototyping technique that is considered one of the first forerunners of today's 3D printing technology. Terry Wohlers writes that Kodama's experiments involved projecting UV rays from a Toshiba mercury lamp onto a photosensitive resin called *Tevis-tar*, manufactured by Teijin.²⁹⁷ Kodama used black-and-white film 'to mask and control the

295 Karin Sander quoted in Adrienne Gagnon, 'Science finds, industry applies, man conforms' in John S Weber, Aaron Betsky, and Benjamin Weil (eds.), *010101: Art in Technological Times* (San Francisco, California: San Francisco Museum of Modern Art, 2001), 128, exhibition catalogue.

296 For further reading see also Ursula Ströbele, *Hans Haacke und Pierre Huyghe: Non-Human Living Sculptures seit den 1960er-Jahren* [Hans Haacke and Pierre Huyghe: Non-human living sculptures since the 1960s] (Boston, Massachusetts: De Gruyter, 2024), especially 410–430.

297 See Terry Wohlers, 'Early research and development', *Wohlers Associates* website (2015), <https://wohlersassociates.com/wp-content/uploads/2022/08/history2015.pdf>, accessed 7 July 2019, 7.



103 | Karin Sander, *Visitors on Display*. 981 Museum Visitors and 3 dogs 1:8, 2008–2013; 3D body scans of living people in the colour of their choice, monochrome 3D printing, plaster material; scale 1:8, statues: ca. 10–22 cm each, plinth: MDF 1,3 × 1,0 × 35,7 m. Installation view, Lehmbruck Museum, Karin Sander: *Visitors on Display*, Duisburg (Germany), 2013.

region of exposure, corresponding to each cross-section'.²⁹⁸ In the research paper accompanying his 3D printing experiments, Kodama also discusses using an X–Y plotter device and optical fibre to deliver a spot of UV light.²⁹⁹ In November 1981, Kodama published a second paper titled 'Automatic method for fabricating a three-dimensional plastic model with photo-hardening polymer' in the *Review of Scientific Instruments*.³⁰⁰ He 'describes three basic techniques that he used to create plastic parts by solidifying thin, consecutive layers of photopolymer. In the paper, Kodama claims, "If the solidified layer is immersed into the liquid with the top at a depth equal to the thickness of the layer to be solidified, its top surface is covered with unsolidified liquid polymer," essentially describing a key element of the stereolithography process'.³⁰¹

298 Wohlers, 'Early research and development'.

299 See Hideo Kodama, 'A Scheme for Three-Dimensional Display by Automatic Fabrication of Three-Dimensional Model', *IECE J64-C*, no. 4 (1981), 237–241.

300 Hideo Kodama, 'Automatic method for fabricating a three-dimensional plastic model with photo-hardening polymer', *Review of Scientific Instruments* 52, no. 11 (1981), 1770–1773.

301 Wohlers, 'Early research and development', 7, referencing Kodama, 'Automatic method for fabricating a three-dimensional plastic model', 1170.

Kodama's experiments were the first instance in which digital plasticity reached a counterpart in actual material, which I term 'formal plasticity'. Although the earliest patents for industrial robotics were filed in the 1950s and early experiments in the creation of solid objects using photopolymers solidified with a laser were made in the late 1960s at Battelle Memorial Institute, these new technologies did not see rapid diffusion until the 1980s.³⁰²

In 1984, Charles Hull took Kodama's technology a step further, inventing the stereolithography apparatus (SLA), 'a printing process that enables a tangible 3D object to be created from digital data.'³⁰³ Hull's patent 'describes a process of photo hardening a series of cross-sections using a computer-controlled beam of light.'³⁰⁴ In 1986, Yehoram Uziel, then working at Operatech in Israel, invented a machine resembling a stereolithography apparatus. After hearing about Hull's work, Uziel travelled to the US to visit Hull and Ray Freed. In January 1989, he joined 3D Systems as vice president of engineering and developed several patented versions of stereolithography.³⁰⁵ In late 1987, 3D Systems, the company Michael Rees used to materialize his work, shipped its first beta unit, the SLA-1, to customer sites in the U.S. These were 'the first commercial RP system installations in the world' followed by a slowly growing 3D printing industry.³⁰⁶

Notably, from their inception, SLS and 3D printing technologies have been deeply entwined with the military-industrial complex. This was one of the first sectors to sponsor and apply related research including its use in missile prototyping. An example of such a partnership is 3D Systems' large-scale printing lab with the US Army for 'joint material and applications research'. Here, 'army and 3D scientists work together on-site at Aberdeen Proving Ground to develop, evaluate and qualify new materials ... catalyzing innovations for American soldiers and industry through private/public partnership.'³⁰⁷ For artists such as Karin Sander or Michael Rees, access to prototyping technology in the 1990s was still very expensive (the price of a small piece being around 10.000–15.000 USD), and few commercial

302 See Wohlers, 'Early research and development', 7. In this pioneering experiment, researchers sought to solidify a photopolymer resin by intersecting two laser beams with different wavelengths at the centre of a resin-filled container. The resin used in this process was created by DuPont in the 1950s. For further reading, see Shimon Y. Nof (ed.), *Handbook of Industrial Robotics*, 2nd edn (Hoboken, New Jersey: Wiley, 1999), 33.

303 See Hannah Bensoussan, 'The history of 3D printing: From the 80s to today', *Sculpteo* blog (14 December 2016), <https://www.sculpteo.com/en/3d-learning-hub/basics-of-3d-printing/the-history-of-3d-printing/>, accessed 11 December 2024.

304 Wohlers, 'Early research and development', 7; see also 3D Systems, 'Our story', *3D Systems* website (date unknown), <https://www.3dsystems.com/our-story>, accessed 10 December 2024.

305 See Wohlers, 'Early research and development', 7; see also Justia Patents, 'Yehoram Uziel inventions, patents, and patent applications', *Justia Patents* archive (date unknown), <https://patents.justia.com/inventor/yehoram-uziel>, accessed 12 December 2024.

306 Wohlers, 'Early research and development'.

307 3D Systems, '3D Systems launches 3D printing lab with U.S. Army', *Globe Newswire* website (30 October 2025), <https://www.globenewswire.com/news-release/2015/10/30/781939/10154631/en/3D-Systems-Launches-3D-Printing-Lab-With-U-S-Army.html>, accessed 7 January 2025.

companies offered the technology.³⁰⁸ According to Rees, around 50 patents on 3D printing existed in the US in 1993.³⁰⁹ Rees materialized his first *Ajna Spines* – objects caught somewhere between animal, human, and plant worlds – in dialogue with an engineer who, prior to transitioning to the commercial sector, had previously worked for the military.³¹⁰ In that capacity, the engineer employed rapid prototyping technology to create precise prototypes of bombs, guaranteeing the absence of complications or issues in the final product. After one of his prototype missiles went off target in Iran and hit a group of civilians, his moral concerns made him change careers. The plasticity of Rees' *Ajna Spines* and his *Aqualine Creature* is interwoven with such complex histories, a silent reminder of the origins of 3D printing in the military applications and industrial prototyping.³¹¹

From objectiles to object-events

In 1988, the same year stereolithography first hit the market, Gilles Deleuze published *The Fold: Leibniz and the Baroque*. Without referencing stereolithography itself, his text framed a novel type of object based on a morphogenic understanding of matter. Referencing his colleague Bernard Cache, Deleuze states:

This new object we can call objectile. As Bernard Cache has demonstrated, this is a very modern conception of the technological object: it refers neither to the beginnings of the industrial era nor to the idea of the standard that still upheld a semblance of essence and imposed a law of constancy ('the object produced by and for the masses'), but to our current state of things, where fluctuation of the norm replaces the permanence of the law; where the object assumes a place in a continuum by variation; where industrial automation or serial machineries replace stamped forms. The new status of the object no longer refers its condition to a spatial mould – in other words, to a relation of form–matter – but to a temporal modulation that implies as much the beginnings of a continuous variation of matter as a continuous development of form.³¹²

Deleuze's 'objectile' thus characterizes the shift from mould to modulation occurring when the object is no longer withdrawn from a mould but expressed as a variation of morphing matter. With the 'objectile', the binary of form and matter, propelled by an idealist art-historical understanding, becomes, according to Deleuze, a 'temporal expression of an event–affect continuum'.³¹³ Modernist works such as Rosso's or Rodin's certainly anticipated this shift with their mutable matters. Yet, those artists still upheld 'a semblance of essence' by producing objects by hand, in ways neither standardized nor normed. Deleuze's notion of the objectile, which he notably developed based on the object's morphogenic and *plastic*

308 This is based on a verbal statement by the artist on 5 March 2018 in New York City.

309 This is based on a verbal statement by the artist on 5 March 2018 in New York City.

310 This is based on a verbal statement by the artist on 5 March 2018 in New York City.

311 See Berenice Baker, 'Made to measure: The next generation of military 3D printing', *Army Technology* blog (23 January 2018, last updated 20 January 2020), <https://www.army-technology.com/features/made-measure-next-generation-military-3d-printing/>, accessed 10 December 2024.

312 Gilles Deleuze, *The Fold: Leibniz and the Baroque*, tr. Tom Conley (London: Athlone Press, 1993), 19.

313 Deleuze, *The Fold*, 19.

features, points to an altered understanding of the object in the digital age. The 'objectile' thus prefigured what has now been termed a digital plasticity.

In his book *Algorithm and Architecture*, the architect Mario Carpo traces how Deleuze's notion of the objectile entered the architectural discourse of the 1990s via the architect Peter Eisenman, 'in part as a reaction against the deconstructivist cult of the fracture, crossed paths with the computer revolution of the mid-nineties, and evolved into a theory of mathematical continuity'.³¹⁴ Referencing Deleuze and Cache, Carpo reasons: 'The "objectile" is not an object but an algorithm – a parametric function which may determine an infinite variety of objects, all different (one for each set of parameters) yet all similar (as the underlying function is the same for all)'.³¹⁵ He concludes: 'The objectile thus becomes a function that contains an infinite number of objects. Each different and individual object eventualizes the mathematical algorithm, or objectile, common to all'.³¹⁶ Eisenman, who co-developed the modelling software Form C used by Michael Rees and other digital sculptors in the 1990s, transformed the objectile into the concept of the 'object-event'. In an essay for *Folding in Architecture*, published in 1993, he writes:

[Deleuze] argues that in the mathematical studies of variation, the notion of object is change. This new object for Deleuze is no longer concerned with the framing of space, but rather a temporal modulation that implies a continual variation of matter. ... 'No longer is an object defined by an essential form.' He calls this idea of an object, an 'object-event'.³¹⁷

The present publication is notably the first to connect Deleuze's reading of Leibniz's fold with Cache's interpretation of the same, exploring the collective influence of these three philosophers on Eisenman's writings and the realm of post-deconstructive architecture.³¹⁸ With the 'object-event' borrowed from Deleuze, Eisenman argues that form becomes formation and the object an event. As Betti Marenko observes in her reading of Deleuze in the context of design theory:

The object ceases being the fixed representation of a relation between matter and form to become instead the temporal expression of an event-affect continuum, that is, the active and affective dynamism that permeates matter.³¹⁹

314 Mario Carpo, *The Alphabet and the Algorithm* (Cambridge, Massachusetts: MIT Press, 2011), 91.

315 Carpo, *The Alphabet and the Algorithm*, 40.

316 Carpo, *The Alphabet and the Algorithm*, 91.

317 Peter Eisenman, 'Folding in time: The singularity of Rebstock', in Greg Lynn (ed.), *Folding in Architecture* (London: Academy Editions, 1993), 24.

318 See Carpo, *The Alphabet and the Algorithm*, 39.

319 Betti Marenko, 'Digital materiality, morphogenesis and the intelligibility of the technodigital object', in Betti Marenko (ed.), *Deleuze and Design* (Edinburgh: Edinburgh University Press, 2015), 112.



104 | Claudia Hart, *The Brides*, 2010; rapid prototype printed acrylonitrile butadiene-styrene plastic; 5.08 × 30.48 × 8.25 cm.

It is unsurprising that Deleuze's theories linked to Leibniz and Cache appealed to many digital designers, architects, and artists of the 1990s. Enabled by new software programmes and rapid prototyping technologies, they could now design works that resembled morphing organisms and evolving bodies.

Such developments in the 1990s also captured the imagination of American artist Claudia Hart.³²⁰ After studying art history, Hart trained as an architect at Columbia University, where she found herself interested in the same digital tools and multimedia approaches used by Peter Eisenman, Michael Graves, Charles Gwathmey, John Hejduk and Richard Meier, who together later became known as the pioneers of digital topological architecture. Here, while working between practice and its theorization, Hart began to explore the symbolic and cultural meaning of digital tools. The objects in her artistic cosmos are generated from computer models instead of being captured with a camera.³²¹ It is the tension in using genetic algorithms to approach the naked female body outside a sexualized and objectified image that interests Hart and positions her practice from its beginnings as an important

320 Claudia Hart's practice is discussed more thoroughly in chapter 3.2.

321 At SAIC, Hart developed an educational programme based on this concept. Called 'Experimental 3D', it is considered the first art-school curriculum teaching simulation technologies in the art world. 'I also created a class called "Virtual Installation", inspired by the contemporary-art strategy of site-specific installation but one where I imagined virtual installations made digitally and ... installed into photographs or videos.' Claudia Hart, 'Claudia Hart' in Donna Cox, Ellen Sandor, and Janine Fron (eds.), *New Media Futures: The Rise of Women in the Digital Arts* (Champaign, Illinois: University of Illinois Press, 2018), 186.

counterbalance to male-centric digital cultures of the 1990s and early 2000s (see her 2010 work *The Brides*; fig. 104).³²²

Alongside Hart, several other female artists, including Joan Truckenbrod (born 1945 in Greensboro, North Carolina, USA) and Vibeke Sorensen (born 1951 in Copenhagen, Denmark), were early adaptors of virtual imaging to make media installations and projections or other forms of VR, AR, and computer-fabricated objects. Joan Truckenbrod employed a video digitizer which transformed analogue video stills into digital images using the aid of Apple II and then Apple IIe computers. As Tina Sauerlaender highlights, 'the artist understands the video digitizer as a sculpting tool for time and light and the self-image as a tool to inject humanness into the digital. Truckenbrod aims to create a fusion of woman and machine and to address the (inner) conflicts females had due to social constraints.'³²³

In Joan Truckenbrod's paper 'Tears in the connective tissue', the artist argues for the importance of sensory and physical experiences such as touch when conceptualizing digital devices like the computer: 'Computing is obsessed with creating virtual experiences that simulate forms, materials, and behaviours from nature. Cyberspace disengages from physical reality. Sensory experience is reduced to a mono-medium of digital coding,' she writes.³²⁴ To Truckenbrod, the scanning motion of the video digitizer introduced fluidity, tactility, or perhaps even plasticity into her image, as evident in her early works *Ripped Distance* (1982; fig. 105) and *Morphic Reasoning* (1982; fig. 106). These bear some resemblance to Sterling

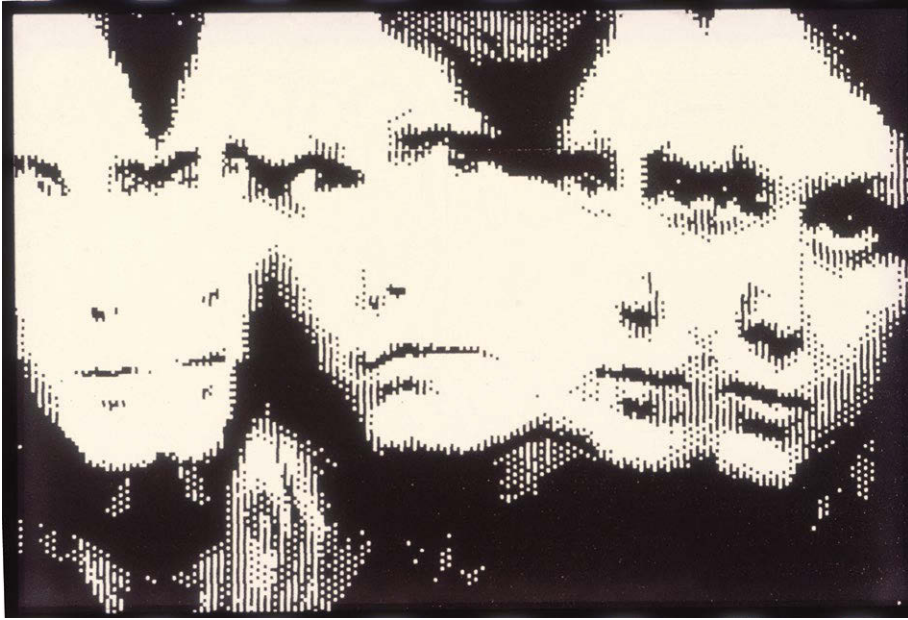


105 | Joan Truckenbrod, *Ripped Distance*, 1982; black and white photograph; 33.65 × 48.89 cm.

322 'Even in an established art school like Pratt ... there were still art places in the late twenty-first century where a hyper-misogynistic culture was still in place,' she explains while describing her aesthetic as a 'counter shooter aesthetic'. Hart, 'Claudia Hart', 188.

323 Tina Sauerlaender, 'Tina Sauerlaender on a pioneer of self-portraiture in computer art: Joan Truckenbrod', *ZI Spotlight* blog (18 November 2020), <https://www.zispotlight.de/tina-sauerlaender-on-a-pioneer-of-self-portraiture-in-computer-art-joan-truckenbrod/>, accessed 13 December 2024.

324 Joan Truckenbrod, 'Tears in the connective tissue', in Linda Candy, Ernest Edmonds, and Fabrizio Poltronieri (eds.), *Explorations in Art and Technology* (London: Springer, 2018), 71.



106 | Joan Truckenbrod, *Morphic Reasoning*, 1982; black and white photograph; 69.96 × 76.2 cm.

Crispin's approach in producing his *Data-Masks*. In Truckenbrod's works, a facial image is captured in transformation, distorted, and practically torn to shreds. It has become a mask. Truckenbrod altered the scan's orientation and lighting, resulting in diverse transformations of the facial image. The final output was produced using either a dot matrix printer or a laser printer. She created a layered construction by superimposing digital compositions on live video images of her face, which were then photographed in real time.

Embedded into these early digital works are personal experiences of the onset of the AIDS crisis, questions regarding motherhood, and other personal experiences related to change, rebirth, and transformation. In later works, Truckenbrod employed digital painting techniques and created digital prints using a dye sublimation process on silk or other fibres. She describes her body of work as electronic 'totemism' and states that the 'screen, the digital print, digital fibre creates portals to electronic worlds, spiritual dimensions, and personal realms.'³²⁵

For the artist, her work with computer-generated images is intended to 'bridge the physical and the virtual worlds by using languages of both body and mind. The gesture of the hand with the stroke of a digital brush is an agent of the inside world, a portal between worlds.'³²⁶

325 Truckenbrod, 'Tears in the connective tissue', 72.

326 Truckenbrod, 73.



107 | Dan Collins, *Headdrop*, 1994; digital image.

Many other women have made significant contributions in this field, including Agnes Hegedüs (born 1964 in Budapest, Hungary). Her deep fascination with video and the synesthetic aspects of audio-visual media developed into a passionate commitment to stereoscopic imagery and animated three-dimensional creations notable for their robust sculptural quality, as showcased in her work *Memory Theatre VR*.³²⁷ These efforts can be seen as arising from a common context with the prevalence of virtual computer sculptures and topological architectural approaches during the 1980s and 1990s.

The absence of research on any female protagonist in the field of digital sculpture around this time becomes evident in an article published in 1999. In this study, Christiane Paul scrutinizes the realm of 'digital sculpture' and dates its official inception to the early 1990s. While delving into the formation of this field, Paul identifies various groups and organizations operating at the intersection of art, design, and architecture across Europe and the US. However, her analysis does not acknowledge any women in this context. She lists Bruce Beasley (born 1939 in Los Angeles, California, USA), Rob Fisher (1939–2006, born in Shaker Heights, Ohio, USA), and David Smalley (1940–2015, born in Middlebury, Vermont, USA) (the founders of the Computers and Sculpture Forum, or CSF); the French organization *Ars Mathematica*, a biennial computer exhibition organized by Christian Lavi-gne (born 1959 in France) and Alexandre Vitkine (1910–2014, born in Berlin, Germany) from *Intersculpt*; and the group *FasT-UK* (Fine Art Sculptors & Technology in the UK) founded by the sculptor Keith Brown (born 1947 in Hexham, United Kingdom) from Manchester Metropolitan University.³²⁸ She further references Derrick Woodham (1940–2023, born in Blackburn, England) of the College of Design, Architecture, Art, and Planning at the University of Cincinnati, and the *PRISM* (Partnership for Research In Stereo Modelling) Lab at Arizona State University in Phoenix, run by Dan Collins (born 1953 in San Mateo, California, USA) and Mark Henderson (born 1953 in Campbell River, British Columbia, Canada).³²⁹ By presenting a snapshot of the field, Paul's essay, 'Fluid borders: The aesthetics evolution of digital sculpture', centres on questions related to the aesthetics, forms, and genres of digital and virtual sculpture of the late 1990s. While (digital) plasticity is not discussed in the article, the dis-

327 After obtaining her diploma as a ceramicist, Agnes Hegedus studied Photography and Video Art at the Budapest Academy of Applied Arts from 1986 to 1988. Subsequently, she pursued further studies at the Minerva Academy in Groningen, the AKI in Enschede, and the Institute of New Media at the Städelschule in Frankfurt/Main.

328 See Christiane Paul, 'Fluid borders: The aesthetics evolution of digital sculpture', *Sculpture Magazine* web special (July 1999), reproduced at <https://rms-art.com/fluid-borders/>, accessed 13 December 2024.

329 See Paul, 'Fluid borders: The aesthetics evolution of digital sculpture'.

cursive field Paul outlines helps cast light on the redistribution of artistic concerns around plasticity in recent art production.

While the digital/virtual sculptors of the 1990s had diverse approaches to the medium, Paul observes, 'most of the sculptor[s] don't feel that the label "digital" distracts from the specifics of art they are creating ... and seem to understand themselves primarily as sculptors minus classifying additions such as computer, virtual, or digital.'³³⁰ The artists' traditional sculptural training and the absence of any New Media art programmes at their time of education certainly contributed to the fact that their early digital sculptures centred on formal aesthetic concerns closely related to those of modernist sculpture.³³¹ 'Scaling operations, proportional shifts, eccentric vantage points, morphing processes, and 3D montage are some of the techniques explored by this body of work,' the artist Dan Collins (faculty member at the School of Art at Arizona State University) writes in an artist statement on his webpage (see his 1994 piece *Headdrop*; fig. 107).³³² In a conference presentation in 2014, Keith Brown, now a professor at Manchester School of Art, confirmed, 'I don't address the sociopolitical issue of post-modernist art which the majority of artists are engaged with at the moment. I probably date back more to a classical formal way of working' (see his 1998 *Continuity of Form*; fig. 108).³³³

While the artists acknowledge the profound impact of digital media on their work and understanding of sculpture, 'for all of the sculptors, the possibility of designing and creating sculptures that couldn't be realized with traditional practices is the primary reason for their



108 | Keith Brown, *Continuity of Form*, 1998; SLS DuraForm manufactured at the Keyworth; 20 × 16.4 × 10.7 cm.

330 Paul, 'Fluid borders'.

331 'As of yet, there are no art schools dedicated to the discipline of digital/virtual sculpture, and labs such as PRISM are still an exception,' in Paul, 'Fluid borders'.

332 Dan Collins, 'bionarrative', *Ars Mathematica* website (date unknown), https://www.arsmathematica.org/is2005/4dsc-jury/dan_collins.htm, accessed 11 December 2024.

333 Keith Brown, 'From virtual to real' [video], *YouTube* (23 December 2014), <https://www.youtube.com/watch?v=CmrG8MGiZJc>, accessed 11 December 2024.

use of digital technologies.³³⁴ The emphasis on digital technologies as an art-intrinsic tool rather than an initial point for reflection on their broader societal implication is also evident in Dan Collins's summary of the field of digital sculpture in the 1990s. It may shed light on what has changed for a younger generation of artists:

Most of what I am aware of being produced under the rubric of 'digital sculpture' merely mimics the formal strategies of traditional sculpture – bound as it is in an 'upright universe' dependent on gravity, the material limits of particular media, and the scale of the human body. Even the sculpture parks dedicated to a 'virtual' sculptural experience to a large extent maintain the phenomenological constraints of traditional sculpture.³³⁵

While the widely overlooked pioneers of 3D prototyping technology discussed above explored the interfaces of actual and virtual worlds two decades before the so-called 'post-internet' generation, Collins's and Paul's observations intimate that much has changed. As digital technologies have moved from the margins of our society to become part of the fabric of everyday life, the focus of artistic and critical discourse has significantly changed. Art incorporating digital technologies is no longer a discrete cultural entity. It has ceased to occupy a niche ignored by the art market or curators, as with the virtual/digital sculpture of the 1990s.³³⁶ In a way, the prophecies of artists such as Keith Brown, who saw the potential of such technology 'in increased access for all, the dissipation and decentralization of the marketplace, the means of production, and the way they have previously been controlled by institutions and the art market', have come true.³³⁷ Cultural discourse has evolved into discussions about conscious reconfiguration of *all* culture through the digital and the internet.³³⁸

This reorientation has been termed 'post-internet' or 'post-digital'. In this context, the prefix 'post' is understood not in the sense of a linear idea of process marking a concept 'after' the internet or the digital.³³⁹ Instead, the term refers to a cultural shift of the digital and the internet as an encompassing condition. It does not denote an end of the internet or digital, but rather describes a persistent mutation. Post-digital and post-internet discussions are intertwined, as they describe a condition of artworks that have been shaped by the internet and digital processes, both in theory and in application, yet manifest in material form.

The digital plasticity of Oliver Laric's sculptures demonstrates such an 'internet state of mind', resulting from a 'complete embeddedness in a ubiquitous network culture'.³⁴⁰ For his

334 Paul, 'Fluid borders'.

335 Dan Collins quoted in Paul, 'Fluid borders'.

336 'It's easy to agree with the opinion that, in terms of artworld credibility, the "status" of digital sculpture remains low and that there still is a need for educating the critics, curators, connoisseurs, and collectors who define terms for the artificially "closed shop" of the professional art world.' See Paul, 'Fluid borders'.

337 Keith Brown paraphrased in Paul, 'Fluid borders'.

338 See Michael Connor, 'Post-internet: What it is and what it was', in Omar Kholeif (ed.), *You Are Here: The Art of the Internet* (Manchester: Cornerhouse, 2014), 61.

339 See Cramer, 'What is "post-digital"?' 13.

340 Karen Archey and Robin Peckham, 'Art post-internet', *UCCA Center for Contemporary Art* exhibi-



Artist: Gibson, John
Period: 19th Century
Material: Stone, marble
Location: The Usher Gallery, Lincoln
Inscription: *I Gibson ne fecit Roma*
Object Number: LCNUG: 1927/142
Physical Dimensions:
Object height: 123.5cm
Object length: 65cm
Object width: 58cm
Plinth height: 44.5cm
Plinth length: 78cm
Plinth width: 82cm

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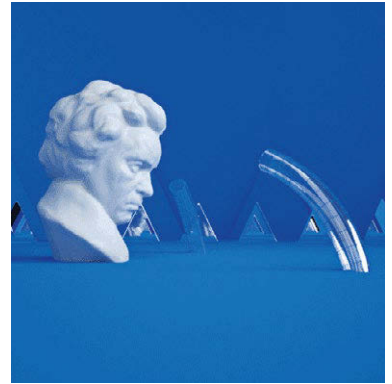
109 | Oliver Laric, *Lincoln 3D Scans*, 2012–ongoing; series of 3D scanned sculptures downloadable as .STL files.

ongoing project, *3D Lincoln Scans* (2012–ongoing), the Austrian artist digitizes the collections of the Lincoln Museum and Usher Gallery in Lincoln, UK (fig. 109). The scanned open-source models are published on a website where they can be freely downloaded without being subject to copyright restrictions. This has empowered extensive DIY online communities beyond the conventional reach of museums to engage with the available scans. Laric's 3D scans permit others to modify the form of the object by altering the source code of the original scan or materializing it in similar or new versions (fig. 110). Consequently, some 3D models have found their way into video games, architectural renderings, and new artworks, which are showcased in a dedicated gallery on the webpage for the *Lincoln 3D Scans*. Classical sculptural values such as authenticity and originality are radically relativized and 'rebooted'. The endless malleability of Laric's sculptures is the effect of a digital plasticity that can circulate effortlessly on the web, only one click away from being materialized in actual material form.

Like Jon Rafman's *New Age Demanded* busts, Laric's work is not about creating an authentic sculptural object but about 'post-producing, launching, and accelerating' it.³⁴¹ Hito

tions website (February 2014), <http://ucca.org.cn/en/exhibition/art-Post-Internet/>, accessed 10 December 2024.

341 Hito Steyerl, 'Too much world: Is the internet dead?', *e-flux* online journal 49 (November 2013), <https://www.e-flux.com/journal/49/60004/too-much-world-is-the-internet-dead/>, accessed 13 December 2024.



110 | Examples of re-appropriation of Oliver Laric's *Lincoln 3D Scans* by other artists: Pedro Perex, *Laric Nymph Toilet*; Ryan Coster, *Mercury on Mercury*; Spyro, *Untitled*.

Steyerl has termed such a gesture 'circulationism'.³⁴² Her terminology describes a condition in which images (potentially turning into objects) are deeply inflected by the networked paths on which they circulate. 'An image in circulation is less about its content than about its charge, its drive, its directions. It is about being intensely quantifiable and trackable, too. ... It is about public relations of images in social networks, about advertisement and alienation, conformism and quantified spread and velocity.'³⁴³

Inscribed into the digital plasticity of Laric's and Rafman's objects is this 'circulationism', which is linked to the application, use, and consequences of digital technologies in our so-called 'post-internet' era. Artie Vierkant has defined this moment as 'the development of attention as currency, the collapse of physical space in networked culture, and the infinite reproducibility and mutability of digital materials'.³⁴⁴ Whereas the plasticity of prototype sculptures from the 1990s – as well as that of early pioneers of European and American computer art – was largely tied to aesthetic and conceptual concerns within art discourse, the digital plasticity of Blas's and Crispin's objects is much more explicitly shaped by political and commercial forces.

Crispin, Laric, Rafman, and Blas are artists who work internationally, with gallery representation and a presence on major art fairs. In the art market, their work has been associated with the 'post-internet' art label that has become co-opted as a superficial shorthand used by writers, curators, and gallerists to describe contemporary art inspired by the internet. Here, the mechanism of circulationism conveys a potential for 'recoding or rewiring

342 Steyerl 'Too much world'.

343 Hito Steyerl quoted in Van Abbe Museum, 'Circulationism discussion with Hito Steyerl', event website (date unknown), <https://hitosteyerl.vanabbe.nl/discussion/>, accessed 16 December 2024.

344 Vierkant, 'The image object post-internet'.

the system by exposing state scopophilia, popular compliance, and wholesale surveillance.³⁴⁵ On the other hand, 'it is quite likely that circulationism – instead of restructuring circulation – will just end up as ornament to an internet that is finally dead enough to make it into contemporary art.'³⁴⁶ The peril of such work is thus that it can be simply disguised as a trendy style categorized by curators and gallerists as 'contemporary art working with digital technology'. The artists thereby run the risk of producing a 'homogenous, abundant output for market-ready net art' consumers.³⁴⁷

As this sub-chapter has highlighted, the characteristics of processuality, mutability, and malleability inherent in digital code resonate strongly with the history of plasticity at the turn of the twentieth century. The same characteristics continue to feature prominently in debates throughout the twentieth and twenty-first centuries. Themes include process-oriented, generative, and self-replicating cellular automata, perceptrons, and their role in the early days of computer art in the 1960s, as well as parametric architecture and design of the 1990s. Foreshadowing the sculptural practices of the recent generation of artists, the works of early digital practitioners Vera Molnár, Lillian Schwartz, and Manfred Mohr, among others, rehearsed the malleability of code that comes from reducing one's referent to binary data. As early as the 1960s, Robert Mallary and Charles Csuri materialized their digital sculpture using early numeric control procedures. They fused mechanics with computational mathematics and shifted the artist's creation process towards the programmes' writing.

In this context, this subsection also cast light on the American artists Robert Mallary, Charles Csuri, Claudia Hart, Michael Rees, and Barry X Ball, each of whom pioneered the use of software and rapid prototyping technologies to realize digital sculptures. These widely overlooked pioneers of 3D prototyping technology explored the various interfaces of actual and virtual worlds two decades before the 'post-internet' generation. Similarly, Deleuze's 'objectile' refers not to the unmoulding of an object but to its emergence as a variation of morphing matter. Deleuze is thus characterizing this early shift away from the mould to modulation, from object to object-event. Coined in the 1970s, the notion of the 'objectile' emphasized the morphogenic and *plastic* features of an object, pointing to an altered understanding of matter and form in the digital age. The 'objectile' thus anticipated what is now termed digital plasticity.

With the proliferation of physical objects that are conceptually or practically shaped by digital processes, there comes not only a deeper reflection on the deep embeddedness of the digital in the material world but equally a reflection of digitality's firm presence and circulation in the art market. The works of artists like Crispin or Blas thus not only carry the imprint of the technological forces that shaped them but also purposefully seek to aesthetically communicate to viewers the profound implications inherent in their creation.

345 Hito Steyerl quoted in Van Abbe Museum, 'Circulationism discussion with Hito Steyerl.'

346 Hito Steyerl quoted in Van Abbe Museum, 'Circulationism'.

347 Jennifer Chan, 'Notes on post-internet', in Omar Kholeif (ed.), *You Are Here: Art After the Internet*, 117.

Interim conclusion: Digital plasticity from surface phenomena to contemporary architectures of power

Theoretically, I am concerned with the aggressive overdevelopment of surveillance technology, how this is changing human identity, and how humanity interacts with technology.... Technically, my specific focus has been on reverse engineering facial recognition, facial detection, and image correlation techniques in order to reveal how they represent human identity.³⁴⁸

Sterling Crispin's *Data-Masks* not only bear the imprint of the technological forces that have processed them but also aesthetically reflect on those forces' larger implications. Crispin's objects thus open up a discussion of the 'digital plasticity' of surveillance systems in which recent governmental, military, and commercial endeavours entwine. What appear as pixelated, inhuman masks emerging from mirrors are in reality representations of what the facial detection, recognition, and machine learning algorithms employed by Facebook – and the US military – perceive as the human face. As Crispin explained to me in an interview, one of his main motivations for the work came from Edward Snowden's 2013 leaks of classified NSA files. Snowden's whistle-blowing revealed that the data of ordinary citizens had been collected with authorization through various secret treaties signed by members of the UK/USA intelligence community. This information was gathered through platforms such as Google and Facebook using a range of sophisticated data-capturing programmes, including PRISM, XKeyscore, Tempora, Muscular, Five Eyes, Stateroom, and Lustre.

The artist Zach Blas also highlights the importance of Snowden's leaks for his work with masks and masking:

I began this project [his *Facial Weaponization Suite* (figs. 70–71)] in 2011, but interest in the work came in 2013, after the Snowden leaks.... In my studio practice, I wanted to develop artwork that pushed the ability to biometrically capture the face, and I found the mask a simple yet powerful example of this. Masking in social movements, protests, and autonomous communities (like Anonymous, black blocs, and the Zapatistas) popularly indicate [sic] a political stance that is anti-capture or anti-biometrics. These groups not only refuse the biometric gaze through masking, but their use of the mask is also a larger refusal of being politically visible to the state or to power. The mask here is not just an individual disappearing act; it is a catalyst for collective transformation, a collective demand. The Zapatistas articulate this sentiment well when they claim that they hide their faces so that they may be seen.³⁴⁹

Encoded into the plasticity of the works of Crispin, Blas, and their peers are the effects of being created in a post-9/11 era, in which Zygmunt Bauman observes 'global space has assumed the character of a frontier-land' that expands into the digital space.³⁵⁰ In this context, threats and responses become increasingly diffuse rather than centralized, and alliances are in a constant state of flux – much like the morphogenic and genetic algorithms that constitute Blas' and Crispin's mask-themed works.

348 Crispin, 'Data-masks', iv.

349 Zach Blas in Katrina Sluis, 'Artist profile: Zach Blas', *Rhizome* blog (1 March 2017), <https://rhizome.org/editorial/2017/mar/01/artist-profile-zach-blas/>, accessed 13 December 2024.

350 Zygmunt Bauman, *Society under Siege* (Hoboken, New Jersey: Wiley, 2002), 90.

Despite critical legislative changes after Snowden's leaks, Crispin's *Data-Masks* and Blas' *Facial Weaponization Suite* have retained their relevance. In January 2018, the *Washington Post* first reported on the pilot phase of an ambitious Chinese government plan known as *Xue Liang* (which can be translated as 'Sharp Eyes'):

The intent is to connect the security cameras that already scan roads, shopping malls, and transport hubs with private cameras on compounds and buildings and integrate them into one nationwide surveillance and data-sharing platform.³⁵¹

By the end of 2020, China was able to spy on all of its key public spaces with facial recognition technology.³⁵² The omnipresence of such a surveillance network raises significant questions about our human existence and the boundaries between privacy and general perceptibility – echoing Crispin's and Blas's masks' reflection on Western data surveillance. The omnipresent *Xue Liang* network not only keeps track of 1.4 billion civilians, like the darkest version of Foucault's panopticon, but also allows the government to build statistical models of citizens' behaviour through the mutable matters of information. This is a 'proactive panopticon, which tries to figure out ahead of time who is a danger', as Albert Fox Cahn, founder of the Surveillance Technology Oversight Project, states.³⁵³

Given this context, Crispin's *Data-Masks* are not merely technological 'deep dream' hallucinations but reveal the current disposition of our technological predicament. Inscribed into his work is the digital plasticity of a ubiquitous surveillance apparatus. Digital plasticity in art evolves in constant, reciprocal feedback with the shaping and modeling of our contemporary moment.

Writing on the fluid forms of modernist sculpture, Georg Simmel saw artworks, which he considered the 'surface' phenomena of modern life, as not only modernity's imprint or 'impression', but its 'condensation'.³⁵⁴ Simmel developed the notion of the surface as the initial point for his analysis of the 'inner life', the psyche and working mechanism of the metropolis. He thereby shifted the implicit imagery of surface, namely that one must look beyond it in order to find depth: For Simmel, surface signals depth. Extending this idea, art historians Rosalind Krauss and Gottfried Boehm concluded that the plasticity of an object manifests on its surface, which they understood as a membrane to the outside and thus the space for

351 Simon Denyer, 'China's watchful eye', *Washington Post* online (7 January 2018), https://www.washingtonpost.com/news/world/wp/2018/01/07/feature/in-china-facial-recognition-is-sharp-end-of-a-drive-for-total-surveillance/?utm_term=.c1c83adf0dbb, accessed 11 December 2024.

352 See Jessica Batke and Mareike Ohlberg, 'State of surveillance', *ChinaFile* blog (30 October 2020), <https://www.chinafile.com/state-surveillance-china>, accessed 11 December 2024.

353 Albert Fox Cahn, quoted in Batke and Ohlberg, 'State of surveillance'.

354 It is the distance that art establishes from life, through its own symbolic forms, that allows art to 'more completely, consistently, and realistically reveal the deepest nature of ... reality than could any attempt at grasping it more directly'. Georg Simmel, 'Sociability: An example of pure, or formal, sociology', tr. Kurt H. Wolff, in *The Sociology of Georg Simmel*, tr. and ed. Kurt H. Wolff (New York, New York: The Free Press, 1964), 56.

communication.³⁵⁵ Like Simmel, the two art historians viewed the surface not as a smooth, flat, or depthless plane but rather as the site for poly-sensory experience. It is the experience of an artwork's surface that allows for a dynamic encounter between viewer and work. The surface serves as a 'plastic space' where creators and viewers engage with their embodied experiences of the artwork.³⁵⁶

Siegfried Kracauer went a step further than Simmel, Boehm, or Krauss. For the German theorist, the ability to diagnose an era could be acquired exclusively by observing and analyzing its surfaces – the primary source of historical and social information. In his essay collection *The Mass Ornament*, published in the 1960s, Kracauer writes:

The position that an epoch occupies in the historical process can be determined more strikingly from an analysis of its inconspicuous surface-level expressions than from the epoch's judgements about itself. Since these judgements are expressions of the tendencies of a particular era, they do not offer conclusive testimony about its overall constitution. The surface-level expressions, however, by virtue of their unconscious nature, provide unmediated access to the fundamental substance of the state of things. Conversely, knowledge of this state of things depends on the interpretation of these surface-level expressions. The fundamental substance of an epoch and its unheeded impulses illuminate each other reciprocally.³⁵⁷

In Kracauer's approach, lived experience, such as the experience of visual art, is a 'surface' phenomenon. Even if its importance is not always entirely clear to us, this is not because the 'truth' is purposely obscured or strategically positioned beneath a symbolic 'surface'. Rather, the 'surface-level expression' provides the ornamental clues which enable us to decipher the complex and often contradictory cultural mode of a time. In Kracauer's reading, artworks – and, following Krauss and Boehm, their plasticity – can provide direct access to the character of an epoch. It is in the overt, casual, unmediated, surface expressions and experiences of art, therefore, that the continually elusive workings of power must be traced.

As recent sculptural objects emerge from the surfaces of our computer screens into three-dimensional space, they could be seen as examples of Kracauer's 'surface-level expression' par excellence. Crispin's *Data-Masks* become, in Kracauer's words, 'a cypher, a surface subject to a variety of physiognomic readings'.³⁵⁸ They provide access to our reality through a physiognomic reading of various human (sur)faces. This understanding becomes even plainer in Kracauer's reflections on photography. What an old photograph conveys, he writes in *The Mass Ornament*, is not 'the knowledge of the original but the spatial configuration of an instant; it is not the person who stands forth in his or her photograph, but the sum of that which can be abstracted from him or her. The photograph annihilates the per-

355 See Gottfried Boehm, 'Plastik und plastischer Raum' [Sculpture and plastic space], in Klaus Bußmann and Kasper König (eds.), *Skulptur: Ausstellung in Münster 1977* [Sculpture: Exhibition in Münster, 1977] (Münster: Westfälisches Landesmuseum für Kunst und Kulturgeschichte, 1977), 23–44; Krauss, *Passages in Modern Sculpture*, 20.

356 Boehm, 'Plastik und plastischer Raum' [Sculpture and plastic space], 20.

357 Siegfried Kracauer, *The Mass Ornament: Weimar Essays*, reprint edn (Cambridge, Massachusetts: Harvard University Press, 1995), 75.

358 Kracauer, *The Mass Ornament*, 20.

son by portraying him or her and, where person and portrayal converge, the person would cease to exist.³⁵⁹ Did Kracauer anticipate today's pervasive facial recognition and detection technology with its attendant dehumanization? The human face extruded from thousands of photographs has become input data for a multi-layered deep neural network. The verification of a person – a persona, as explored in 2.1 – relies on abstraction: the summing of pixel values used as a feature set to describe identity. Dissolved into data, the individual is annihilated. It ceases to exist.

This process of annihilation is also one of power and control. In their evocation of digital plasticity, Crispin's objects thus articulate the presence of an apparatus of power, a type of mimetically evolved intelligence that spies on you in the shape of morphing organisms. Digital plasticity thereby becomes more than just an art-historical phenomenon. It hints at the style of an era, the architecture of the now, familiar yet invisible, apparently immaterial but much more in-material, seemingly neutral yet profoundly political. Do its malleability, transformability, and ability to change states still convey a potential for resistance?

This question offers an important subtext to the final chapter of this book, which focuses on Morehshin Allahyari's work. Allahyari uses digital sculptural technologies to enact sculptural and commemorative structures that highlight the memories and trajectories of those forgotten, hijacked, erased, or left behind. Like Crispin's works, Allahyari's objects are underpinned by a digital plasticity driven by and deeply imbued with algorithmic processes. Such plasticity is made physical and durable when Allahyari materializes her work with 3D printing technology.

Allahyari, much like Alice Channer, links such plasticity to reflections on corporeality. In her examination of jinns and goddesses, Allahyari not only invokes the ancient sculptural relationship to the body discussed earlier, but links her depictions' regained corporeality to marginalized female and queer bodies of and from the SWANA region.³⁶⁰ By playing on sculpture's fluid boundaries between text and object, fiction and reality, death and life, Allahyari evokes sculpture's ancient association with the monument and rethinks its function for our present. As such, the artist explicitly addresses the dynamic that strongly informs sculptural concepts of monuments and memorials. Through an analysis of Allahyari's work, this final part aims to investigate the particular monumentality that recent sculptural practices call forth.

359 Kracauer, *The Mass Ornament*, 56–57.

360 SWANA is a decolonial acronym for the region encompassing South West Asia and North Africa. It is used in place of terms such as Middle Eastern, Near Eastern, Arab World, or Islamic World, which have colonial, Eurocentric, and Orientalist origins. See SWANA Alliance, 'What is SWANA?', *SWANA Alliance* website (date unknown), <https://swanaalliance.com/about>, accessed 7 January 2025.



111 | Morehshin Allahyari, *She Who Sees the Unknown: Aisha Qandisha*, 2018; installation with pool, 3D printed resin sculpture and HD single-channel video with audio.

3

MONUMENTALITY: SCULPTING MEMORIES BETWEEN MONUMENTS AND ARCHIVES

She who saw all things in the broad-boned earth and beyond,
and knew what was to be known
She who had seen what there was, and had embraced the 'otherness'
She to whom the image clung like a mirror; a display of crisis
and who dwelt together with a devised becoming
She knows and sees the unknown and lays them bare
She is the 'monstrous other', the dark goddess, the possessive jinn,
the dividing persona;
She restores myths and histories; the untold and the forgotten; the misread and uneven;
Those of and from the Near East.¹

The works of Morehshin Allahyari make and mark a space for memories from the SWANA region.² More precisely, Allahyari's practice revolves around the sculptural embodiment of memory and its formation in a dedicated site and form. Unfolding in the hybrid space between sculpture, archive, and monument, this final part examines Allahyari's work as a prime example of a changing understanding of monumentality.

Allahyari was born in Tehran during the Iran–Iraq war in 1985 and left Iran in 2007, choosing 'self-exile' over the '[self]-censorship' she would have had to undertake due to the severe Islamic rule of the reformist president at that time, Mohammad Khatami.³ She pursued her education in social science and media studies at the University of Tehran, then earning a Master of Arts in Digital Media Studies from the University of Denver, and subsequently achieving a Master of Fine Arts in New Media Art from the University of North Texas. Her work with digital technology, including 3D printing, web-based hypertext fictions, sculpture, video, experimental animation, and publishing, is deeply grounded in the interrogation of political, sociocultural, and gender norms.

1 Morehshin Allahyari, 'Aisha Qandisha: Video text', online transcript (date unknown), https://docs.google.com/document/d/1qsUi47lBqGn-m6MWrr7sdsddmNjmBKmh_kvGq-pBFY40/edit, accessed 10 December 2024.

2 As mentioned in the interim conclusion above, SWANA is a decolonial term for the region of Southwest Asia and North Africa.

3 Nobel Peace prize winner Shirin Ebadi painstakingly describes the political climate in Iran under the rule of Khatami, which saw the introduction of some of the most 'inhumane laws and policies, in response to the activism [Ebadi] and many colleagues in the field of human rights and the women's movement pursued'. Shirin Ebadi, *Until We Are Free: My Fight For Human Rights in Iran* (London: Rider, 2016), 8–9.

Despite Allahyari's intermedial approach, an important centre of her practice is the sculptural object. Allahyari's series *She Who Sees the Unknown* sculpturally revives memories of the partly forgotten but once powerful jinns and goddesses of SWANA origin myths. In both pre-Islamic mythology and Islamic theology, jinns play a central role. They are fearsome and honoured creatures that reveal themselves to humans to resolve or create catastrophic situations.⁴ At the heart of her project, the artist creates sculptural reconstructions of these monstrous, often female or queer figures and their stories through 3D sculpting, printing, and speculative storytelling. The works adopt a variety of visual forms and presentations that mirror the shape-shifting features associated with jinns. *Aisha/Qandisha* (2018; fig. 111), *Huma and Talismans* (2016; fig. 112), *Ya'jooj Ma'jooj* (2017; fig. 113), *Kabous: The Right Witness, and The Left Witness* (2019; fig. 114) consist of 3D sculpted and 3D printed figures juxtaposed with video essays or VR experiences. The fourth iteration in the series, *The Laughing Snake* (2018; fig. 115), manifests as an interactive hypertext narrative available online. In the context of a physical exhibition, it is accompanied by a 3D printed sculpture depicting its protagonist. These visual elements are showcased alongside Allahyari's extensive archival research work for *She Who Sees the Unknown*, accessible in an adjoining reading room. Physical manifestations of the project also include performance–lectures, *Ha'm-Neshini* ('sitting together'), and 'fabulation stations', featuring dialogues with fellow artists, scientists, and activist women from the SWANA region. The project's current state is meticulously documented on an elaborate webpage, further expanding and multiplying its diverse trajectories.⁵

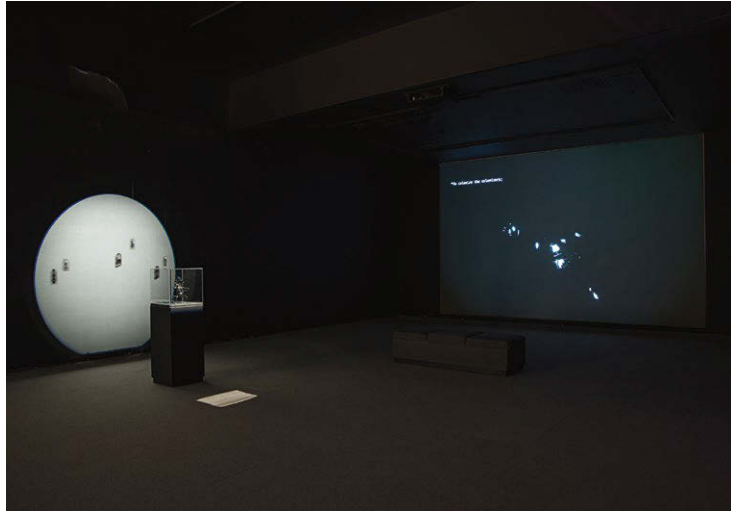
Allahyari thereby reveals herself to be engaged in complex cross-media dialogues in which sculpture, video, VR, the internet, and performance are combined across the works of her series. Grounded in extensive research that draws from pre- and post-Islamic texts, myths, and stories of Persian and Arabic origin, Allahyari reintroduces the forgotten characters of the jinns back into public presence. However, the unifying element of the series is the physical realization of her composite figures in sculptural form. The space-encompassing presentations thus not only preserve, protect, celebrate, and archive their historical influences. They also allow the artist to recode – or in her words 'refigure' – their historical trajectory for critical–creative reflections on the contemporary experiences of SWANA women.

'Monumentality: Sculpting memories between monuments and archives', the third part of this volume, will examine Allahyari's mythological appropriations as a diasporic memory practice with a distinct sculptural embodiment in actual and virtual space. Alongside other Iranian diasporic artists, including Amitis Motevalli, Nooshin Rostami, and Shirin Fahimi. This chapter demonstrates how Allahyari engages with the sculptural features of archives

4 For more detail on the importance of jinns, see G. Hussein Rassool, *Evil Eye, Jinn Possession, and Mental Health Issues: An Islamic Perspective* (London: Routledge, 2018); Robert W. Lebling, *Legends of the Fire Spirits: Jinn and Genies from Arabia to Zanzibar* (London: I. B. Tauris, 2010); Amira El-Zein, *Islam, Arabs, and the Intelligent World of the Jinn* (Syracuse, New York: Syracuse University Press, 2009); and Waḥid 'Abd al-Salām Bālī, *Man's Protection against Jinn and Satan*, tr. Haytham Kreidly (Beirut: Dar al-Kotob al-Ilmiyah, 2006).

5 Morehshin Allahyari, 'She Who Sees the Unknown', project website (date unknown), <http://shewhosaeestheunknown.com/>, accessed 10 December 2024.

112 | Morehshin Allahyari, *She Who Sees the Unknown: Huma and Talismans*, 2016; installation with 3D printed resin sculpture, three clear resin talismans and HD single-channel video with audio.



113 | Morehshin Allahyari, *She Who Sees the Unknown: Kabous, The Right Witness and The Left Witness*, 2019; installation with 3D printed resin sculpture and VR video.



and monuments to propose innovative ways of making and marking a space for painful, suppressed, or forgotten memories. In all her works, memories assume an aesthetic and sculptural form. Her works enact commemorative structures highlighting the trajectories of those who have been forgotten, erased, or left behind.

Since the nineteenth century, the concept of the monument has undergone a significant change.⁶ From embodying heroic, self-aggrandizing national gestures celebrating ideals and triumphs, the monument has shifted throughout the twentieth century towards ephemer-

6 See Horst W. Janson, *The Rise and Fall of the Public Monument*, ed. Andrew W. Mellon (New Orleans, Louisiana: Graduate School, Tulane University, 1976); Rosalind Krauss, 'Sculpture in the expanded field', 33.

al conceptual interventions marking national ambivalence and uncertainty.⁷ As artists have developed critical approaches to traditional monumental codes through ephemeral, living, impermanent, or vivid modes of expression, the monument has become a contested site, a place of cultural conflict. For example, since the late 1980s, post-colonial and feminist discourses across the globe have contributed critical reflections on the appropriate national forms for mourning the genocides of indigenous populations, the resuscitation of slavery, and the presence of female voices in the act of commemoration.⁸ These contributions have designated the monument as a site of cultural debate rather than a symbol of shared national values and ideals. With the decline of the monument, the archive has acquired discursive currency as a potential space to restore the memories of those who have been overlooked. As such, the archive seems to have revived some of the functions of the monument while fundamentally impinging on the power of the sculptural monument and sculpture more generally.

This part focuses on a generation of artists who use digital technologies to reveal the problematic power structures inscribed into traditional sculptural and archival forms, while simultaneously using these forms as a means to restore and open alternative sites of commemoration. Despite their proximity to discourses on archives, the works featured in this chapter bring sculptural qualities once again to the fore. Morehshin Allahyari and her colleagues engage with the sculptural functions once assigned to monuments to propose alternative ways of corporealizing remembrance.

Contemporary artists' use of 3D technologies for sculptural purposes requires a fundamental reassessment of the resulting works' specific monumentality. Surprisingly, there has been hardly any work on the theory underlying this transformation. This chapter will address this discursive blind spot by rethinking the function of sculpture as a monument *vis-à-vis* its expansion through the archive on the one hand and 3D technologies, augmented reality, and the internet on the other.

The goal of this final part is thus to investigate the particular monumentality that recent sculptural practices invoke. The notion of monumentality becomes uncoupled from the idea of the colossal, oversized, and imposing, in favour of the etymological origin of the word 'monument' in Persian, یادبود (*yādbūd*). In a literal sense, this can be translated as an 'aid to

7 See James E. Young, 'Twentieth-century countermonuments', in Michael Kelly (ed.), *Encyclopedia of Aesthetics* (New York, New York: Oxford University Press USA, 1998), 276.

8 See for example Andrew Denson, *Monuments to Absence: Cherokee Removal and the Contest over Southern Memory* (Chapel Hill, North Carolina: University of North Carolina Press, 2017); Shiera S. El-Malik and Isaac A. Kamola (eds.), *Politics of African Anticolonial Archive* (Lanham, Maryland: Rowman & Littlefield, 2017); Anthony Downey (ed.), *Dissonant Archives: Contemporary Visual Culture and Contested Narratives in the Middle East* (London: I.B. Tauris, 2015); Ana Lucia Araujo, *Politics of Memory: Making Slavery Visible in the Public Space* (New York, New York: Routledge, 2012); Daniel J. Walkowitz and Lisa Maya Knauer (eds.), *Contested Histories in Public Space: Memory, Race, and Nation* (Durham, North Carolina: Duke University Press, 2009); K. S. Inglis, *Sacred Places: War Memorials in the Australian Landscape*, 3rd edn (Carlton: Melbourne University Publishing, 2008); Joanne M. Braxton and Maria Diedrich (eds.), *Monuments of the Black Atlantic: Slavery and Memory* (Münster: Lit, 2004); W. J. T. Mitchell, *Art and the Public Sphere*, 2nd edn (Chicago, Illinois: University of Chicago Press, 1993).



114 | Morehshin Allahyari, *She Who Sees the Unknown: Ya'jooj Ma'jooj*, 2017; image of 3D printed sculpture.

memory', something used as a reminder of something or someone.⁹ Allahyari incorporates the spectator in a 'memory site', a setting that imitates a sacred space for commemoration and remembrance. Her works can thus be described as proximate to monumental codes in the sense of memorial structures that aim to transmit a message. Unlike an archive's temporal focus on the past, however, Allahyari's work moves towards the development of future-oriented structures which are intended to commemorate and bring people together – in other words, to memorialize, to remind, to instruct the public, echoing the derivation of the Persian word for 'monument'.

Chapter 3.1 ('Recoding memories between diaspora, gender, and jinns') explores how Allahyari uses digital technologies and networked tools to create structures for memories. Particular attention will be paid to *Aisha/Qandisha*, the third work of her series *She Who Sees the Unknown*, based on a powerful jinn, or she-demon, from Morocco. The visual analysis will emphasize Allahyari's use of digital technology, with artistic strategies such as archiving, storytelling, and refiguring playing a central role in the conception of her works. The chapter then traces Allahyari's different memory assemblages, their gendered and diasporic dynamics, and how these materialize in the artist's work. It thus presents Allahyari as a mnemological artist – an artist who works within and engages with the field of memory.¹⁰

9 My sincere thanks to Dr Zahra Samareh – a translation researcher, authorized translator, and sworn interpreter for Persian – for providing generous support with the spelling, translation, and transliteration of the Farsi words in this chapter.

10 Anna Reading introduces the notion of the 'mnemologist' as a scholar who 'has a particular interest in memory and the ways in which cultural memory is articulated and mobilized, defining herself by working



115 | Morehshin Allahyari, *She Who Sees the Unknown: The Laughing Snake*, 2018; installation with 3D printed sculpture, mirrors and hypertext narrative. Installation view, Hunter College, New York.

In Allahyari's work, memories assume an aesthetic and embodied form.

Chapter 3.2 ('Sculpting the archive') therefore investigates the relationships between the memorial, the sculptural, and the archival in Allahyari's practice as forms of identification and cultural orientation performed in actual space and virtual space. The boundaries between the artist's own memory, the artwork, and its documentation are thereby rendered unstable. By highlighting the dynamics around remembering, archiving, and embodying repressed memories and experiences in Allahyari's online hypertext narrative *The Laughing Snake*, the chapter situates Allahyari's practice in discourses on diasporic, digital, and living archives. Allahyari's work connects to practices by other Iranian diaspora artists, namely Nooshin Rostami, Amitis Motevalli, and Shirin Fahimi. Their sculptural works in turn build and expand on artistic notions of living and generative archives. By comparing their works to those of digital pioneers such as Lynn Hershman Leeson, Claudia Hart, and the Canadian artist Skawennati, the chapter will show that the work of Allahyari and her peers acts as a bridge between the digital and physical realms. Accordingly, their approaches surpass mere diasporic or archival artistic practices, instead pivoting towards a sculptural engagement with the codes of monuments.

within what is now memory studies.' I aim to broaden this concept to encompass artistic practices, such as those seen in Allahyari's work. See Anna Reading, *Gender and Memory in the Global Age* (London: Palgrave Macmillan, 2016), 15.

Allahyari, Rostami, Motevalli, and Fahimi use digital technologies to enact embodied places and structures for gendered and diasporic memories and histories. Their works are bound together, each employing a commemorative sculptural structure with a clear intention to recall, commemorate, and preserve the stories of SWANA women. It is this fixation on memories in sculptural modes, their embodiment in a designated form and a future-oriented artistic site that not only suggests a discussion of Allahyari's and her peers' work in the context of diasporic, living, and generative archives, but also positions their work close to monumental codes. The final chapter ('Archival monuments: Reflections on monumentality'), locates the work of Allahyari and her peers in current debates on monuments. Highlighting parallels and discontinuities, the chapter demonstrates how this group of artists builds upon and reconfigures previous art-historical discussions. In contrast to the grandeur and pomposity of nineteenth-century public sculpture's monumental representation systems, Allahyari and her peers not only appropriate the functions of monuments but also update their familiar aesthetics with newfound immediacy through digital technologies and distribution systems. By reconsidering the function of sculpture within the intersections of monument and archive, as well as through feminist and diasporic lenses, the chapter explores emerging forms of intermedial and nomadic monumentality.

The chapter concludes that it is through an intermedial, heterogeneous, nomadic – yet still sculptural – approach to monumentality that a new generation of artists has questioned monuments' capacity to both convey and erase memory. The works discussed throughout this chapter not only critically examine the tendency of monuments, archives, and digital information technologies 'to be deployed in ways that reproduce (colonial) power relations' (a tendency that Allahyari has termed 'digital colonialism').¹¹ They also remind us that history and its memory are always subjected to forms of representation and that it is through both conceptual and aesthetic confrontation with representational strategies that such heritage can be critically addressed.

3.1 Recoding memories between diaspora, gender, and jinns

Her name is Aisha Qandisha;
One of the most fearsome and honoured Jinn of the Arab world;
A demon believed to live in the waters of Fez medina.¹²

Allahyari's work *She Who See the Unknown: Aisha/Qandisha* revolves around a she-demon, also called *jinniya*, deeply rooted in the popular belief of North Morocco. This chapter examines this work as an example of Allahyari's mythological appropriations, seen in her series *She Who Sees the Unknown*. A careful visual analysis and discussion of her work's production modes highlight Allahyari's artistic strategies of archiving, visual appropriation, storytelling,

11 Morehshin Allahyari, 'Digital colonialism (2016–2019)', artist's website (date unknown), <http://www.morehshin.com/digital-colonialism-2016-2019/>, accessed 10 December 2024.

12 Allahyari, 'Aisha Qandisha: Video text'.

and refiguring. Each layer of Allahyari's artistic process hinges on memories at a personal and a collective level. Allahyari assembles, reembodies, preserves, and remediates memories linked to the historical trajectory of her jinns. In a second step, this part of the chapter traces Allahyari's different memory assemblages. It interrogates their gendered dynamics, their ties to diasporic and feminist discourses, and, most importantly, how they materialize as embodied, re-coded, and refigured through the artist's mixed-media work with sculpture, video, installation, and digital technologies.

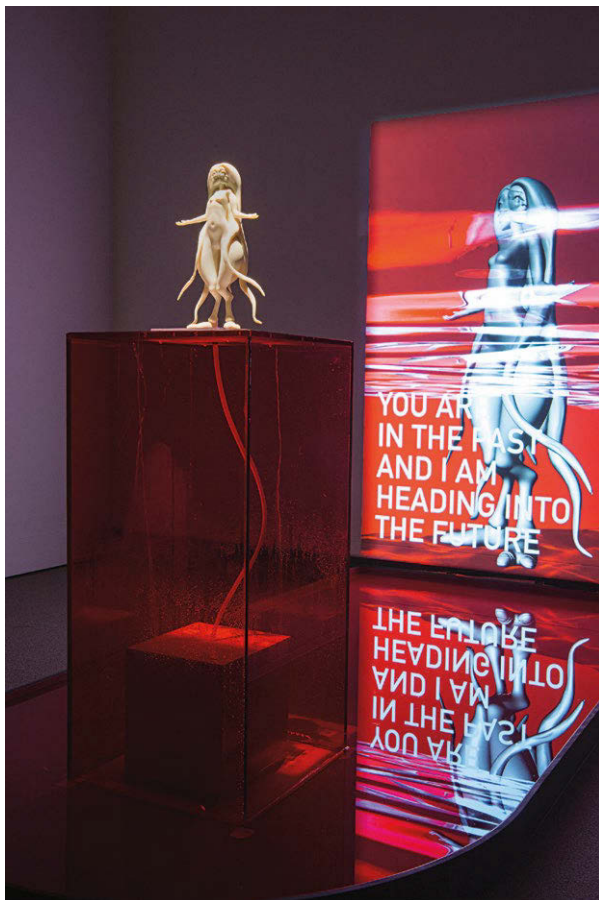
At the centre of the sculptural installation of *She Who Sees the Unknown: Aisha/Qandisha* at the MacKenzie Art Gallery in Regina, Canada, stands a small white figure on a red translucent plinth (fig. 116). The creature has two heads, each turned in opposite directions like the heads of Janus. A long mane of hair frames the two faces. At the level of the figure's hips, the hair divides into six distinct strands, with two flowing down the being's back, two down its left side, and two down its right. The strands have pointy ends that curl up slightly. The figure's arms are open and slightly bent. Like its two faces, they point to the left and right of the space. Its posture is welcoming, inviting, conciliatory, and announcing. The figure's breasts, pronounced hips, and vulva identify her as a female. Polarities define the creature's visual presence. As one's gaze descends from her seemingly welcoming demeanor and attractive beauty, a disconcerting transformation takes place in the lower part of her form. Below the knees, her body features resemble those of an animal. Her hair, moving away from the body, begins to look like a serpent or the arms of a kraken-like creature. Her ankles are positioned backward, reminiscent of a bird's, while her feet are closer to those of a hoofed creature – perhaps a donkey, goat, or camel. The thighs are parted, creating a division from the abdomen, giving the impression of a figure composed of two distinct parts: a front and a back, with a noticeable void in the centre. Despite her inviting and confident pose, there is an undertone of intimidation.

The chimera, half human and half animal, is made from white resin and sits on a red translucent plastic plinth that is placed inside an oblong basin of water. Inside the red box, a black cable runs from the centre of the plinth's top surface to a black small cube, like an umbilical cord connecting the white figure to the ground (fig. 117). A closer look reveals that the cable is used to circulate water from the basin to the inside of the plinth. There, it is pumped up to the top, where it cascades down as a small waterfall or fountain. The water basin extends from the plinth to the wall. The highly reflective surface of the water functions like a mirror that factors into the video projection on the wall behind the display.

The projection, shot at a portrait angle, begins with a view of a rippled black surface – resembling water or a dark substance like oil or blood. One hears the sound of flowing water. A queasy tune cuts through the space alongside a discomfiting, mechanical sound reminiscent of a motor. An authorial feminine voice begins to tell a story. Her inflection is reminiscent of the theatrical openings of heroic mythologies. In Allahyari's video essay, the monstrous jinn appears against a red background. She stands thigh-high in water. When positioned in front of the installation at the MacKenzie Art Gallery, the actual 3D printed figure and its projection are overlaid, object and image merging into one another. The figure's physical features are augmented by its digital counterpart. Through the projection, the



116 | Morehshin Allahyari, *She Who Sees the Unknown: Aisha Qandisha*, 2018; installation with pool, 3D printed resin sculpture and HD single-channel video with audio.



117 | Morehshin Allahyari, *She Who Sees the Unknown: Aisha Qandisha*, 2018; installation with pool, 3D printed resin sculpture and HD single-channel video with audio.



118 | Morehshin Allahyari, *She Who Sees the Unknown: Aisha Qandisha*, 2018; installation with pool, 3D printed resin sculpture and HD single-channel video with audio.

physical object is thus magnified and achieves a monumental quality. The narrator's authorial voice and the mesmerizing soundscape further contribute to this impression. The water or liquid surface of the digital projection acts as a translucent boundary between worlds. As a connector and transgressor between those realms, the 3D printed object is strategically placed at their boundary. The figure of Aisha/Qandisha serves as the marker between the underwater and terrestrial world, as well as between the physical realm of the plinth and the virtual digital world of the projection (fig. 118).

In the meantime, Allahyari's video has switched to a new scene: We now see the back of composite figure as a 3D animation standing hip-high in a red underwater world. Her peripherals are bounded by red walls that aesthetically resemble the red plinth in the physical space of the installation. The projection immerses viewers within a watery perspective, as they look up at the figure from below, seeing it on a monumental scale. Through the trans-

parent water surface, the slightly distorted back of the figure is visible, while its animal-like legs remain sharp and clear. The underwater terrain is depicted as hilly, uneven, and earthy, contrasting with the outer world's view, which appears airy, veiled, and obscured. The colour scheme of the scene has also changed; the red tones are darker, as if the figure were standing in an enclosed space such as a cavern or cave. Concurrently, Allahyari's orchestration unfolds in both virtual and physical spaces, referencing sacred Moroccan locations associated with Aisha/Qandisha – such as pits, grottos, springs, fountains, and spots where sightings have occurred.¹³ Allahyari's installation resembles such shrines, honouring both Aisha/Qandisha's destructive and yet intriguing powers.

The viewers' level of engagement, cultural background, and prior knowledge play a significant role in shaping the depth of their understanding of Allahyari's work. A Western, white female spectator, lacking notable knowledge of Arabic mythology and jinnealogy – much like the author of this book – may initially find it challenging to grasp all the facets and nuances of Allahyari's work. Nevertheless, Allahyari's artistic engagement actively encourages dialogue. The radical symmetry of the installation – emphasized by the figure's two faces, her stretched-out arms, and her reflections in the surrounding water – radiates the figure's importance. Even without any previous knowledge of narratives of the jinn, Allahyari's work sensitizes viewers to its significance and influence in the Arabic world. The artwork incorporates the spectator in an intermedia setting that imitates a sacred space. Each of its elements, ranging from the sculptural object of Aisha/Qandisha to its digital projection accompanied by written and spoken text, seems to function as both a repository and a transmitter. It indicates the artist's conscious decision to preserve and transmit knowledge and memories to the work's audience – on both personal and collective, as well as historical and contemporary levels surrounding the jinn Aisha/Qandisha. In this light, Allahyari's work can also be interpreted as a sculptural framework for various intersecting memories.

Allahyari's artistic process unfolds through multiple steps. Beginning with research and exploration of archival sources related to the monstrous figure of Aisha/Qandisha, she visually appropriates and sculpts her subject using 3D technologies, drawing inspiration from ancient representations. Additionally, Allahyari captures and recounts Aisha/Qandisha's stories through feminist storytelling strategies, thereby reshaping gendered memories associated with Aisha/Qandisha for contemporary contemplation. These artistic strategies will be introduced below and situated within discourses on memory.

Archival work

Allahyari considers her series *She Who Sees the Unknown* – one of the five figures of which is *Aisha/Qandisha* – a 'long-term research-based project'.¹⁴ The process begins with the artist's research, involving the gathering of images and texts from Islamic mythical resources, academic journals, lexica, and books that delve into narratives about jinns. At the McKen-

13 See Vincent Crapanzano, *The Hamadsha: A Study in Moroccan Ethnopsychiatry* (Berkeley, California: University of California Press, 1973), 145.

14 Allahyari, 'She Who Sees the Unknown'.



119 | Morehshin Allahyari, *Maktabkhaneh (Reading Room)*, 2019; installation with books, articles, images on iPad, carpet, cushions and archival images on vinyl. Installation view, MacKenzie Art Gallery, Regina (Canada).



120 | Morehshin Allahyari, *She Who Sees the Unknown*, 2016–present; screenshot from website <http://shewhoseestheunknown.com/>.

zie Art Gallery, these research materials are exhibited alongside the installation in a separate reading room area (fig. 119) and can be accessed online on the project's webpage www.shewhoseestheunknown.com (fig. 120). Depending on the viewer's inquisitiveness or their prior knowledge and dedication to Allahyari's project, they will either be able to appreciate these equally significant layers within her work or will miss out on a deeper understanding of Aisha/Qandisha's and the other jinns' intriguing backgrounds.

Research literature describes Aisha/Qandisha as a she-demon or *jinniya*, a jinn who lives in bodies of water.¹⁵ In his book *Ritual and Belief in Morocco* (1926), the Finnish sociologist Edvard Westermarck has listed the various stories surrounding the appearance of Aisha/Qandisha, demonstrating how deeply rooted and significant she is in Arabic popular belief, especially in Morocco.¹⁶ According to his sources, Aisha/Qandisha is described as a woman with a face covered by her long black hair.¹⁷ The female jinn 'appears as a grown up woman with a beautiful face, but she also has been seen with legs of a goat or an ass, or with the legs of a woman and the body of a she-goat with long pendant breasts.'¹⁸ Her strong libido makes her distinct from other jinns, except those that appear to be variants of her.¹⁹ She is a shape-shifter like the class of jinns called *la-hraij*, who take on animal or human shapes.²⁰ The verb *hrej*, which translates to 'come out', links to her emergence from a watery abode. The jinn's goal is to seduce handsome (bathing) men, madden them, and then kill them. It has been reported that she also approaches married men, namely in the shape of their wives, then takes their lives.²¹ References to water in actual and virtual form thus dominate Allahyari's installation, alluding to Aisha/Qandisha's strategy of attacking, seizing, and killing. Additionally, these references connect to various religious practices associated with the belief in her. Once again, this aspect of the work becomes truly appreciable only once one is familiar with the existing legends of the jinns.

Almost all figures in Allahyari's series involve detailed reconstructions based on illustrations from *The Book of Felicity* – an illustrated manuscript commissioned by the Ottoman sultan Murad III in 1582 – and *The Book of Wonders* – a fourteenth-century Arabic manuscript compiled and illustrated by Abd al-Hasan al-Isfahani (fig. 121). The illustration forming the visual basis for the reconstruction of Aisha/Qandisha, however, is sourced from the internet without a traceable origin (fig. 122). The image resembles those illustrations from the an-

15 See Manfred Lurker, *The Routledge Dictionary of Gods, Goddesses, Devils and Demons*, 2nd edn (London: Routledge, 2004), 157; Edvard Westermarck, *Ritual and Belief in Morocco* (London: Macmillan & Co, 1926), 392; Crapanzano, *The Hamadsha*, 44.

16 'A Moorish friend reports, his mother would warn him against the djinn when swimming in the sea. "It is from the sea that she ascends to the cave of Rmelqâla". According to a woman in Tsul, she emerged from a spring. There are other stories that locate her in a river near Tetuan, in the rivers Bou-Regreg and Sebou or in the sewers of Fez, where she appears as an ugly old female with hanging breasts.' Westermarck, *Ritual and Belief in Morocco*, 392–393.

17 See Westermarck, *Ritual and Belief in Morocco*, 395.

18 Westermarck, *Ritual and Belief in Morocco*, 392.

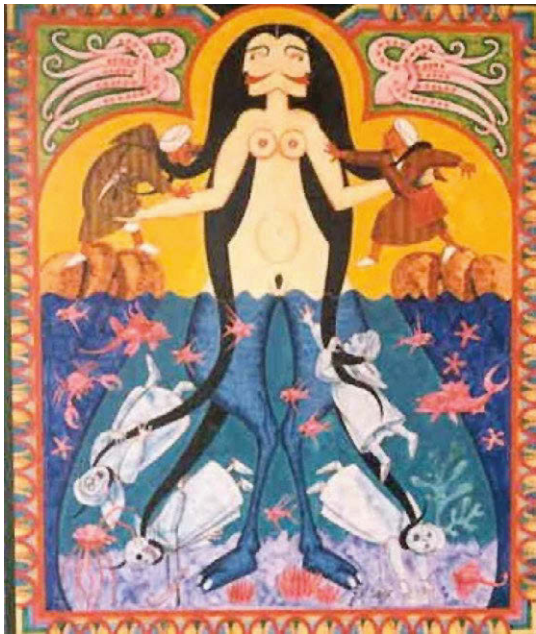
19 See Crapanzano, *The Hamadsha*, 143.

20 See Westermarck, *Ritual and Belief in Morocco*, 393.

21 See Westermarck, *Ritual and Belief in Morocco*, 393.



121 | Allahyari with source materials outside her office at the School of Poetic Computation.



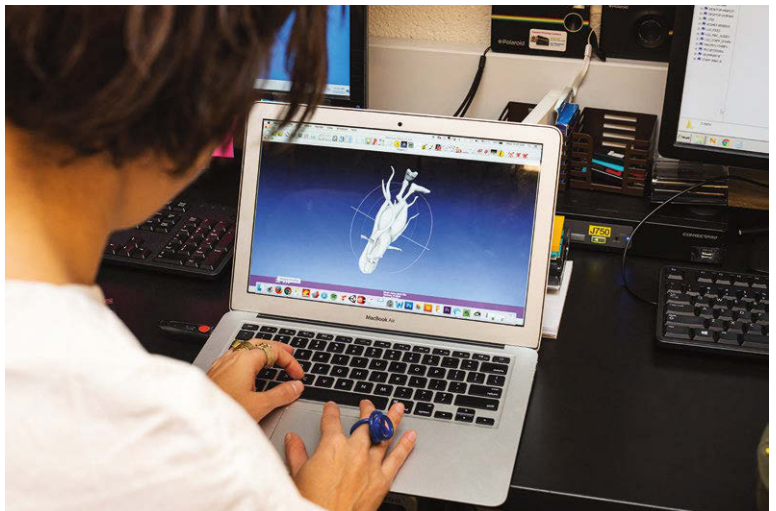
122 | Aisha Qandisha, illustration from unidentified manuscript. Used as one of the references for Allahyari's work; measurements and source unknown.

cient books showing a monstrous figure characterized by the same outstanding features as Allahyari's description. She is naked, and her two faces are poised to the left and right. She has pronounced hips that form an opening between her legs, long hair, and, most importantly, hooves. The six strains of her kraken-like hair have twisted around the necks of six men. Four ethereal, white, ghost-like creatures float just beyond the water's surface, appearing either deceased or half-alive. Two men situated above the water seem poised to be enticed below. The female figure firmly holds them in her hands, while her hair gradually wraps around their necks. The vibrant scene is framed by red sea creatures, including fish, sea stars, a crab, corals, and two octopuses.

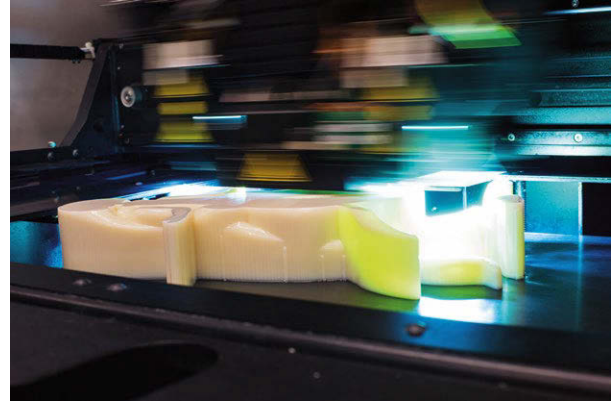
Production

Allahyari translates the two-dimensional illustration into a three-dimensional object using a number of different digital technologies that range from 3D animation programmes to 3D printing. For her installation, the artist initially sculpts *Aisha/Qandisha* digitally, using the programme ZBrush, thus bestowing upon the flat drawing a three-dimensional body in virtual space (fig. 123). Allahyari's reconstruction of *Aisha/Qandisha* then achieves a physical presence through 3D printing (fig. 124). The print is treated further by the artist's hand (fig. 125), which removes any remaining support material or residue.

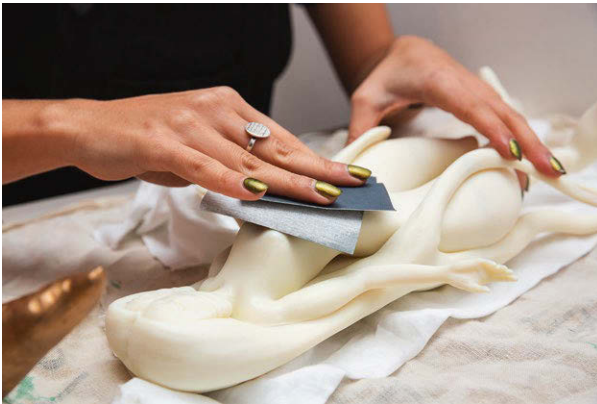
The physical representation and appropriation of *Aisha/Qandisha* are further augmented by a virtual sculpted version of the jinn, reintroduced in Allahyari's video essay. The dynamic visuals are animated using the software Maya, extending the three-dimensional and sculptural-tactile aspects of her work into a four-dimensional, time-based, and narrative quality. Her elaborate skill of storytelling thus becomes most evident through the video essays accompanying her 3D printed sculpture.



123 | Allahyari builds 3D models in ZBrush and Maya software.



124 | Aisha Qandisha sculpture during the printing process on the Stratasys J750 printer at New York University's LaGuardia Studio. Each figure takes 15–25 hours to print.



125 | Allahyari sands the resin Aisha Qandisha sculpture.

Storytelling

If Allahyari's project begins with strategies of archival research, visual appropriation, and sculptural embodiment, creative writing and storytelling also form an important pillar of her work. Allahyari attended private creative writing and storytelling classes in Tehran from the age of twelve until she was eighteen. According to the artist, these classes were the starting point for her artistic practice and first contact with the art world.²² Storytelling forms an integral part of historical Persian memory culture and identity. In the Sassanid era, for example, storytelling was used as a remedy for patients in the Gondishapur School of Medicine's prehistoric hospital.²³ Moreover, stories were read to royal family members from their early

22 See Daniel Rourke, 'Artist profile: Morehshin Allahyari', *Rhizome* blog (31 January 2014), <https://rhizome.org/editorial/2014/jan/31/artist-profile-morehshin-allahyari/>, accessed 13 December 2024.

23 See Mohammad-Hossein Azizi, 'Gondishapur School of Medicine: The most important medical center in antiquity', *Archives of Iranian Medicine* 11, no. 1 (January 2008), 116–119, doi: 08111/AIM.0023.

years, subtly imparting lessons on proper manners and discipline.²⁴ Storytelling also formed one of the pillars of traditional Persian theatrical genres such as *ta'ziya*, in which stories are conveyed through music, recitation, and costumed reenactors.²⁵ As Allahyari grew up in a Persian-speaking home, stories featuring jinns and usually male heroes such as Rostam, Siavash, Iskandar, and Amir Arsalan played an essential role in her childhood. These stories continue an oral storytelling tradition that dates back centuries and has deeply influenced the visual arts.²⁶

In his pioneering 1925 book *Les Cadres Sociaux de la Mémoire* ('The social frames of memory'), Maurice Halbwachs conceptualized the social dimension of individual memory, reminding us that an individual's memories are always situated within their sociocultural context.²⁷ In turn, cultural formations are based on a 'collective memory' of symbols, media, institutions, and social practice that convey versions of a shared past and are significant in shaping an individual's awareness of selfhood and identity.²⁸

It is clear that both Allahyari's memories and the sociocultural context in which her act of remembrance is situated play a significant role, as expressed in the artist's opening statement on her project's webpage:

My upbringing in Iran was full of ancient mythical narratives, all involving extraordinary and supernatural beings. My bedtime stories of childhood, told often by my grandmother, were about her memories of encounters with jinn, usually in the public bathhouse of her village.²⁹

Within Persian storytelling culture, the *Shahnameh* or *Shahnama*, an epic poem that recounts the history of pre-Islamic Persia, is the most significant continuation of the age-old tradition of storytelling in the SWANA regions.³⁰ The *Shahnameh* is an important example of the revered status poetry has enjoyed in Iranian culture from the Middle Ages to today. It is one of the three historical texts that form the basis for Allahyari's storytelling and the writing of her series *She Who Sees the Unknown*. Her incorporation of it forges a significant connection between past and present in her work.

The *Shahnameh* is composed of 50,000 rhyming couplets. It contains 62 stories, told in 990 chapters, and is divided into three distinct ages: the mythical, the heroic, and the historical. In 977, Firdawsī Tūsī (940–1020), also transliterated Ferdowsi, commenced the creation of

24 See Erika Friedl, *Folktales and Storytellers of Iran: Culture, Ethos and Identity* (London: I. B. Tauris, 2014), 65.

25 See Linda Komaroff, 'Time and again: The intersection of past and present in Iranian art', in Linda Komaroff (ed.), *In the Fields of Empty Days: The Intersection of Past and Present in Iranian Art* (Los Angeles, California: Prestel, 2018), 12.

26 For more information on the importance of storytelling across Persian cultures and how it intersects with visual arts, see Julia Rubanovich (ed.), *Orality and Textuality in the Iranian World: Patterns of Interaction across the Centuries* (Leiden: Brill, 2015).

27 See Maurice Halbwachs, *Les Cadres Sociaux de la Mémoire* [The social frames of memory] (Paris: Librairie Félix Alcan, 1925), IX.

28 See Halbwachs, *Les Cadres Sociaux de la Mémoire* [The social frames of memory], XI.

29 Allahyari, 'She Who Sees the Unknown'.

30 See Hamid Dabashi, *The Shahnameh: The Persian Epic as World Literature* (New York, New York: Columbia University Press, 2019).

this epic poem. His primary source was a prose translation of an earlier work, the *Xvatynamk* or *Xadāynāmag*, from the later centuries of the pre-Islamic Sassanid era (224–651).³¹

The surviving illuminated versions of the book are sumptuous examples of Persian miniature paintings.³² The *Shahnameh* is more than a mere poetic creation; it is frequently acknowledged as a blend of historiography, folklore, and cultural identity, making it a significant component of cultural memory.³³ The *Shahnameh* has directly affected the epic and poetic works of Persian poets and artists to the present. It is thus not surprising that the legacy of this poetic work forms an integral part of the cultural memory that Allahyari accessed for the conceptualization of her work.

The German scholars Aleida and Jan Assmann coined the term 'cultural memory' to describe a type of memory connected to material manifestations, such as images, texts, or works of art. Cultural memory pertains to memories that are objectified and institutionalized, capable of being stored, transmitted, and reintegrated across successive generations.³⁴ 'The concept of cultural memory comprises that body of reusable texts, images, and rituals specific to each society, in each epoch, whose "cultivation" serves to stabilize and convey that society's self-image. Upon such collective knowledge, for the most part (but not exclusively) of the past, each group bases its awareness of unity and particularity,' Jan Assmann writes.³⁵ The Assmanns thereby distinguished and refined Halbwachs' notion of 'collective memory' by subdividing it into 'cultural' and 'communicative memory', to examine the distinct forms of transmission of memory.³⁶ While 'cultural memory' is linked to objectified memory, 'communicative' memory designates acts of transmission of memory in everyday oral practices.

The equal significance of cultural and communicative memory in Persian cultural transmission is evident in the ongoing practice that stories from the *Shahnameh* are regularly narrated by professionally trained storytellers, known as *naqqāl* (male) or *naqqāla* (female). *Naqqāli*, the oldest art of storytelling in Persian folklore, traces its origins back to the Parthian Empire (247 BCE–224 CE), reaching its pinnacle during the Safavid era (1501–1736). The

31 See Hiran Dinavari, 'Epics and storytelling in Persianate lands and a Persian language tradition: 4 corners of the world: International Collections and Studies at the Library of Congress,' *Library of Congress* blog (24 July 2017), <https://blogs.loc.gov/international-collections/2017/07/epics-and-storytelling-in-persianate-lands-and-a-persian-language-tradition/>, accessed 12 December 2024.

32 See Robert Hillenbrand (ed.), *Shahnama: The Visual Language of the Persian Book of Kings* (Aldershot: Routledge, 2004), 3.

33 For the relationship between *Shahnameh* and Iranian identity, see A.A.F. Khatibi, 'Iranian identity in the *Shahnameh*,' *Nameh-Ye Farhangestan* 8, no. 432 (1 January 2007), 69–76; Nasrin Naraghi, 'Shahnameh: The layering of Iranian identity and cultural influences,' *Nasrin Naraghi* blog (date unknown), <https://www.nasrin-naraghi.com/articles/shahnameh-the-layering-of-iranian-identity-cultural-influences/>, accessed 13 December 2024; Nematollah Fazeli, *Politics of Culture in Iranian Anthropology, Politics and Society in the Twentieth Century* (London: Routledge, 2006); Hillenbrand, *Shahnama*.

34 Jan Assmann, 'Communicative and cultural memory,' in Astrid Erll, Ansgar Nünning, and Sara Young (eds.), *Cultural Memory Studies: An International and Interdisciplinary Handbook* (Berlin: De Gruyter, 2008), 110–111.

35 Jan Assmann, 'Collective memory and cultural identity,' tr. John Czaplicka, *New German Critique* 65 (Spring–Summer 1995), 132, doi: 10.2307/488538.

36 Assmann, 'Communicative and cultural memory,' 110.

incorporation of legends from the *Shahnameh* has elevated *naqqāli* to a prominent medium for the dissemination of Iranian myths and cultural values, occurring across bazaars, coffee houses, and communities with limited formal education.³⁷ *Naqqāls* traveled with what are known as *pardeh* – paintings depicting key scenes from the stories they narrated. They revealed these scenes one by one while engaging in storytelling and performing. The combination of narration with visual aids, represented by changing images mounted on screens, also positioned *naqqāli* as a pre-theatrical form, arguably akin to cinema.³⁸ Allahyari's video essays for *Aisha/Qandisha*, *Ya'jooj Ma'jooj*, and *Huma* not only borrow the jinns' stories and figurations from these ancient scripts. They also appear to imitate the visual and narrative history of Persian storytelling by paralleling or superimposing spoken word, text, and images together in the form of a digital animation.

Recognized as UNESCO intangible cultural heritage, *naqqāli* encompasses numerous artistic and performative elements, leading some scholars to posit its significant influence in shaping the development of theatre and contemporary plays.³⁹ The *naqqāl*, as the performer, narrates stories using a combination of verse or prose, incorporating gestures and movements, and occasionally complemented by instrumental music and illustrated scrolls.⁴⁰ *Naqqāls* serve dual roles as both entertainers and custodians of Persian literature and culture. They must be well-versed in local cultural expressions, languages, and dialects, as well as traditional music.

Without explicitly referring to *naqqāli* as a source of influence, Allahyari's performative recounting of ancient myths and the stories of her jinns is informed by the same sources. Moreover, it involves similar techniques in the artist's storytelling that may have subconsciously resonated in her mind with the *naqqāls'* methods. Parallels are most obviously present in Allahyari's performances, such as *Breaching Towards Other Futures* (2018), created with the artist Shirin Fahimi. These extend beyond the confines of time and space to connect and ground the present-day and the Persian past. Yet, one can also observe these parallels in the video essays accompanying *She Who Sees the Unknown*. Each video essay commences with an authorial female-sounding voice, delivering a poetic recounting of the respective jinn's origin from a third-person perspective. These narratives are complemented by moving images depicting the jinns themselves.⁴¹ Interweaving past and present, Allahyari appropriates

37 See Saeed Talajooy, 'Indigenous performing traditions in post-revolutionary Iranian theater', *Iranian Studies* 44, no. 4 (2011), 497.

38 See Talajooy, 'Indigenous performing traditions in post-revolutionary Iranian theater', 497.

39 UNESCO, 'Naqqāli, Iranian dramatic story-telling', *UNESCO Intangible Cultural Heritage List* website (date unknown), <https://ich.unesco.org/en/USL/naqqli-iranian-dramatic-story-telling-00535>, accessed 16 December 2024.

40 See Talajooy, 'Indigenous performing traditions in post-revolutionary Iranian theater'.

41 See Morehshin Allahyari, 'She Who Sees the Unknown: Huma (Video Excerpt) – 2016' [video], *Vimeo* (13 June 2019), <https://vimeo.com/342057560>, accessed 10 December 2024; Morehshin Allahyari, 'She Who Sees the Unknown: Ya'Jooj, Ma'Jooj (Video Excerpt) – 2017' [video], *Vimeo* (13 June 2019), <https://vimeo.com/342063763>, accessed 10 December 2024; Morehshin Allahyari, 'She Who Sees the Unknown: Aisha Qandisha (Video Excerpt) – 2019' [video], *Vimeo* (13 June 2019), <https://vimeo.com/342079010>, accessed 10 December 2024; Morehshin Allahyari, 'She Who Sees the Unknown: Kabous, The Right Witness,

and recontextualizes past traditions within the context of the present. In his book *Iran: A People Interrupted*, Hamid Dabashi explains the importance of storytelling and poetic work in Iranian culture today. He thus offers an intriguing framework for the reading of Allahyari's work:

Iranians take poetry quite seriously – a habit that tends to lend a certain poetic diction to our historical recollections, the way we remember ourselves. If jazz is the cadence of American culture, as Robert O'Meally has put it recently in the title of his magnificent volume on the subject, then Persian poetry is the pulse of Iranian culture, the rhyme and rhythm of its collective memory. It is said that what Muslims do is not memorize the Qur'an but Qur'anify their memory. If that is what Muslims do, then that must be what Iranians do too with their poetry, when they remember their past as the poetic resonance of their present – in fact, of their presence in history.⁴²

Astrid Erll, one of the leading figures of memory studies, describes 're-membling' as 'an act of assembling available data that takes place in the present'.⁴³ As such, any active engagement with the past, such as that undertaken by Allahyari, is always already performative rather than reproductive. In Dabashi's words, remembering the past is always already a 'poetic resonance'.⁴⁴

Refiguration

Allahyari's act of remembering, in crucial distinction to the work of a *naqqāl*, goes beyond a merely traditional Persian recounting of myths. In her act of remembering, Allahyari not only assembles, absorbs, and retells cultural memories in the form of mythological stories but also appropriates, refashions, and reworks them using digital media. Allahyari's act of remembering blurs fiction and history, along with individual and collective or cultural and communicative memories. Allahyari not only remembers, she refigures. Doing so allows her to address acts of cultural forgetting, exclusion, and oppression, not only exposing their intricate gendered characteristics but also altering and influencing such patterns for future acts of remembrance.

In an interview, Allahyari says:

For me, re-figuring is going back and re-imagining the past so that we can create and re-imagine alternative futures and worlds; so that we can collapse the political notion of linear space and time as an act of resistance. Re-figuring is a ficto-feminist and activist practice to reflect on the effects of historical and digital colonialism and other forms of oppression and catastrophe.⁴⁵

and The Left Witness (2d Video Excerpt)' [video], *Vimeo* (26 February 2020), <https://vimeo.com/393977901>, accessed 10 December 2024.

42 Hamid Dabashi, *Iran: A People Interrupted* (New York, New York: New Press, 2007), 13.

43 Astrid Erll, *Memory in Culture*, tr. Sara B. Young (Basingstoke: Palgrave Macmillan, 2011), 7.

44 Dabashi, *Iran*, 13.

45 Morehshin Allahyari and Christiane Paul, 'Re-figuring ourselves: A conversation', in Joasia Krysa (ed.), *Beautiful World, Where Are You?* (London: Art Books Publishing, 2018), 2.

The approach of re-figuring can be situated in historical continuity with numerous feminist thinkers who have employed storytelling, fiction, and myth-making as tools to unveil social, physical, or historical disparities. In doing so, these thinkers have emphasized alternative perspectives and models of reality distinct from dominant narratives, a practice known as 'fictioning'.⁴⁶ Allahyari mobilizes such feminist storytelling strategies as a form of world-building that also manifests in the spatial experience of her installation as a whole.

World-building is especially associated with the writing of fantasy and science fiction. It refers to the invention of imaginary places, societies, and worlds, a practice that foregrounds the alternate realm rather than any plot or specific action that occurs there. On a large scale, such practices look beyond the production of scenes and groups and, instead, develop fictions or models of new communities and societies on a planetary scale – referred to as 'worlding'. Feminist worlding can be described as a world-building practice 'that produces more than designs – that, in particular, addresses how relations between entities and things actually become manifest and have continuity'.⁴⁷ For Haraway, worlding has the potential to 'ope[n] up what is yet-to-come in protean entangled times' pasts, presents, and futures.⁴⁸ Haraway not only considers what worlds are created but also emphasizes how they are made. The questions of ethics, the process of bringing fictions and worlds into existence, and their production permeate Haraway's works, epitomized in her famous mantra:

It matters what matters we use to think other matters with; it matters what stories we tell to tell other stories with; it matters what knots knot knots, what thoughts think thoughts, what descriptions describe descriptions, what ties tie ties. It matters what stories make worlds, what worlds make stories.⁴⁹

Allahyari often quotes Haraway's writings, identifying her as an important influence on her practice and, in particular, on her concept of re-figuring. In *Monsters, Simians, Cyborgs*, Haraway speaks of the critical-creative potential of monstrous creatures. By acting as bridges that 'refigure the persons we might be', they act as destabilizing figures, creating alternative worlds or 'multiplicities outside the geometry of part/whole constraints'.⁵⁰ Their 'power-differentiated and highly contested modes of being become in her reading 'signs of possible worlds' that may show how we can 'transform the relations of same and different, self and

46 For some of the most comprehensive overviews of fictioning in contemporary culture, see David Burrows and Simon O'Sullivan, *Fictioning: The Myth-Functions of Contemporary Art and Philosophy* (Edinburgh: Edinburgh University Press, 2019); Jon K. Shaw and Theo Reeves-Everson (eds.), *Fiction as Method* (Berlin: Sternberg Press, 2017); Henriette Gunkel, Ayesha Hameed, and Simon O'Sullivan (eds.), *Futures and Fictions* (London: Repeater Books, 2017).

47 Burrows and O'Sullivan, *Fictioning*, 257.

48 Donna J. Haraway, 'SF: Science fiction, speculative fabulation, string figures, so far', *Ada New Media* 3 (November 2013), <https://scholarsbank.uoregon.edu/items/35104f75-a1b0-4e54-b8f0-1e7976df5fb8>, accessed 12 December 2024.

49 Donna J. Haraway, *Staying with the Trouble* (Durham, North Carolina: Duke University Press, 2016), 12.

50 Donna J. Haraway, *Simians, Cyborgs and Women: The Reinvention of Nature*, reprint edn (London: Free Assn Books, 1991), 3.

other, inner and outer, recognition and misrecognition into guiding maps for inappropriate/d others.⁵¹

In their book *Between Monsters, Goddesses and Cyborgs*, present in the reading room of Allahyari's *She Who Sees the Unknown*, Nina Lykke and Rosi Braidotti develop Haraway's ideas further. In their introduction, they identify the monster, the goddess, and the cyborg as representations of boundary phenomena, as liminal and thus as challenging to established normative orders.⁵² Each puts forward a concept that rejects boundaries, notably those separating the human from the non-human, the animal, the machine, and the vegetal.

Braidotti and Lykke, interpreting Bruno Latour, suggest that modernity involves a process of purification, establishing a distinct separation between the human and non-human realms. This process has resulted in the extensive suppression of the monstrous, which persists beneath the surface of the human world. Any emergence or hybridization poses a threat to this construct, necessitating classification as either human or non-human. Consequently, individuals outside the dominant hegemony of the white Western man are labelled as non-human, relegating them to mere objects and fostering hierarchical and exploitative relationships between human subjects and non-human objects.

The 'promise of the monster' presents Braidotti and Lykke with a way out of this position. Monsters, as well as cyborgs and goddesses, transgress the divisions of worlds, opening up sites for non-suppressive conversations and an opportunity 'for creating embodied and never unambiguous sites for displacing and transforming actions on many levels.'⁵³

Allahyari adopts the feminist interpretation of monstrous creatures as symbols of refiguration in her own work with jinns. In folklore, her jinns, such as Aisha/Qandisha, embody supernatural beings that blend elements of animals and humans, goddesses and monsters. Conceptually, they transcend a Western feminist framework, serving to explore Allahyari's diasporic identity as an Iranian woman residing in the US. She writes:

When jinn[s] possess humans, they guarantee an utter openness. A new kind of entrance, portal, and arrival to the outside. For me, this is what makes them attractive candidates for an act of Re-Figuring.... When thinking about technology, potential futures and new worlds, it is perhaps time to think outside of Donna Haraway's concept of the 'cyborg' in order to stretch our imagination to a new set of figures that do not come from white/western knowledge structures. If Haraway claimed to be 'a cyborg rather than a motherly/earthy goddess', I claim to be a jinn rather than a cyborg.⁵⁴

Her act of remembering and re-figuring jinns becomes Allahyari's way to re-inscribe the stories of women from the SWANA region and, to use Dabashi's words once again, '[their] past

51 Haraway, *Simians, Cyborgs and Women*, 3–4.

52 See Nina Lykke and Rosi Braidotti, *Between Monsters, Goddesses, and Cyborgs: Feminist Confrontations with Science, Medicine, and Cyberspace* (London: Zed Books, 1996), 4.

53 Lykke and Braidotti, *Between Monsters, Goddesses, and Cyborgs*, 16.

54 Allahyari, 'She Who Sees the Unknown'.

as the poetic resonance of their present – in fact, of their presence in history.⁵⁵ While Hara-way's or Braidotti's feminist worlding rejects human exceptionalism to focus on multi-species narratives encompassing the mineral, the vegetal, and the animal, Allahyari's *She Who Sees the Unknown* focuses on the upsetting inequalities, orders, and hierarchies of human communities. Her work is intended 'to remind women, femmes, the people of the Middle East that our figures and our stories, fictional and actual, matter – not just for the present but for claiming an alternative future that is not exclusively white or western.'⁵⁶

Her statement can be situated within a strain of intersectional feminist theory critiquing forms of 'hegemonic feminisms' that universalize and/or essentialize. These hegemonic feminisms erase the differences among women. Through self-reflective critique of second- and third-wave feminist writings, a number of contemporary scholars have highlighted that liberal humanist notions of 'equality' obliterate the 'precise historical, economic, and cultural conditions under which such terms might in fact be viable (by assuming that suffrage or an open-admission policy would be in effect a sufficient condition of equality)'.⁵⁷ Intersectional thinkers, including Audre Lorde, Kimberlé Williams Crenshaw, bell hooks, Patricia Hill Collins, Marie-Claire Belleau, Beverly Guy-Sheftall, Gloria E. Anzaldúa, Esther Ngan-ling Chow, and Tan Lin, have devoted their research to scrutinizing the intersecting systems of oppression and discrimination that women face based on their race, class, sexual orientation, gender identity, and economic background.⁵⁸ Their writings encompass powerful critiques of Western feminist theory's tendency to write about global women of colour in generalizing and homogenizing terms which neglect the specific forms of oppression such women experience informed by their geography, culture, and history.⁵⁹

Furthermore, post-colonial theorists such as Edward Said, Sally Price, Marianna Torgovnick, James Clifford, Nikita Dhawan, and Denise Ferreira da Silva have examined how schol-

55 Dabashi, *Iran*, 13.

56 e-flux, 'Morehshin Allahyari: "She Who Sees the Unknown: The Laughing Snake"', *e-flux Agenda* blog (24 September 2018), <https://www.art-agenda.com/announcements/216308/morehshin-allahyarishe-who-sees-the-unknown-the-laughing-snake>, accessed 10 December 2024.

57 Vicki Callahan, *Reclaiming the Archive: Feminism and Film History* (Detroit, Michigan: Wayne State University Press, 2010), 360.

58 Crenshaw, citing nineteenth-century American black feminists Anna Julia Cooper, Maria Stewart, and Sojourner Truth, followed by Angela Davis and Deborah King, argues that the concept of intersectionality predates her work. Kimberlé Crenshaw, 'Demarginalizing the intersection of race and sex: A Black feminist critique of antidiscrimination doctrine, feminist theory and antiracist politics', *University of Chicago Legal Forum* 139, no. 1 (1989) 139–167, available at <https://chicagounbound.uchicago.edu/uclf/vol1989/iss1/8>; see also bell hooks, *Feminist Theory from Margin to Center* (Boston, Massachusetts: South End Press, 1984); Beverly Guy-Sheftall, *Words of Fire: An Anthology of African-American Feminist Thought* (New York, New York: New Press, 1995); Gloria Anzaldúa, *Borderlands/La Frontera: The New Mestiza*, 4th edn (San Francisco, California: Aunt Lute Books, 2012); Cherrie Moraga and Gloria Anzaldúa (eds.), *This Bridge Called My Back: Writings by Radical Women of Color*, 4th edn (Albany, New York: SUNY Press, 2015); Patricia Hill Collins, *Black Feminist Thought: Knowledge, Consciousness, and the Politics of Empowerment*, 2nd edn (New York, New York: Routledge, 2009); Audre Lorde, *The Audre Lorde Compendium: Essays, Speeches and Journals* (London: Pandora, 1996).

59 See Chandra Talpade Mohanty, 'Under Western eyes: Feminist scholarship and colonial discourses', *Feminist Review* 30 (1988), 61–88, doi: 10.2307/1395054.

ars tend to mistake 'European' and 'North American' for 'universal'. As a result, scholars tend to develop aesthetic criteria that marginalize and exclude the distinctive characteristics of other cultures.⁶⁰ Haraway's approach to worlding centres on crafting narratives that address difficult (or troubling) questions and that embrace kin of all kinds (rather than just human-kind). Allahyari, in contrast, aligns with intersectional inquiries that redirect their focus to women, femmes, and the queer community, shedding light on the oppressive systems each group contends with. Her work's starting point is her experience as an Iranian woman living in the US. The constant blurring and permeating of both personal and collective experiences and memories in her work thus also attests to the artist's own liminal and hybrid identity.

Diasporic memories

Within this contested landscape, the figures of Allahyari's series – liminal as they are – suggest parallels with Allahyari's diasporic identity, an identity that like her jinns' chimerical nature dwells at the point between different worlds. Both Allahyari and her jinns are, in a manner of speaking, neither one thing nor the other. This self-identification of the artist with the protagonist of her works is suggested in an interview with Christiane Paul:

When I first immigrated to the US from Iran in 2007, a lot of my work was about the experience of censorship in Iran and self-exile as a response to oppression that I experienced growing up. But then, after some years, I wanted to figure out how to connect my life as an immigrant in the US to my background of growing up in Iran, to the world around me as I lived/struggled through it. For me, the answer wasn't to make work directly about my identity but rather to find elements and stories that were poetic, personal and collective, then find ways to connect them to issues that were of concern to me. So as much as my work comes from a personal place, it also tries to avoid the simple binary representations of who I am (a woman/woman of colour/woman of colour from Iran, etc.) and how I am in the world. I decided early on that I wanted my work to go beyond identity politics, and I think my love of history and storytelling and my hatred of stereotypical orientalist work really helped me achieve this space in a unique way.⁶¹

Following the Iranian revolution in 1979, which led to an ongoing emigration from Iran and the growth of Iranian communities worldwide, diaspora has become a pivotal concept to describe 'what it is Iranians are and experience as a result of having left Iran'.⁶² Along the nodes of the West and East Coasts of the U.S, as well as in Toronto, Sydney, and many European capitals, a 'new and wider *transnational* frame of reference and identification, and a sense of belonging to a cross-border community outside of Iran – the Iranian diaspora, has emerged'.⁶³

60 See María Fernández, 'Postcolonial media theory', *Art Journal* 58, no. 3 (1 September 1999), 66, doi: 10.1080/00043249.1999.10791954.

61 Hamid Naficy, *The Making of Exile Cultures: Iranian Television in Los Angeles* (Minneapolis, Minnesota: University of Minnesota Press, 1993), 17.

62 Babak Elahi and Persis M. Karim, 'Introduction: Iranian diaspora', *Comparative Studies of South Asia, Africa and the Middle East* 31, no. 2 (1 August 2011), 382, doi: 10.1215/1089201X-1264307.

63 Resa Mohabbat-Kar, 'Introduction', in Heinrich Böll Foundation and Transparency for Iran, *Identity and Exile: The Iranian Diaspora Between Solidarity and Difference* (Berlin: Heinrich Böll Foundation, 2015), 12.

Discourses on diaspora have conceptualized the term in three distinct but interconnected ways. Anthropologist Steven Vertovec suggests three categories for interpreting and theorizing concepts of diaspora: "Diaspora" as a social form, "diaspora" as a type of consciousness, and "diaspora" as a mode of cultural production.⁶⁴ As a social form, the term refers to individuals who voluntarily migrated or were forced to migrate from their homes but maintain a collective identity and solidarity that identifies with the countries or region from which they or their ancestors originated and the society in which they currently reside. Secondly, as a social consciousness, diaspora may describe an awareness of belonging or exclusion, a sense of being simultaneously in a 'home away from home' or 'here and there', that is, in 'a multi-locality'.⁶⁵ Vertovec takes this concept from Paul Gilroy's 'double consciousness' (found in Gilroy's *The Black Atlantic: Modernity and Double Consciousness*) as a prime example of a consciousness that emphasizes 'a variety of experience, a state of mind, and a sense of identity'.⁶⁶ Finally, diaspora as a mode of production 'involves the *production and reproduction* of transnational social and cultural phenomena'.⁶⁷ This mode revolves around the 'fluidity of constructed styles and identities among diasporic people', highlighting the significance of the high level of creolization, hybridization, and syncretism present in many diasporas.⁶⁸ Of course, all these factors overlap and intersect. Echoing Vertovec, Avtar Brah suggests that we should understand diaspora as a 'conceptual mapping which defies the search for ordinary absolutes, or genuine and authentic manifestations of a stable, pre-given, unchanging identity; for pristine, pure customs and traditions or unsullied glorious pasts'.⁶⁹ The potential for tension and conflict, as much as hope and new beginnings, defines each process of diasporization to varying degrees. Allahyari's *She Who Sees the Unknown*, therefore, can be interpreted as an artistic representation of the processes outlined by Vertovec and Brah. Following Brah's perspective, the series can be seen as 'contesting cultural and political terrains where individual and collective memories collide, reassemble, and reconfigure'.⁷⁰

Allahyari's journey on both the personal and artistic level – from the experience of exile to a more empowered and autonomous stance – seems to be mirrored in two key concepts – the exilic and the diasporic – developed by Hamid Naficy, one of the earliest scholars to have worked on the Iranian diaspora. In *The Making of Exile Cultures: Iranian Television in Los Angeles* (1993), Naficy coined the term 'exilic syncretism' as a way to describe the process following a traumatic cultural experience in which the 'borrowing, sometimes, resurrecting of atavistic forms [occurs], but impregnating them with new meanings appropriate to their new context'.⁷¹ He observed that 'exiles create hybrid identities and syncretic cultures that

64 Steven Vertovec, 'Three meanings of "diaspora" exemplified among South Asian religions', *Diaspora: A Journal of Transnational Studies* 6, no. 3 (1997), 277, doi: 10.1353/dsp.1997.0010.

65 Vertovec, 'Three meanings of "diaspora"', 285.

66 Vertovec, 'Three meanings of "diaspora"', 285.

67 Vertovec, 'Three meanings of "diaspora"', 196.

68 Vertovec, 'Three meanings of "diaspora"', 196.

69 Avtar Brah, *Cartographies of Diaspora: Contesting Identities* (London: Routledge, 1996), 196.

70 Brah, *Cartographies of Diaspora*, 193.

71 Naficy, *The Making of Exile Cultures*, 17–18.

symbolically and materially borrow from both the indigenous and the new one to which they have relocated. Such a hybrid identity and composite culture are characterized by contradictions and instabilities of all sorts.⁷² In 2001, Naficy further refined his understanding of the exilic by contrasting it with the diasporic. In a similar vein as the postmodern diaspora theorists Paul Gilroy and Stuart Hall, Naficy suggested, to quote cultural theorist Amy Malek, that 'diasporic cultural production is less based on the exilic binaries of here and/or there, and is more rooted in a multiplicity, of here and there and wherever else (what Naficy described as a "lateral relationship to the diaspora communities and experiences" as opposed to a "vertical relationship to the homeland.")'⁷³ The shift in Naficy's theory was produced by a general change in the self-perception of Iranians towards Iranian Americans, from that of a population in exile with a focus on a lost home country to that of an ethnic minority with its political agency.⁷⁴

Malek herself, in her work 'Displaced, re-rooted, transnational: Considerations in theory and practice of being an Iranian outside Iran', traces the constellation of developments behind the shift from exilic to diasporic patterns of identification and behaviour. She argues that 'as the condition of Iranian communities abroad shifted, so too did scholarly classifications of them: while originally considered as *exiles*, Iranians became more frequently described as part of a *diaspora*, reflecting the growth of Iranian communities and institutions, and shifts in their self-identifications in the intervening years.'⁷⁵

Malek concludes that this shift has led to the emergence of networks and affiliations on a lateral community and grassroots level. She compares Salman Rushdie's 'endless paradox of exile', described as 'looking forward by always looking back' with an initial exilic identity.⁷⁶ According to Gorashi, this identity has been replaced 'by a more rhizomatic network-based diasporic approach to Iran as one basis of reference among many others'.⁷⁷ Researchers have described this process as 'diasporic citizenship'.⁷⁸

Within Allahyari's oeuvre, one can best situate the diasporic as a *mode of practice* that allows her to adopt and continue discourses, as well as to assume and play with different cultural identities and to reject, re-evaluate, and redefine them. As Stuart Hall famously argued, cultural identity involves the work of individuals 'constantly producing and reproducing themselves

72 Naficy, *The Making of Exile Cultures*, 17.

73 Amy Malek, 'Displaced, re-rooted, transnational: Considerations in theory and practice of being an Iranian outside Iran', in Heinrich Böll Foundation and Transparency for Iran, *Identity and Exile: The Iranian Diaspora Between Solidarity and Difference* (Berlin: Heinrich Böll Foundation, 2015), 25–26.

74 See Naficy, *The Making of Exile Cultures*, 195 onwards.

75 Malek, 'Displaced, re-rooted, transnational', 26.

76 Malek, 'Displaced, re-rooted, transnational', 13, 26.

77 Lok Siu, *Memories of a Future Home: Diasporic Citizenship of Chinese in Panama* (Stanford, California: Stanford University Press, 2005); H. Ghorashi and F. K. Boersma, 'Iranian diaspora and the new media: From political action to humanitarian help', *Development and Change* 40, no. 4 (2009), 678, doi: 10.1111/j.1467-7660.2009.01567.x.

78 See Silvia Pedraza, 'Assimilation or diasporic Citizenship?', review of Michel S. Laguerre, *Diasporic Citizenship: Haitian Americans in Transnational America* (New York, New York: St Martin's Press, 1998), in *Contemporary Sociology* 28, no. 4 (1999), 377–381, doi: 10.2307/2655283.

anew in an ongoing process of formation that includes both being and becoming.⁷⁹ Allahyari's strategy of re-figuring could be seen as an expression of such a process central to discussions on diaspora. In her act of re-figuring, Allahyari synthesizes ideas and concepts from different cultural contexts and distils them into her art. Her works amalgamates different individual and collective memories, experiences, influences, and sources from here, there, and elsewhere.

This tension between individual and collective memory becomes evident in the visual essay accompanying *Aisha/Qandisha*. While the first part of the essay tells the story of Aisha/Qandisha from the perspective of a third-person narrator, the second part interweaves the historical knowledge of the narrator with the artist's own experiences. Here, the jinn and the artist merge to allow the artist to revisit one of her failed love stories. This allows Allahyari not only to revisit a forgotten or misrepresented past reality through an act of narrative preservation, but to translate and revive it for contemporary reflection.

As the time passed between then and now
 She and she became one
 Overlapped.
 Their bodies merged.
 Their stories conjoined in a mashup of a fiction and a documentary
 For a mad act of myth-making;
 Giving birth to a re-figure that is neither nor.⁸⁰

Instead of the metallic-sounding voice of the narrator who dominates most of the video, this text emerges on the screen in the concluding section. It constitutes a significant shift in the narrative structure of Allahyari's video, transitioning from the descriptive, third-person account of Aisha/Qandisha to the artist's personal recollection of a painful break-up. By changing the viewpoint of her story from a third- to a first-person narrator, Allahyari's work produces a more direct connection with the spectator, who is sometimes addressed in the second person. Through Allahyari's account of her break-up, a near-universal experience independent of any particular cultural background, the work intensifies its identification of the spectator with the narrator:

I tell you 'I love you'
 I put the palm of my hand on your lips
 So that all the lies stays within you
 Don't ever claim what you can not give
 All your love letters read the same⁸¹

The viewer is again assigned a position just below the water's surface. Words gradually emerge against a background that fluctuates between hues of red liquid. The surroundings

79 Stuart Hall, *Cultural Identity and Diaspora: Identity: Community, Culture, Difference* (London: Lawrence and Wishart, 1990), 402.

80 Allahyari, 'Aisha Qandisha: Video text'.

81 Allahyari, 'Aisha Qandisha: Video text'.

begin to shift, while the narration centres on the failed love story. The text alternates in font sizes on the screen, resembling a poetic reflection following the break-up. Simultaneously, it unfolds a continuum between different temporal structures:

You are in the past, and I am heading into the future
It is you who will submit
You will weep like you will change
And this pain will spread like a deadly plague⁸²

In the final scene, the artist describes a bittersweet revenge, claiming back power and control over her feelings:

You have already disappeared
Every crack in your body is an opportunity
To shatter you
To split you
To destroy you
And a world awaits
And is in tune
For an opening
And a closure
You will weep like you can change
Then you disappear infinitely.⁸³

Gendered memories

In the context of Allahyari's failed love story, it is helpful to mention the backstory of Aisha/Qandisha, as one aspect appears to be absent from Allahyari's work and archive. Several researchers have pointed out that Aisha/Qandisha's origin story strongly links back to the ancient goddess of love Astarte, also known as Attart or Ishtar, who reached Morocco via the ancient city of Carthage.⁸⁴ Transmuted into a jinn, Aisha/Qandisha is considered an updated version of the powerful goddess with origins and counterparts in the early Semitic matriarchies.⁸⁵ Accordingly, the different memory assemblages surrounding Allahyari's work reveal deeply gendered dynamics.

Astarte was worshipped across the ancient Levant, including in the colonies of Phoenicians.⁸⁶ The Carthaginians, representing one of the Phoenician city-states, established colonies in Morocco, with the earliest known as the Thymiaterion of Hanni and Scylax, believed to be located in present-day Mehdiya.⁸⁷ Similar to Aisha/Qandisha, Astarte was associated with

82 Allahyari, 'Aisha Qandisha: Video text'.

83 Allahyari, 'Aisha Qandisha: Video text'.

84 See Lurker, *The Routledge Dictionary of Gods, Goddesses, Devils and Demons*, 157; Westermarck, *Ritual and Belief in Morocco*, 395.

85 Westermarck, *Ritual and Belief in Morocco*, 396.

86 See James Hastings (ed.), *Encyclopædia of Religion and Ethics*, vol. 2 (Edinburgh: T. & T. Clark, 1908), 115.

87 See Westermarck, *Ritual and Belief in Morocco*, 396.

water, being the 'numen of spring' and a catalyst for fertility.⁸⁸ Her names – Astarte, Ashtar, or Athtar – are linked to the Persian root word 'to be watered'. Astarte/Ishtar was a goddess of maternity, fertility, and war. Babylonian culture identified her with the planet Venus. The Phoenicians depicted her with the horns of a cow, resembling the depiction of the Egyptian god Hathor, with whom she was also identified. Referring to writings by Cicero, Homer, and Lucretius, James Hastings identifies strong links between Astarte and the Greek goddess Aphrodite (Venus in the Roman pantheon).⁸⁹ He also insinuates that Rhea, Cybele, and other mother goddesses are derived from the Semitic Astarte or were modified according to her influence. The identification of Astarte with Aphrodite by both Greeks and the Phoenicians is evidence of her sexual character. Astarte is also described as the 'the goddess of untrammelled sexual love'; and 'prostitution as a religious rite in her service is widely attested', for example by the women of the congregation of Astarte.⁹⁰ This links Astarte to Qandisha, whose name originates from 'Kedecha' or 'Qedesa', a name for the temple prostitutes of the Canaanite cults in ancient Palestine. In Ancient Hebrew, *qedēshā* means 'sacred prostitute'.⁹¹

In this aspect, Astarte and, consequently, Aisha/Qandisha are counterparts of the ancient Semitic woman who 'bestowed her love as she pleased upon men of other and often hostile tribes, who was courted at the risk of life'.⁹² Hastings argues:

There is a large body of evidence to show that the Semites before their separation passed through a matriarchal stage of society.... Descent was traced through the mother, and she was the head of the clan in peace and in war. In such a society the chief deity of the tribe must have been conceived as a counterpart of the human matriarch.⁹³

Most interestingly, during the change of society from a matriarchal to a patriarchal state, 'either a male deity was exalted to the chief place and [powerful female goddesses such as] Asthar(t) became his consort, as in Canaan, or her sex was changed, as in South Arabia and Moab'.⁹⁴ Male deities held a less significant role in early Semitic society and consequently did not persist into later religions, thus not requiring reclamation. It is probable that with the emergence of Islam, the attributes associated with Astarte as the goddess of fertility, sexual love, maternity, and war underwent a transformation, manifesting as a monstrous reflection. She reemerged in the form of the malevolent and potent jinn Aisha/Qandisha.

Into the present day, the narrative retellings of Aisha/Qandisha's legends and Allahyari's interpretation of them embody fears of female influence and power that perhaps stem from reactions to Semitic matriarchs and the divine Astarte. As a libidinous, whimsical, dangerous,

88 Westermarck, *Ritual and Belief in Morocco*, 395.

89 See Hastings (ed.), *Encyclopædia of Religion and Ethics*, 118.

90 Hastings lists a number of ancient sources that confirm his argument. See Hastings (ed.), *Encyclopædia of Religion and Ethics*, 116.

91 Jordi Aguadé, 'Ā'isha Qandisha', in Hamilton A.R. Gibb (ed.), *The Encyclopaedia of Islam* (Leiden: Brill, 1954), 85.

92 Hastings (ed.), *Encyclopædia of Religion and Ethics*, 116.

93 Hastings (ed.), *Encyclopædia of Religion and Ethics*, 115.

94 Hastings (ed.), *Encyclopædia of Religion and Ethics*, 116.

vindictive, and ominous woman, Aisha/Qandisha functions as an outlet for forms of erotic love, sexual pleasure, and passion that, outside of marriage, are prohibited in Islam. Allahyari describes the symptoms of Aisha/Qandisha's possession in an earlier passage of her video essay:

Causing sexual arousal
 Causing physical emasculation
 Causing castration anxiety
 Causing temporary weakening of the muscular portion of the heart
 Causing the appearance of darling isolations
 Causing dry croaking of his throat
 Causing strange times⁹⁵

Her description draws upon a rich documentation of the symptoms of Aisha/Qandisha's possession. A possessed man is said to suffer from blindness, paralysis, muteness, impotence, or a disinterest in women.⁹⁶ Aisha/Qandisha represents a male fantasy, the anti-wife that men seek from women other than their partner – the 'dancer, film star, singer, prostitute, passing tourist, neighbour, etc. The dissociation of the ludic and the serious examined above still continues, then, and acts as a stumbling block to the sexual emancipation not only of women but also of men.'⁹⁷ Referring to research by Vincent Crapanzano, Douglas A. Davis and Susan Schaefer Davis emphasize that the 'language of possession offers the sufferer a collective symbolism for experiences of problems of sexuality, marriage, or family responsibility. Males who are unable to carry out expected roles of suitor, husband, or family provider may undergo an experience of possession by Aisha/Qandisha, whose emotional demands and jealous interference with relations with human women externalize the apparent psychological conflict.'⁹⁸ Most interestingly, Davis and Schaefer Davis indicate that their sources describe a 'possession after a failed love affair, an estrangement from a spouse, or the death of a family member.'⁹⁹ Allahyari's conceptualization of Aisha/Qandisha has been deeply influenced by these studies, with the artist citing Davis's work as one of her critical resources on the work's webpage.¹⁰⁰

Recent research on jinns and jinnealogy, including the work of Abdelwahab Bouhdiba, Fatima Mernissi, and Mohammed Maarouf, significantly locates the gender politics of jinn possession as being profoundly revealing of the political issues that Muslim societies continue to face today.¹⁰¹ In his book *Sexuality in Islam* (1985), Bouhdiba carefully illuminates the relationship

95 Allahyari, 'Aisha Qandisha: Video text'.

96 See Aguadé, 'Á'isha Qandisha', 85.

97 Abdelwahab Bouhdiba, *Sexuality in Islam*, tr. Alan Sheridan (London: Routledge & Kegan Paul, 1985), 243.

98 Douglas A. Davis and Susan Schaefer Davis, 'Possessed by love: Gender and romance in Morocco', in William R. Jankowiak (ed.), *Romantic Passion: A Universal Experience?* (New York, New York: Columbia University Press, 1995), 228.

99 Davis and Schaefer Davis, 'Possessed by love', 228.

100 See Morehshin Allahyari, 'Aisha Qandisha', *She Who Sees the Unknown* project website (date unknown), <http://shewhoseestheunknown.com/aisha-qandisha/>.

101 See Mohammed Maarouf, *Jinn Eviction as a Discourse of Power: A Multidisciplinary Approach to Moroccan Magical Beliefs and Practices* (Leiden: Brill, 2007); Bouhdiba, *Sexuality in Islam*.

between the sacred and the sexual within contemporary Muslim societies. These societies are, in the author's view, undergoing a sexual and religious crisis as women seek to emancipate themselves from traditional roles, with men refusing these changes.¹⁰² Bouhdiba argues:

Today's Arab woman is striving to renounce the illusory kingdom of the mothers and is aspiring to an affirmative, positive rule, rather than a mythopoeic one.... And yet there is a curious ambiguity inherent in the concept of female emancipation, as if the partners could be dissociated from the question, as if one could emancipate oneself alone! As if Arab man were not alienated by his own masculinity! Authentic female emancipation requires male emancipation.¹⁰³

Consequently, 'the Arab woman who adopts modern ways all too often merely changes her role and emancipation too frequently consists of exchanging the role of wife for that of the anti-wife [which has] invariably led to the enclosure of women in a double role as objects of pleasure and as producers of children.'¹⁰⁴ Fatima Mernissi's work on gender roles in the SWANA region adds weight to Bouhdiba's argument:

The conservative wave against women in the Muslim world, far from being a regressive trend, is on the contrary a defence mechanism against profound changes in both sex roles and the touchy subject of sexual identity. The most accurate interpretation of this relapse into 'archaic behaviours', such as conservatism on the part of men and resort to magic and superstitious rituals on the part of women, is as anxiety-reducing mechanisms in a world of shifting, volatile sexual identity.¹⁰⁵

According to Mernissi, sexual equality 'violates Islam's ideology on the women's position in the social order: the women should be under the authority of fathers, brothers or husbands'.¹⁰⁶ Unlike in Western societies, however, the 'existing inequality does not rest on an ideological or biological theory of women's inferiority, but is the outcome of specific social institutions designed to restrain her power: namely, segregation and legal subordination of the women to the man in the family structure.'¹⁰⁷

This underscores the fundamental distinction between Western feminist objectives of women's emancipation with concomitant endeavors to liberate themselves from the unfounded notion of biological or ideological inferiority to males, and the distinct struggle for women's equality in the SWANA region:

In Islam, there is no such belief in female inferiority. On the contrary, the whole system assumes that the woman is powerful and dangerous. All sexual institutions (polygamy, repudiation, sexual segregation, etc.) can be perceived as a strategy to contain her power.¹⁰⁸

102 Bouhdiba, *Sexuality in Islam*, 243.

103 Bouhdiba, *Sexuality in Islam*, 239.

104 Bouhdiba, *Sexuality in Islam*, 243.

105 Fatima Mernissi, *Male-Female Dynamics in Modern Muslim Society* (Bloomington, Indiana: Indiana University Press, 1987), xxvii–xxviii.

106 Mernissi, *Male-Female Dynamics in Modern Muslim Society*, 19.

107 Mernissi, *Male-Female Dynamics in Modern Muslim Society*, 19.

108 Mernissi, *Male-Female Dynamics in Modern Muslim Society*, 19.

The belief that the power of women is exceptionally potent and requires constraint may reflect the distinct nature of the relationship between women and men in Muslim cultures. Since the jinn Aisha/Qandisha can be seen as representing women's dangerous power, moreover, this notion of power serves as a crucial framework for interpreting Allahyari's work.

In Iran, the strategic containment of female power has perhaps been most evident since the 1979 revolution, which replaced the Western-friendly government of the Shah with a clerical government. Around the same time, many revolutionary activists were prosecuted, imprisoned, or killed. As several publications highlight, the fundamentalist interpretation of Sharia in post-revolutionary Iran saw the rights of women, who had helped facilitate and support the revolution, rapidly diminish.¹⁰⁹ While the theocratic government turned the woman veiled with a black hijab or chador into both a nationalist symbol and a religious representation of Iranian womanhood, many discriminatory laws were passed against women during the period, depriving them of almost every right.¹¹⁰ However, Haideh Moghissi's 1994 book, *Populism and Feminism in Iran*, offers a more nuanced account of this change.¹¹¹ While the post-revolutionary period initially saw an upsurge of gender awareness and a proliferation of independent women's professional and political organizations, the increasing criticism of feminists and feminist ideas by *both* Islamic populism and the male-centred left helped enable fundamentalists to enact their Islamization policies based on sexist beliefs and values.¹¹²

The scholar Judith Albrecht writes of this change:

As a consequence, women, who had taken part in the revolution and later rejected it as a failure, became symbols of a movement that had turned against them or their families, and their role became laden with political and religious symbolism – not only in the Islamic Republic of Iran, but also in the West. Ever since then, women have had to deal with this kind of prevalent religious symbolism as something that dominates their own womanhood.¹¹³

From her interviews with Iranian women in Teheran, Berlin, and Los Angeles, Albrecht has highlighted how women have been systematically instrumentalized by Iranian politics and Western media alike as both female Iranian icons and stereotypes. Consequently, women in the diaspora still grapple with their status. Iranian women have thus become icons of Irani-

109 See for example Shirin Ebadi, *Iran Awakening: A Memoir of Revolution and Hope* (London: Rider, 2007); Farzaneh Milani, *Veils and Words: Emerging Voices of Iranian Women Writers* (Syracuse, New York: Syracuse University Press, 1992); Haideh Moghissi, *Populism and Feminism in Iran: Women's Struggle in a Male-Defined Revolutionary Movement* (Basingstoke; New York: Palgrave Macmillan; St. Martin's Press, 1994); Democratic Organization of Iranian Women, *Women In Iran: How They Live under Khomeini's Terror Regime* (London: Democratic Organization of Iranian Women, 1985); Organisation of Hizb-i Tūdah-'i Īrān in Britain, *The Tudeh Party of Iran and the Women Rights* (London: Organisation of the Tudeh Party of Iran in Britain, 1983).

110 See Ebadi, *Until We Are Free*, 8 onwards.

111 See Moghissi, *Populism and Feminism in Iran*.

112 See Moghissi, *Populism and Feminism in Iran*, 1–3.

113 Judith Albrecht, 'How to be an Iranian Woman in the 21st century? Female identities in the diaspora', in Heinrich Böll Foundation and Transparency for Iran, *Identity and Exile*, 47.

an society in a two-fold sense – as national symbols of the Islamic Republic of Iran and as symbols in the memories of the diaspora and those in exile. They react to such attributions by building their identities through social or artistic practices and by framing their own life-worlds.

Iranian Nobel Peace Prize winner, human rights activist, and lawyer Shirin Ebadi calls the 1979 revolution the ‘revolution of man against women’ and sees its effects reflected in today’s Iranian society, which still legally disadvantages women.¹¹⁴ She has dedicated her life and work to fighting for the rights of women, dissidents, refugees, queer people, and children. In her memoirs, *Iran Awakening: A Memoir of Revolution and Hope* (2006) and *Until We Are Free* (2016), Ebadi uses her own experience as a human rights lawyer to outline the discrimination against and inequality of women that is enshrined in the laws of Iran’s patriarchal society.¹¹⁵ Numerous other women forced to depart the country have undergone comparable experiences.

Expanding on this argument, Egyptian-American scholar Leila Ahmed contends in *Women and Gender in Islam* (1992) that the oppressive treatment faced by women in the SWANA region is a result of the dominance of patriarchal interpretations of Islam, which originated in the misogynistic society of the Abbasid Caliphate (750–1258), rather than being inherent to Islam itself.¹¹⁶ During this era, a gendered, male-dominated voice became institutionalized. In the nineteenth century, colonial forces then strategically employed female emancipation to justify what was essentially an economic and geopolitical takeover. This colonial feminism, as a Western discourse of dominance, ‘introduced the notion that an intrinsic connection existed between the issue of culture and the status of women, and... that progress for women could be achieved only through abandoning the native culture.’¹¹⁷ The emancipation of women was instrumentalized as a cudgel to assert Western hegemony not just geopolitically, but culturally as well. This argument continues to this day in Western discourse to legitimize political intervention – namely, to free suppressed Muslim women.¹¹⁸

Countering the imposition of such ideas on Muslim women from the perspective of both the East and West, Allahyari’s *Aisha/Qandisha* can be located in a long historical tradition of forgotten but influential (human) women and goddesses. It is this enduring history of female power that Allahyari’s work remembers and memorializes. Under the influence of patriarchal social structures, women and goddesses were robbed of their influential status precisely because they posed a real danger to their male counterparts. By exhibiting some of the aforementioned literature in the reading room of her installation, Allahyari shows how her work is tied to a larger content of gender politics in both Muslim and also global society.

114 Shirin Ebadi, “Gender and Sexuality in the Islamic Culture”, Lecture at the Digital Islamic Studies Curriculum, see in “Women in Islam – Shirin Ebadi – Digital Islamic Studies Curriculum,” video, 10:51, accessed April 6, 2020, <https://sites.lsa.umich.edu/digitalislam/2018/03/16/women-in-islam-shirin-ebadi/>.

115 Ebadi, *Iran Awakening*; Ebadi, *Until We Are Free*.

116 Leila Ahmed, *Women and Gender in Islam: Historical Roots of a Modern Debate* (New Haven, Connecticut: Yale University Press, 1992), 79–83.

117 Ahmed, *Women and Gender in Islam*, 244.

118 See Ahmed, *Woman and Gender in Islam*, 244.

Memory acts

In interviews and public presentations, Allahyari has declared that a central concern of her artistic practice is to 'repair history and memory' and challenge 'the limitations and possibilities of remembering and forgetting'.¹¹⁹ In contemplating her strategies of archiving, documentation, preservation, reconstruction, and refiguration, a common thread emerges. The layers of each of her works draw from various forms of memory, encompassing cultural and communicative aspects, as well as personal and collective dimensions, and even elements of diasporic and gendered memories. Memory scholar Anna Reading introduces the concept of the 'mnemologist' as a scholar with a specific interest in memory and how cultural memory is articulated and mobilized.¹²⁰ In a similar vein, one could characterize Allahyari as a mnemological artist – an artist who explores and operates within the realm of memory. Allahyari gazes into the past to propel herself forward. Instead of indulging in a static nostalgic endeavour, her active process of remembrance interconnects, assembles, and forges relationships across memorial and temporal frameworks. Her work not only reintegrates Aisha/Qandisha into contemporary memory culture but also traces a lineage of women extending from the Semitic matriarch and her reflection, the goddess Astarte, to contemporary Iranian diasporic women such as the artist herself.

Allahyari's work doesn't merely emerge from memory; it actually embodies memories artistically and shapes them aesthetically within a dedicated site and form. The immersive, participatory nature of her sculptural installation, coupled with the technologies she employs (including 3D sculpture and digital video animation, 3D scanning, and 3D printing), serves as a crucial lens into the multi-layered narratives and memory assemblages that underlie the protagonists of her installations. Bridging the gap between collective and individual, as well as present and past, these technologies animate and sculpt Allahyari's archive. In the following chapter, 'Sculpting the archive', I delve into the archival aspects of Allahyari's work, examining their connection to the material discussed in this section and their relationship to the sculptural.

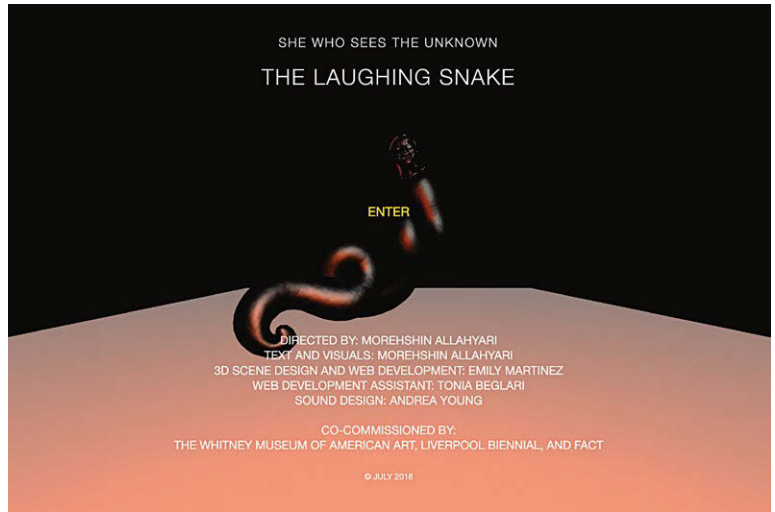
3.2 Sculpting the archive

In Allahyari's work, memories assume an aesthetic, sculpturally embodied form. Like other Iranian diaspora artists, Allahyari engages with the codes of archives to propose ways to make and mark a space for an encounter with painful, suppressed, or forgotten memories. This chapter explores the relationships between the archival, memorial, and sculptural aspects in the artist's practice. These connections facilitate identification and cultural orientation, taking place in both physical and virtual spaces. Allahyari's artistic practice is intertwined with that of her colleagues and collaborators, Amitis Motevalli and Shirin Fahimi, both Iranian diaspora artists working in the US and Canada. By comparing their works to

119 Morehshin Allahyari and Christiane Paul, 'Re-figuring ourselves', 4.

120 See Reading, *Gender and Memory in the Global Age*, 15.

126 | Morehshin Allahyari, *She Who Sees the Unknown: The Laughing Snake*, 2018; interactive hypertextual narrative, screenshot from website <https://artport.whitney.org/commissions/laughing-snake/index.html>.

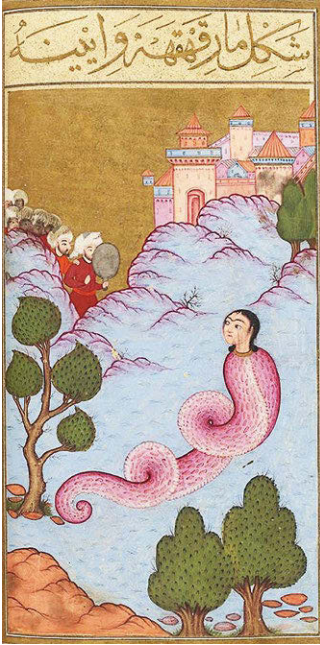


the practices of the digital pioneers Lynn Hershman Leeson, Claudia Hart, and Skawennati, the chapter traces how Allahyari's, Motevalli's, and Fahimi's works expand reflection from diasporic archives to notions of digital, living, and sculptural archives. The section concludes by asserting that the sculptural works of Allahyari and her peers transcend a simple archival approach. In their works, the archive, serving as a site of memory, takes on not only a sculptural form but also assumes a commemorative nature, aligning with functions historically attributed to monuments.

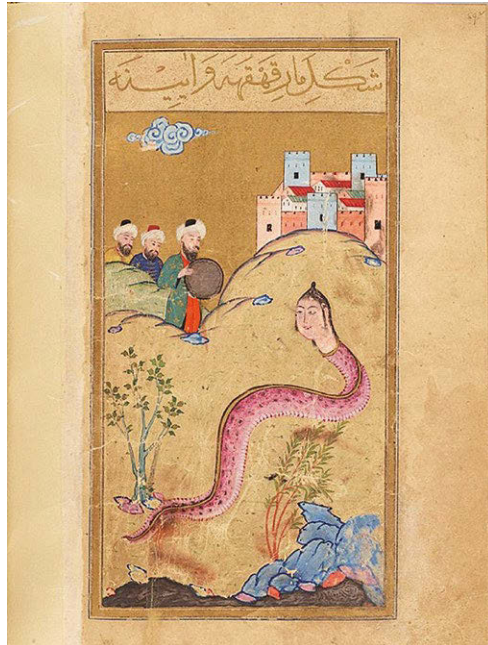
The importance of the archive as a map and tool for orientation, identification, and reclamation is clearest in Allahyari's *The Laughing Snake*, the fourth iteration of the series *She Who Sees the Unknown*. Allahyari's hypertext fiction is an online narrative that can be accessed via *artport* (the online gallery space of the Whitney Museum of Art) or via the artist's webpage (fig. 126).¹²¹ It weaves together the myth of the Laughing Snake with Allahyari's personal experiences of molestation, coercion, and cultural castigation growing up in post-revolutionary Iran. The non-linear, open-ended, 'choose your own adventure'-style story lets the user navigate through various versions of the plot. Depending on the reader's/user's choice, it branches out into various sub-narratives and multiple worlds.

The *Laughing Snake* is a story that appears both in the illustrated manuscripts from *The Book of Felicity* and *The Kitab al-Bulhan* (often translated as the 'Book of Wonders' or the 'Book of Surprises'). *The Book of Felicity* was commissioned by the Ottoman Sultan Murad III in 1582. It features descriptions of the twelve signs of the zodiac and illuminated miniatures by Nakkaş Osman, including astrological and astronomical tables and illustrations representing

121 See Morehshin Allahyari, 'The Laughing Snake | Morehshin Allahyari', project website (July 2018), <https://artport.whitney.org/commissions/laughing-snake/index.html>, accessed 10 December 2024; Morehshin Allahyari, 'The Laughing Snake', *She Who Sees the Unknown* project website (date unknown), <http://shewhoseestheunknown.com/the-laughing-snake/>, accessed 10 December 2024.



127 | *The Laughing Snake and the Mirror*, illustration retrieved from *Kitab Al-Bulhan* (كتاب البهان) possibly illustrated by 'Abd al-Ḥasan ibn Aḥmad ibn 'Alī ibn al-Ḥasan al-Isfahānī



128 | *The Laughing Snake and the Mirror*, illustration retrieved from *The Book of Felicity*, illustrated by Nakkaş Osman.

how the planets influence human lives.¹²² The *Kitab al-Bulhan* is a fourteenth-century Arabic manuscript possibly completed during the reign of Jalayirid Sultan Ahmad, who ruled the area of western Iran and Iraq.¹²³ The codex was compiled and likely illustrated by calligrapher 'Abd al-Ḥasan ibn Aḥmad ibn 'Alī ibn al-Ḥasan al-Isfahānī and includes texts on astrology, astronomy, and geomancy as well as a section of plates dedicated to topics such as folktales, zodiac signs, and the prophet.

The story of the Laughing Snake involves a female jinn with a human face and the body of a snake who conducts a murderous rampage. She conquers cities, murdering humans and animals alike. Numerous attempts to kill her are unsuccessful. She meets her ultimate defeat when someone holds a mirror in front of her. Confronted by her own reflection, she laughs until she dies. Although the exact literary source of the tale remains unknown, its

122 See Miguel Ángel de Bunes Ibarra, Stefano Carboni, Yorgos Dedes, and Evrim Turkcelik, *The Book of Felicity: Matali' al-Saadet: Islamic Art, Astronomy and Astrology* [commentary volume] (Barcelona: M. Moleiro Editor S.A., 2008).

123 See Stefano Carboni, 'The "Book of Surprises" (kitab al-bulhan) of the Bodleian Library', *The La Trobe Journal* 91 (2013), 22.

association with several legends is evident. These include the antique Narcissus, Medusa, the Amazon Gorgon, and the Iranian motif of the horse phoenix that kills people by making them laugh.¹²⁴ One might also think of the basilisk – translated in Persian as ‘laughing snake’ – the reptile from Roman mythology with a terrifying, lethal stare, or of the epic Iranian figure of Dahhak, ‘the man who laughs’, out of whose shoulders grow two hungry snakes.¹²⁵

Allahyari’s online narrative centres on a reconstruction of the snake based on two slightly differing illustrations from the *Book of Wonders* (fig. 127) and the *Book of Felicity* (fig. 128). Once again, the artist playfully interacts with the dynamic between image and text in virtual space. The ancient drawings show a colossal snake with a human head, set against a secluded hilly landscape featuring a handful of trees and a walled city in the distance. The snake’s face is turned towards a group of men at the left corner of the drawings. Emerging from the distance behind the rocks, the leader of the group raises a large disc. In the version from the *Book of Felicity*, his face is partly covered by the mirror, as if he is seeking protection behind the device. His stance suggests that the mirror functions like a shield protecting the group from the deadly gaze of the female jinn. The scene depicts the moment before she sees her reflection and consequently dies.

The cultural history of the mirror has a long relationship to concepts of (self-)perception, knowledge, and human subjectivity.¹²⁶ In the hands of women, it has been positioned as both a powerful tool of cunning and deception. Often associated with the supernatural abilities of witches, sorceresses, and femme fatales, or with snakes, it is frequently linked to humanity’s downfall. Medusa, whose story bears similarities with the Persian myth of the Laughing Snake, is a powerful example of the myths constructed around female power’s deflection by reflection.¹²⁷ Both Medusa and the Laughing Snake threaten society, evoking a fear of womanhood which needs to be contained, subdued, and punished by men.¹²⁸

At the same time, both Medusa and the Laughing Snake are subversive and influential figures. For feminist thinkers, Medusa is, therefore, also an image of female emancipation and influence.¹²⁹ Accordingly, Allahyari’s hyperfiction subverts the ancient, misogynistic pur-

124 See Carboni, ‘The “Book of Surprises”’, 29.

125 See Carboni, ‘The “Book of Surprises”’, 29.

126 See Anderson, *The Book of the Mirror*. For context and comparison, consider also the reflections on masks in chapter 2.1, above.

127 For further reading, see Stephen R. Wilk, *Medusa: Solving the Mystery of the Gorgon* (New York, New York: Oxford University Press, 2007).

128 See Griselda Pollock (ed.), *Visual Politics and Psychoanalysis: Art and the Image in Post-Traumatic Cultures* (London: I.B. Tauris, 2013); Ann Giles Stephenson, ‘Endless the Medusa: A feminist reading of Medusan imagery and the myth of the hero in Eudora Welty’s novels’, Master thesis, Angelo State University, San Angelo, Texas, 1997; Annis Pratt, *Archetypal Empowerment in Poetry: Medusa, Aphrodite, Artemis, and Bears: A Gender Comparison* (Bloomington, Indiana: Indiana University Press, 1994); Mary Valentis and Anne Devane, *Female Rage: Unlocking Its Secrets, Claiming Its Power*, 1st edition (New York, New York: Carol Southern Books, 1994).

129 For an overview on feminist readings of the Medusa myth, see Gillian M. E. Alban, *The Medusa Gaze in Contemporary Women’s Fiction: Petrifying, Maternal and Redemptive* (Newcastle-upon-Tyne: Cambridge Scholars Publishing, 2017); Basia Sliwinska, *The Female Body in the Looking-Glass: Contemporary Art, Aes-*

poses of the story, instead being grounded in modern revisionist approaches to the two figures. For Allahyari, the Laughing Snake dies from seeing not her reflection in the mirror but rather the cruelty of the world around her. The mirror becomes a metaphor for the gaze of a patriarchal society and the protagonist's (self-)reflection within this nexus of looking. As a practical and symbolic object, the mirror also plays a central role in Persian culture. From the *Mirror of Fate*, the symbol for light in Persian wedding ceremonies, to its role across Persian architectural history, the mirror is a powerful metaphor, one that is used in mystical as well as non-mystical contexts. However, Allahyari's use of the mirror can best be placed in a trajectory of Iranian artists and writers who have mobilized it as a metaphor for womanhood.¹³⁰ Dick Davis's *The Mirror of My Heart: A Thousand Years of Persian Poetry by Women* collects translated poems exploring the significance of the mirror as a tool for reflecting upon internal and external perceptions of women in Persian culture. The anthology includes works by women writers such as Rabe'eh from the tenth century and Fatemeh Ekhtesari from the twenty-first century. It offers a small window into the vast universe of Persian literature, accessible only in limited translations to a Western audience. Writing on the mirror in Forugh Farrokhzad's poetry, the Iranian scholar Leila Rahimi Bahmany argues:

In Iranian patriarchal culture, women are systematically robbed of their independent identity and their authentic voice. Like any other patriarchal culture, the Iranian manifestation socializes women to be voiceless and self-effacing. Women are forced to present an image dictated to them, to act as obedient daughters and wives, and as self-sacrificial mothers.... By systematically expunging their identity, patriarchal culture has turned women into surfaces for bestowing a delusive, copacetic identity on their male associates.¹³¹

For Iranian artists, the mirror has thus become an important recurring stylistic symbol to describe a 'discrepancy between their self-image and the cultural image of womanhood, as well as their constant adaptations of images and identities.'¹³²

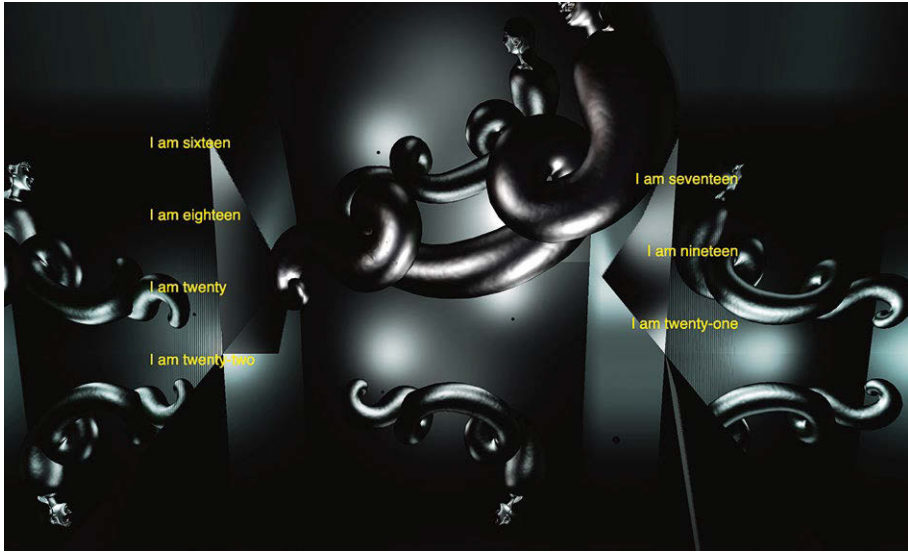
The significance of the mirror in Allahyari's work is underscored by one of the primary settings in her virtual hyperfiction (fig. 129). Within this digitally animated mirror space, a sculptural rendition of the Laughing Snake floats, its image multiplied by reflections from all angles. Accessible via specific pathways, this space opens with an exposition of the mythological tale of the Laughing Snake through a third-person narrator. Initially, the narrative

thetics and Genderland (London; New York: I.B. Tauris, 2016); Robbie Duschinsky and Susan Walker (eds.), *Juliet Mitchell and the Lateral Axis: Twenty-First-Century Psychoanalysis and Feminism* (Basingstoke: Palgrave Macmillan, 2015); Vanda Zajko and Miriam Leonard (eds.), *Laughing with Medusa: Classical Myth and Feminist Thought* (Oxford: Oxford University Press, 2006); Valentis and Devane, *Female Rage*.

130 See Dick Davis, *The Mirror Of My Heart: A Thousand Years of Persian Poetry by Women* (Odenton, Maryland: Mage Publishers, 2019); Leila Rahimi Bahmany, *Mirrors of Entrapment and Emancipation: Forugh Farrokhzad and Sylvia Plath* (Leiden: Leiden University Press, 2015); Rivanne Sandler, 'Simin Behbahani's Poetic Conversations', *Iranian Studies* 41, no. 1 (2008), 47–60; Mohammad R. Ghanoonparvar, *In a Persian Mirror: Images of the West and Westerners in Iranian Fiction* (Austin, Texas: University of Texas Press, 1993).

131 See Bahmany, *Mirrors of Entrapment and Emancipation*, 61.

132 See Bahmany, *Mirrors of Entrapment and Emancipation*, 18.

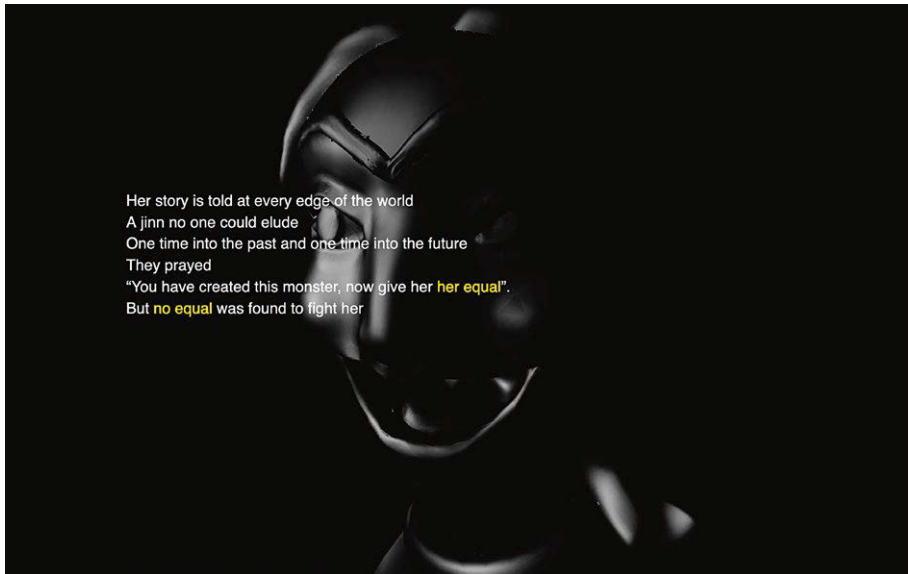


129 | Morehshin Allahyari, *She Who Sees the Unknown: The Laughing Snake*, 2018; interactive hypertextual narrative, screenshot from website <https://artport.whitney.org/commissions/laughing-snake/index.html>.

unfolds linearly against a backdrop of secluded hills, accompanied by a reconstruction of the snake itself. As the story evolves, textual elements increasingly incorporate hyperlinks, enabling users to explore diverse settings and facets of the narrative (fig. 130). Depending on the chosen paths, the structure and complexity of the experience evolve. Multiple routes converge into the virtual mirror space, where the encountered text dynamically adjusts based on the audience's preceding choices.

In one of the scenarios encountered within the mirrored room, users are presented with different ages to choose from, including 'I am sixteen', 'I am seventeen', 'I am eighteen', and so forth. Behind each choice and click unfolds a different experience of sexual harassment narrated from a first-person perspective.

And please know that I am just
Existing:
Walking around the streets of Tehran
(in pants, with a long *Manto*, covering all my body, and a scarf)
Taking the public taxi
Standing in some line
Taking the bus
Sitting down somewhere
And young boys, middle-aged fathers, old old grandpas
CASUALLY
CAUSING EVENTUAL MONSTROSITY...
CAUSING HYSTERICAL PAROXYSM
Touch my lap and my breast and my ass
Rub their penis on me in some crowded place



130 | Morehshin Allahyari, *She Who Sees the Unknown: The Laughing Snake*, 2018; interactive hypertextual narrative, screenshot from website <https://artport.whitney.org/commissions/laughing-snake/index.html>.

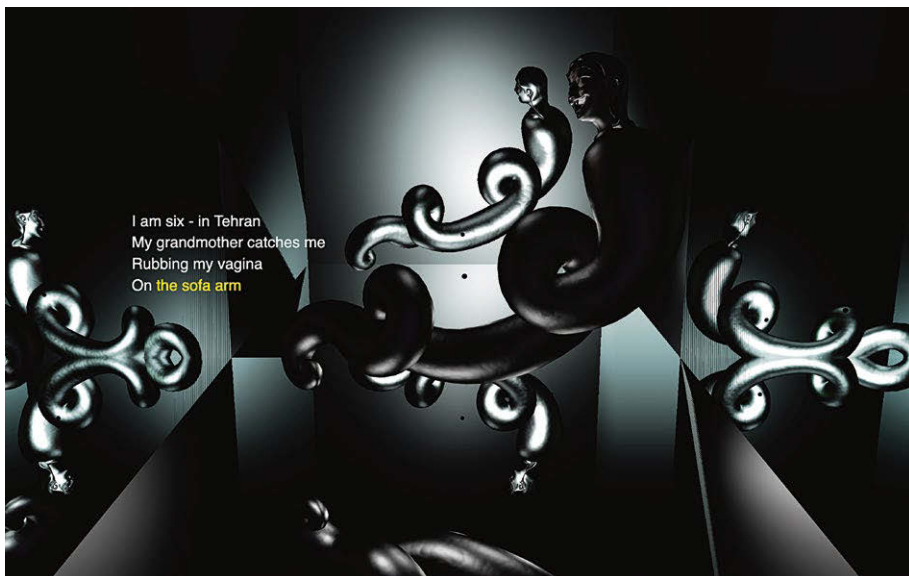
Follow me for blocks at night forcing me to get their number
And young boys, middle-aged fathers, old, old grandpas
CASUALLY
CAUSING LEAVING BEHIND TO GET AHEAD
Ask for directions and show their penis in the car before driving off laughing
Walk to me and whisper:
'If you wait right here at the bus station, I will come back to pick you up after dropping my daughter'
(He points out to his daughter sitting in the car and she is my age)
And young boys, middle-aged fathers, old old grandpas
CAUSING TENDENCY TO CAUSE TROUBLE
Make it to my nightmares
My subconscious
Somewhere deep in my soul
And young boys, middle-aged fathers, old old grandpas
CASUALLY...
Repeat into each other ¹³³

Other scenarios encountered in the mirrored space recount situations in which family members, teachers, or random encounters impose on the protagonist a particular cultural image of womanhood that she is expected to internalize. Down other paths of Allahyari's hyperfiction, the first-person narrator speaks of acts of castigation. After being caught wearing nail polish at Tehran airport, she is asked by a state official to painfully remove it with sugar cubes. Another scene describes the narrator's early encounters with her genitalia and her grandmother's subsequent punishment of her (fig. 131).

133 Morehshin Allahyari, 'The Laughing Snake | Morehshin Allahyari'.

However, in the writings of Simin Daneshvar, Forugh Farrokhzad, and Simin Behbahani – important sources for Allahyari – the mirror serves not only as a symbol of the patriarchal gaze and desire that obstructs female agency but also as a medium for self-awareness and empowerment. Therefore, the mirrored room in Allahyari’s hyperfiction assumes a double function. It reflects the judging, salacious gaze of a patriarchal society turned on the protagonist of Allahyari’s story. It also functions as a tool for her self-perception and self-knowledge. The mirrored space signals the protagonist’s entrapment and the possibility of acts of emancipation. It allows for a potential to break free from ideas of female sexuality imposed by having grown up in Iran. In this way, Allahyari’s dark, claustrophobic mirror room reveals itself as a passage and way out. With a combination of clicks, the viewer finds herself in a light-filled grey space (fig. 132). Through an opening reminiscent of a door, light seems to pour in and cast a white shadow. This version of the hyperfiction is also overlaid with text, which again varies depending on the user’s chosen pathways to access the grey space. Despite the textual variations, all scenarios summarize previously described instances of discrimination and abuse, juxtaposing them with the narrator’s calls for collective rebellion and female empowerment. Confronted by the predatory male gaze and cultural coercion from family, teachers, and lovers, the protagonist of Allahyari’s narrative breaks free, embracing her inner serpent, her monstrosity, and her otherness (fig. 133).

Like the mirror, Allahyari mobilizes the image of the monstrous, grotesque-looking snake. It continuously floats through the various spaces of her hypertext to articulate the double-edged role of the narrator. As a monster, her frightening otherness stems from a critical patriarchal gaze. Yet this otherness and monstrosity is the key to freeing herself from

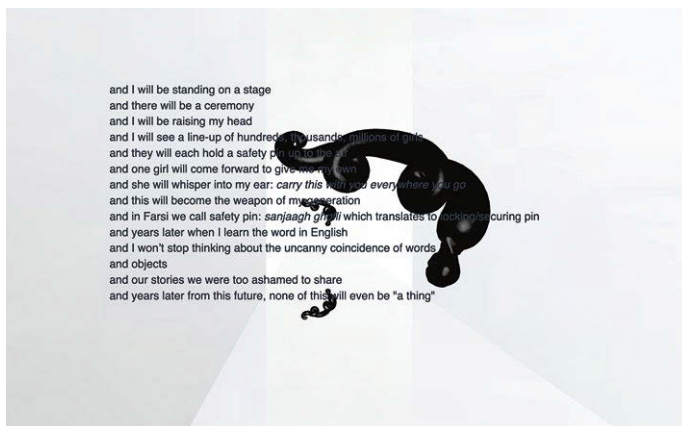


131 | Morehshin Allahyari, *She Who Sees the Unknown: The Laughing Snake*, 2018; interactive hypertextual narrative, screenshot from website <https://artport.whitney.org/commissions/laughing-snake/index.html>.

3 MONUMENTALITY: SCULPTING MEMORIES BETWEEN MONUMENTS AND ARCHIVES



132 | Morehshin Allahyari, *She Who Sees the Unknown: The Laughing Snake*, 2018; interactive hypertextual narrative, screenshot from website <https://artport.whitney.org/commissions/laughing-snake/index.html>.



133 | Morehshin Allahyari, *She Who Sees the Unknown: The Laughing Snake*, 2018; interactive hypertextual narrative, screenshot from website <https://artport.whitney.org/commissions/laughing-snake/index.html>.

those patriarchal ideas of womanhood imposed on the protagonist of the story. Through her laughter and consequent death, the Laughing Snake is, much like Aisha/Qandisha's powerful seduction, capable of disrupting 'phallogocentrism'. In doing so, she can reclaim a position, a reflection in the world. Both jinns become the heroines of their stories and thus become symbols of female empowerment. Allahyari, like many of the Iranian writers and artists before her, refuses the dictates of a patriarchal culture by having a voice and, more significantly, by voicing and archiving her struggles – a collective experience.

In interviews and public presentations, Allahyari has indicated that *She Who Sees the Unknown* is situated within the context of the post-#metoo era. She expresses concern that the voices and experiences of women of colour, especially those from the 'Middle East', have been insufficiently represented:

When the #metoo campaign was at its peak, I felt connected and disconnected from it at the same time. Because I felt like it lacked the voice of women of other cultures and colours. I think the kind of daily trauma and harassment you deal with as a woman in the Middle East is a very specific experience. It does not only come from a patriarchal culture, but also from religious oppression. And it is not just a men towards women kind of oppression/possession, but also

traditional, in a religious sense, with women towards other non-religious women. I wanted this to be contextualized in the space where white, Western feminism still takes a majority of space.¹³⁴

Encoded in her series is not only the fate of Iranian women after the revolution and their subsequent experiences of oppression and harassment that led to migration, exile, and diaspora. Her series may also remind us of the problematic nature of simplifying and objectifying femininity that goes hand in hand with the iconizing and stereotyping of Muslim women in both the East and West. Allahyari's work not only archives and interrogates the mechanisms that influence our understanding of the past – specifically, the dynamics that have historically demonized women and their abilities – but also serves as an archive documenting how these symbolic meanings, ingrained in cultural memory, resurface in contemporary challenges faced by self-identifying women today. Her series guides us from the experiences of the Semitic matriarch through and beyond the #metoo movement.

Digital archives

3D digital technology – encompassing 3D sculpting, animation, scanning, and printing – is Allahyari's essential tool for presenting the multi-layered trajectories and memory assemblages surrounding the protagonists of her installations. Serving as a mediator between the collective and the individual, the present and past memory, these technologies breathe life into and animate Allahyari's archive.

The sculptural essence of her archive is apparent in the exhibition setting of *Aisha/Qandisha*, where the figure is showcased on a plinth, grandiosely extended via the screen, and further amplified through its reflection in the surrounding water (fig. 117). This quality is also evident in the exhibition setting of the *Laughing Snake*, where a room adorned with mirrors on all walls and the ceiling serves as the backdrop for a 3D printed and painted figure of the Laughing Snake suspended from above (fig. 115). The sculptural dimension of Allahyari's work is enhanced by the myriad reflections of the object in the space, which also accommodates the screen for accessing the hyper-narrative. Through these methods, Allahyari sculpts her archive using digital technology.

Digital technology has always been at the core of Allahyari's practice. In an interview with *Studio International* she recalls how the move from Iran to the US introduced her to new digital tools, forming an important turn in her practice that allowed her to tackle questions about misplaced bodies:

So much of my work became about my identity in a place I felt I didn't belong to [the United States] versus a place [where] I felt I didn't fit in [Iran]. Plus, I wanted to be aware of the distance that would grow from not living in Iran and experiencing daily life there. So much of my art projects became about my physical versus my virtual relationship with Iran, but, also, I suddenly had the opportunity of making art without having to censor myself, or being scared of the consequences of what I do. That also came with the decision never to go back to Iran due to the risks that making political or radical work could cause (to censor myself less and exile myself

134 Morehshin Allahyari in Joel Kuennen, 'Refiguring monstrosity', *THE SEEN* 7 (September 2018), 123.

more). All of this changed both the process of art creation and the final products of my work. Not to mention that I was introduced to a lot of new digital tools and software that I knew nothing about prior to moving to the US.¹³⁵

Diasporic archives

In his seminal study *Modernity at Large* (1996), Arjun Appadurai argues that in the era of globalization, the circulation of media images and the movement of migrants have created disconnections between location, imagination, and identity.¹³⁶ For migrants, interactive media – and, one might add, digital media – become ‘the principal resource in which migrants can define the terms of their own identities and identity-building, outside the structures of their new homes.’¹³⁷ Interactive digital media and in particular the internet are vital in building what he calls the ‘diasporic archive’, an archival practice that helps to construct and sustain a migrant identity:

Migrants have a complex relationship to the practices of memory and, thus, to the making of archives, for several reasons. First, because memory becomes hyper-valued for many migrants – the practices through which collective memory is constructed are especially subject to cultural contestations and to simplification. Memory, for migrants, is almost always a memory loss. But since most migrants have been pushed out of the sites of official/national memory in their original homes, there is some anxiety surrounding the status of what is lost, since the memory of the journey to a new place, the memory of one’s own life and family world in the old place, and official memory about the nation one has left have to be recombined in a new location.¹³⁸

The diasporic archive can, therefore, operate as a tool for cultural orientation: ‘For migrants more than for others, the archive is a map. It is a guide to the uncertainties of identity-building under adverse conditions.’¹³⁹ As Niki Akhavan, Annabelle Sreberny, Gholam Khiabany, and Janet Alexanian argue, the emergence of digital media on Iranian websites and blogs since the 1990s has significantly shaped the relationships and identities of Iranian communities within and outside of Iran.¹⁴⁰ From contributing to and engaging with one of the most dynamic blogospheres during the advent of Web 2.0 to documenting and sharing audio-visual materials amid the widespread protests following the June 2009 presidential election, the internet has emerged as a crucial platform for archiving various forms of Iranian

135 A. Will Brown, ‘Morehshin Allahyari: “Suddenly, I had the opportunity of making art without having to censor myself”’, *Studio International* blog (14 February 2015), <https://www.studiointernational.com/index.php/morehshin-allahyari-interview-digital-media-3d-printing-internet-iran>, accessed 11 December 2024.

136 See Arjun Appadurai, *Modernity At Large: Cultural Dimensions of Globalization* (Minneapolis, Minnesota: University of Minnesota Press, 1996).

137 Arjun Appadurai, ‘Archive and aspiration’ in Joke Brouwer, Arjen Mulder, and Susan Charlton (eds.), *Information Is Alive: Art and Theory on Archiving and Retrieving Data* (New York, New York: NAi Publishers, 2003), 23.

138 Appadurai, ‘Archive and aspiration’, 20–21.

139 Appadurai, ‘Archive and aspiration’, 23.

140 See Annabelle Sreberny and Gholam Khiabany, *Blogistan: The Internet and Politics in Iran* (London: Bloomsbury Academic, 2010); Janet Alexanian, ‘Poetry and polemics: Iranian literary expression in the digital age’, *MELUS* 33, no. 2 (2008), 129–152.

self-expression that remain uncensored. This phenomenon has spurred numerous studies dedicated to exploring the Iranian internet landscape.¹⁴¹ Understanding this media specificity of the internet in shaping Iranian identity formation is vital for full comprehension of Allahyari's artistic expressions. It is particularly useful for the hypertext storytelling in the *Laughing Snake*, situated between virtual and actual space. Since the 1990s, the internet has been a significant catalyst for Iranian literary creation, serving as an early platform for a wide array of voices from the Iranian diaspora. Websites and blogs like *Iranian.com* or *Payvand.com* 'have functioned as a 'kind of virtual community that has served the needs of Iranian immigrants dealing with feelings of displacement and longing and, at the same time, allowed for the public expression of feelings that have generally been seen as belonging to the private realm.'¹⁴² The internet, therefore, archives the shared experiences and memories that construct a transnational and heterogeneous Iranian public sphere. If we consider Allahyari's work in dialogue with this public sphere, it is not surprising that she has always emphasized archiving as an integral part of her practice:

I think my fascination with archiving or collecting knowledge comes from a love of making marks and leaving traces behind in the context of history and a 'bigger picture'. For me, it's important to remember what we live and how we live it and that this time and place we get to be in is a tiny chunk of what then becomes a 'past'. This thought is what makes archiving a remarkable practice for me: hoping those who come after us will know and remember this past and our stories.¹⁴³

Archiving as an artistic practice offers artists like Allahyari a form of agency. Put differently, archiving becomes an inevitable necessity for those historically excluded from official archiving practices. In the words of Appadurai, 'the migrant archive cannot afford the illusion that traces are accidents, that documents arrive on their own and that archives are repositories of the luck of materials survival. Rather, the migrant archive is a continuous and conscious work of the imagination, seeking in collective memory an ethical basis for the sustainable reproduction of cultural identities in the new society.'¹⁴⁴ Appadurai's argument builds upon the writings of Foucault and Derrida, who carefully analysed the mechanisms that make up an archive's authority, function, and interpretative power. Foucault carefully traced the clash between the archive as an inert repository of historical artefacts and the idea of the archive as a regulatory discursive system. For the philosopher, the archive inherently embodies a representation of taxonomy, classification, and annotation of knowledge.¹⁴⁵ It is, therefore, understood to be a representative historical form, one whose methodological apparatus does not set 'a condition of validity for judgements, but a condition of reality for

141 See Niki Akhavan, *Electronic Iran: The Cultural Politics of an Online Evolution* (New Brunswick, New Jersey: Rutgers University Press, 2013), 2.

142 Alexanian, 'Poetry and polemics', 129–130.

143 Allahyari and Paul, 'Re-figuring ourselves', 2.

144 Appadurai, 'Archive and aspiration', 23.

145 See Michel Foucault, *The Archaeology of Knowledge and The Discourse on Language*, tr. A.M. Sheridan Smith (New York, New York: Pantheon Books, 1972), 22.

statements'.¹⁴⁶ In his book *Archive Fever: A Freudian Impression* (1995), Derrida also reminds us that 'there is no political power without control of the archive, if not memory. Effective democratization can always be measured by this essential criterion: the participation in and access to the archive, its constitution. and its interpretation... A science of the archive must include the theory of this institutionalization, that is to say, the theory both of the law which begins by inscribing itself there and of the right which authorizes it.'¹⁴⁷

For a generation of Iranian artists living in a diaspora, archiving underrepresented memories and trajectories through digital and analogue approaches has become the central means to define their place within history. By remembering, collecting, and archiving, they honour the stories of those whose stories will likely never become canonical. 'History is kept by the powerful', the Iranian artist Amitis Motevalli, who moved to the US in 1977 just before the Iranian Revolution, says in a conversation with the author of this book. Employing a wide range of media such as installation, live presentations, sculpting, painting, sketching, printmaking, textiles, embroidery, videography, teaching methods, and collaborative community artwork, Motevalli centres her oeuvre on the experiences of marginalized communities. With a pronounced emphasis on women and femmes, her creations delve into acts of cultural resistance within the context of poverty, conflict, and war. Symbolism drawn from Iranian, Islamic, and Sufi dervish traditions imbues her work. She adeptly modernizes and secularizes these traditions, infusing their rituals and aesthetics with contemporary relevance. 'I am drawn to the aesthetics of Islamic Art as rooted in devotion and love through resistance, rebellion against unjust authoritarianism, and personal sacrifice, and even contemporary mass-media imagery which has derailed the international perception of these messages,' the artist writes.¹⁴⁸

In her work *Golestān Revisited* (2017–present), Motevalli uses an archival artistic form that employs digital and physical strategies. This long-term art and research project examines the colonial histories of roses that have been uprooted since the twelfth century from regions today known as Iran, Iraq, Syria, and Pakistan – then parallels them with the erased stories of women, femmes, and girls who have died in the 'war on terror' and other militarized actions since 2010. While her work may be perceived as an intervention in existing archives documenting the war on terror, it can also be viewed as a disruption of the discourse surrounding death, particularly the deaths of women from the SWANA region.

In the project's three iterations at the Huntington Botanical Gardens (2018), the Weingart Gallery at Occidental College Los Angeles (2018), and Regent's Park London (2020), Motevalli reclaims the name of what she calls 'roses in diaspora'.¹⁴⁹ In her unauthorized interventions, Motevalli pasted over the roses' regular descriptions her own labels containing

146 Foucault, *The Archaeology of Knowledge*, 127.

147 Jacques Derrida, *Archive Fever: A Freudian Impression*, tr. Eric Prenowitz (Chicago, Illinois: University of Chicago Press, 1996), 4.

148 Amitis Motevalli, 'Amitis' statement', artist's website (date unknown), <https://amitismotevalli.com/statement>, accessed 14 January 2025.

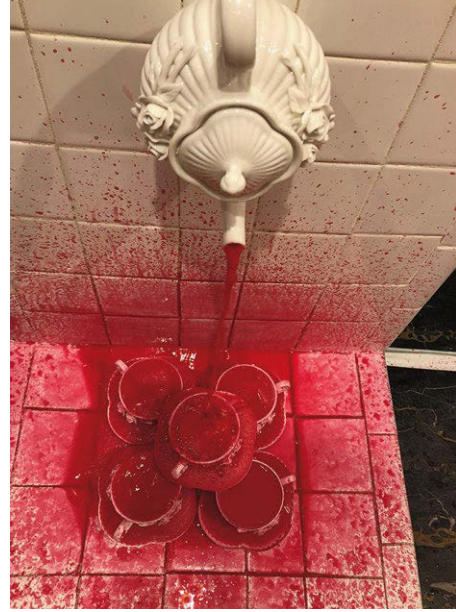
149 Amitis Motevalli quoted in Carrie Paterson, 'Recoupment through roses: A word with artist and activist Amitis Motevalli', *Riot Material* blog (6 July 2018), <https://www.riotmaterial.com/interview-with-amio-tis-motevalli/>, accessed 15 January 2025.



134 | Amitis Motevalli, *Golestān Revisited*, 2017–present; intervention at Regent's Park, London.

the names of women assassinated since 2010 (fig. 134). In the Weingart Gallery at Occidental College, the installation is enhanced by exhibits featuring genealogical maps and cement block platforms adorned with relocated roses from the lush campus grounds. These exhibits are juxtaposed with indulgent desserts of rosewater-infused ice cream and a fountain featuring five cups filled with what appears to be red tea or blood, flowing from a downward-facing tea spout (fig. 135).

Persia's ancient roses could be described as successful plant envoys of cultural exchange during a period of trading along the Silk Road. Motevalli, however, questions the way the West has forcefully taken, hybridized, and renamed roses from the SWANA region. Especially during the Crusades, Western culture adopted roses as religious, artistic, and literary/cultural symbols, erasing their non-Western cultural stories and histories. The artist perceives a parallel dynamic associated with the appropriation of land, resources, and authority, which



135 | Amitis Motevalli, *Golestān Revisited*, 2017–present. Installation view, Weingart Gallery, Golestan Revisited, Occidental College, Los Angeles, 2018.

she terms the ‘Neo-Crusades’ of the SWANA region. Nowadays, under the guise of a war on terror, individuals are sacrificed, their faith and narratives obliterated.¹⁵⁰ The work’s title *Golestān Revisited*, which translates from Farsi as the ‘land of the flowers’, is the title of a seminal collection of texts written c. 1258 by the thirteenth-century Iranian poet Sa’di. *Golestān* and his other writings had a great impact on later writers and were, up until the 1940s, standard school texts for reading and learning about Persian literature.¹⁵¹ Sa’di considered his works to be as flowers in a garden that would remain immune to the passage of time: ‘What of a bunch of flowers, if you pardon? Take a leaf instead from my Rose Garden [i.e., the *Golestān*]. Flowers will remain only for a few days; this Rose Garden will be fresh always.’¹⁵²

150 The concept of ‘neo-crusades’ originates from a blog post by Saad Lakhani, who draws parallels between present-day anti-Muslim sentiment and the historical anti-Muslim propaganda of the Crusades. See Saad Lakhani, ‘Neo-crusades?’, *My Bit for Change* blog (13 August 2011), <https://www.mybitforchange.org/2011/neo-crusades/>, accessed 15 January 2025.

151 See Homa Katouzian, *Sa’di: The Poet of Loving and Living* (Oxford: Oneworld Publications, 2006), 1.

152 Sa’di translated in Katouzian, *Sa’di: The Poet of Loving and Living*, 32.

Throughout his book, it becomes evident that his poems act as allegories for applying broader ethical and social conduct in line with Sufi ideals.¹⁵³ Motevali emulates this approach in her work: 'After learning about the ways roses had been transplanted and hybridized from the SWANA region, I deepened my research and then started renaming common roses to honour the women whose names I saw and heard in fast disappearing news cycles,' Motevalli explains.¹⁵⁴

In front of a pinkish rose with light yellow undertones and tiny clustered buds, one can read: 'Shayma Faruq Abdullah / Formerly known as Ellen Poulson Polyantha – Bred 1911 Denmark / Reclaimed November 19, 2016, Daquq, Iraq' (fig. 136). Shayma, a small infant, tragically lost her life to a roadside bomb in November 2016 as her family attempted to flee the ISIS-controlled regions near Al Somood, Daquq, southwest of Kirkuk.¹⁵⁵ The rose Motevalli chose to memorialize Shayma was bred and named 'Ellen Poulsen', a Polyantha rose, by the Dutch Dines Poulsen in 1911. As with most roses, 'Ellen Poulsen' is a hybridized rose likely imported to Europe during the Middle Ages. As Motevalli highlights, many roses link back to the Mohammadi rose. European nobility,



136 | Amitis Motevalli, *Golestān Revisited*, 2017–present. Rose renamed after Shayma Faruq Abdullah, who was killed by a roadside bomb: 'Shayma Faruq Abdullah, formerly known as Ellen

including Crusader Robert de Brie, who commanded the second Siege of Damascus, is thought to have introduced the plant to Europe from Syria during the twelfth century. This historical connection gives rise to the rose's name, *Rosa × damascena*, commonly known as the Damask rose.¹⁵⁶ The importance of the rose in Persian culture is recorded in ancient Persian folklore stories. Legend tells of a nightingale so enamoured of her white rose that she embraced its thorns, staining them with her blood and giving rise to the rich hue of the red Damask rose, *Rosa × damascena*. The Gallic rose, *Rosa gallica*, a close relative of the Damask rose, was among the earliest roses cultivated in central Europe. The widespread popularity of roses in Europe can be traced back to their origins in ancient Persia, the Indus Valley, and the Levant, where they have been cherished for centuries in perfumery, teas, medicine,

153 See Katouzian, *Sa'di*, 88.

154 Amitis Motevalli 'Golestān revisited: Exhibition and rose renaming (2018–2019)', artist's website (date unknown), <https://amitismotevalli.com/golestanrevisited>, accessed 15 January 2025.

155 See Iraq Body Count. 'a5943: Nov 19: Infant by bomb in Daquq, Southwest of Kirkuk', *Iraq Body Count* website (date unknown), <https://www.iraqbodycount.org/database/incidents/a5943>, accessed 15 January 2025.

156 See Mark P. Widrechner, 'History and utilization of "*Rosa damascena*"', *Economic Botany* 35, no. 1 (1981), 42–58, doi: 10.1007/BF02859214.

cuisine, as well as in art and religious ceremonies.¹⁵⁷ Motevalli characterizes roses as both resilient and delicate, possessing thorns that serve as their protection. This duality becomes as a potent symbol in her work, representing the strength and vulnerability of the women she commemorates. Roses hold significant cultural importance across the SWANA region, making them a fitting medium for honouring the women from this region lost in recent years. Among these is the tragic story of ten-year-old Fatin, executed in Mosul by ISIS occupation forces. Another rose one encounters in Motevalli's botanical archive is Abeer Qassim Hamza al-Jabani: 'Abeer Qassim Hamza al-Jabani formerly known as John F. Kennedy / Hybrid Tea / Bred 1965 United States / Reclaimed March 12, 2006, Yusufiyah, Iraq'. Abeer was a fourteen-year-old girl whose family was brutally killed while she was gang-raped, tortured, and then murdered by a group of five United States Army soldiers.

While the majority of Motevalli's project commemorates and memorializes Muslim girls and women whose deaths have barely been covered by Western media, she also includes Europeans and Americans in her rose universe. Kayla Jean Mueller, an American humanitarian aid worker and human rights activist, is named as a flower. In 2013, she was taken captive by ISIS in Aleppo, Syria, after leaving a Doctors Without Borders hospital. According to a *New York Times* article, she was later married off to ISIS leader Abu Bakr al-Baghdadi, who repeatedly raped and tortured her.¹⁵⁸ After holding her captive for eighteen months, the terrorist group claimed that she was killed during an airstrike by either the American or Jordanian military.¹⁵⁹ More recent sources allege that she was executed on the orders of Abu Bakr al-Baghdadi.¹⁶⁰

Many more tragic deaths like these are documented in online databases such as *Iraq Body Count* – a crucial resource for the artist's research. In a coldly statistical and gruesome manner, these websites catalogue the names of the deceased, along with the date, location, and manner of their deaths. The bureaucratic language and design of these archives evoke unsettling parallels with online databases that categorize roses. Acting as inventories and records of colonial and neo-colonial expansion, both kinds of databases reflect Western practices of territorial mapping and resource nomenclature, which serve to assert control, erase local agency, quantify, and classify both flora and people. This observation inspired the next phase of the project, in which the artist will construct an online archive of women and roses. Leveraging algorithms to enhance search functionalities, she aims for her archive

157 See Roger Phillips and Martyn Rix, *The Ultimate Guide to Roses: A Comprehensive Selection* (London: Pan MacMillan, 2004).

158 See Rukmini Callimachi, 'ISIS held Kayla Mueller, U.S. aid worker, as sex slave before fatal airstrike', *The New York Times* online (14 August 2015), <https://www.nytimes.com/2015/08/15/world/middleeast/isis-held-us-aid-worker-as-sex-slave-before-death.html>, accessed 15 January 2025.

159 See Rukmini Callimachi and Eric Schmitt, 'With proof from ISIS of her death, family honors Kayla Mueller', *The New York Times* online (10 February 2015), <https://www.nytimes.com/2015/02/11/world/middleeast/parents-of-kayla-mueller-isis-hostage-confirm-she-is-dead.html>, accessed 15 January 2025.

160 Adam Goldman and Rukmini Callimachi, 'ISIS leader al-Baghdadi may have had U.S. hostage executed, witness says', *The New York Times* online (12 November 2019), <https://www.nytimes.com/2019/11/12/us/politics/kayla-mueller-baghdadi.html>, accessed 15 January 2025.



137 | Shirin Fahimi, *Umm al Raml's Sand Narratives*, 2022; digital rendering of 3D model.

to rank at the top of online searches related to Western roses. If successful, her online archive (more than its physical installations) will illuminate to online visitors the history of rose renaming following its extraction from the 'Middle East'. In doing so, it will shed light on a challenging and often overlooked colonial legacy while drawing parallels to the current sociopolitical climate in the SWANA region. The rose, in the artist's hands, becomes a powerful subject for revising history and its memory mechanisms through a kind of 'archival art'.

Where Motevalli uses roses as avatars to reclaim forgotten narratives, the Iranian-Canadian artist Shirin Fahimi works with forms of atavistic embodiment. Fahimi shares with her colleague and occasional collaborator Allahyari an interest in Islamic mythology, magic, and esoteric and spiritual practices, and their revival through the lens of technology. The act of re-figuring – reworking and reclaiming forgotten memories and knowledge of the past to make it fruitful for our contemporary and future – sits at the heart of her practice.

Umm al-Raml, which translates to 'mother of sand', is a fictional persona that Fahimi has been developing throughout different iterations and in performative collaborations, including with Allahyari (fig. 137). Umm al-Raml represents a female figure of prophetic significance, one among the many powerful women whose stories have been erased throughout history. Using digital means, Fahimi aims to bring this empowering female presence back into the public sphere. She explains the impetus of her project:



138 | Shirin Fahimi, *Umm al-Raml*, 2019; sand, digital print; 111.76 × 167.64 cm. Installation view, Banff Centre, Alberta (Canada), 2019.

Growing up in Iran and being influenced by Islamic culture and literature, as a child I was always fascinated with the prophet's stories who could speak and see the unseen and invisible realm. However, no women in Islamic literature have borne the title of prophecy, they have been excluded from the criteria of being a leader in the spiritual realm and consequently, women get excluded from having political power on earth. While practicing occult sciences have been commonly used in medieval Islamic culture and commonly known to the contemporary fabric of the society in Iran, practicing occult sciences publicly, especially for women, brought negative connotations, in which they are accused of being a charlatan or denounced as irrational. Therefore I call attention to how the exclusion of women from spiritual leadership influences the exclusion of them in political power in society.¹⁶¹

For her residency at the Banff Centre in Alberta, Fahimi used 3D scanning technology to capture her own body, transforming herself into a digital 3D file that can be shared online. From this scan, Fahimi creates an avatar in the form of a 3D model of Umm al-Raml, who then exists in a space that blurs the boundaries between the physical and virtual realms (fig. 138). Fahimi's Umm al-Raml embodies mastery of Ramali, a form of geomancy, an ancient divination practice originating in Iran. 'Raml' translates to 'sand,' the foundational aspect of *ilm*

161 Quote by Shirin Fahimi from the unpublished script for the interview between Mara-Johanna Kölmel and Shirin Fahimi, 'Pattern Recognition: From Tracing Figures in Sand to Devising Other Futures. A conversation between Shirin Fahimi and Mara-Johanna Kölmel,' *Akademie Schloss Solitude* blog, 24 February 2021, <https://www.akademiesolitude.de/de/web-residencies/pattern-recognition-from-tracing-figures-in-sand-to-devising-other-futures/>, accessed 6 February 2025.

al-raml, the science of sand, which involves predicting the future by interpreting patterns traced in sand or earth (fig. 139).

As practiced today, geomantic divination follows several stages. It begins with the creation of sixteen rows of marks and dots, each row representing a specific question guiding the consultation. The even or odd nature of the marks in each row is then determined, with even numbers represented by two dots and odd numbers by a single dot. These sixteen lines form four sets, each comprising four rows, resulting in four figures known as 'the Mothers'. Arranged from right to left, these figures serve as the starting point for the tableau. Each row symbolizes the opening of sixteen metaphorical doors, each corresponding to different shapes, offering insights into past, present, and future possibilities, fostering hope and envisioning oneself in alternative scenarios (fig. 140). Once the initial four figures, known as the Mothers, are established, the remaining figures are derived through transposition, referred to as 'the Daughters', from a 4x4 matrix. Additional rows are generated through a binary operation known as conjugation. This process yields a total of sixteen figures, forming a mathematical structure called a finite commutative group. In Islamic geomancy, each figure is assigned a name, with various significations attributed to them, such as good health, imprisonment, or prosperity. These and various other techniques evolved as this practice spread alongside the expansion of the Islamic empire.¹⁶²



139 | Shirin Fahimi, *Umm al-Raml*, 2019; avatar study, 3D scan, OBJ file, screenshot.

162 See Emilie Savage-Smith, 'Geomancy in the Islamic world', in Helaine Selin (ed.), *Encyclopaedia of the*

From the twelfth century until well into the seventeenth, geomancy enjoyed widespread popularity in Europe, as evidenced by the production of manuscripts and the publication of printed books. Figures such as Cornelius Agrippa, Christophe de Cattan, Robert Fludd, Albertus Magnus, Cardan, Dante, Paracelsus, and Chaucer showed a profound interest in geomancy through their writings, further underscoring its prevalence in European thought during this period.¹⁶³ The Latin West gave the name 'geomancy' to the sum of these methods in the twelfth century.¹⁶⁴ Although its study in Europe began to wane by the end of the seventeenth century, geomancy and similar divination methods are still widely practiced in many non-Western regions, spanning from Iran to sub-Saharan Africa and Madagascar.

Since the golden era of Islam, sand has served as a medium for predicting various phenomena such as weather patterns, military outcomes, or personal events. Additionally, a wealth of manuscripts exists on the subject, detailing alignments between geomantic figures and Zodiac signs, parts of the body, the four classical elements, numbers, letters, and more. In the realm of research literature, the greatest thinkers of geomancy were situated not primarily in Europe, but rather in the Islamic world. One notable figure is Abu 'Abdallah Muhammad al-Zanati of the Zanata tribe, often acknowledged as a prominent master and writer of geomancy.¹⁶⁵ Another thinker, Ibn Khaldun, a renowned Muslim scholar and authority on Ramali, suggests that geomancy emerged as a means to circumvent intricate calculations, such as those involved in determining planetary positions as required by astrology.¹⁶⁶ Fahimi also references *On the Calculation with Hindu Numerals* (c. 825 CE), the work of the Persian scholar Muhammad ibn Musa al-Khwarizmi, whose name gave rise to the term 'algorithm'.¹⁶⁷ Put differently, *ilm al-raml* uses algorithmic procedures, some of the oldest material practices, to try to understand the beyond.¹⁶⁸

History of Science, Technology, and Medicine in Non-Western Cultures (Dordrecht: Springer Science & Business Media, 1997), 361–362.

163 See Marion B. Smith, 'The nature of Islamic geomancy with a critique of a structuralist's approach', *Studia Islamica* 49 (1979), 7, doi: 10.2307/1595314.

164 See Smith, 'The nature of Islamic geomancy', 6.

165 See Savage-Smith, 'Geomancy in the Islamic world', 362; Bernard Carra de Vaux, 'La géomancie chez les Arabes', in Paul Tannery, *Memoires scientifiques*, ed. Johan Ludvig Heiberg and Hieronymus Georg Zeuthen (Toulouse: E. Privat, 1920), 300–301.

166 See Smith, 'The nature of Islamic geomancy', 31.

167 For further reading on this topic, see Roshdi Rashed, *Classical Mathematics from Al-Khwarizmi to Descartes*, tr. Michael H. Shank (Abingdon: Routledge, 2015); Corona Brezina, *Al-Khwarizmi: The Inventor of Algebra* (New York: Rosen Central, 2005).

168 Algorithms are not confined to mathematics [...] The Babylonians used them for deciding points of law, Latin teachers used them to get the grammar right, and they have been used in all cultures for predicting the future, for deciding medical treatment, or for preparing food [...] We therefore speak of recipes, rules, techniques, processes, procedures, methods, etc., using the same word to apply to different situations.' Jean-Luc Chabert, *A History of Algorithms: From the Pebble to the Microchip* (Springer Science & Business Media, 2012), 1–2.



140 | Shirin Fahimi, *Umm al Raml's Sand Narratives*, 2022; digital rendering of 3D model.

Shirin Fahimi sees this cultural technique as an important precursor of the algorithmic procedures underpinning today's digital space, and as an attempt to counter the lack of reference to female spiritualism and prophecy in the literature on *ilm al-raml*. But it is also important to note how the ancient mathematical structures underpinning ritualistic divination practices are based on binary codes, one and zero configurations. Such practices have been dismissed as irrational or superstitious in the contemporary era, but in fact may help us to understand the algorithm as an 'emergent form' throughout history rather than a 'technological *a priori*'.¹⁶⁹

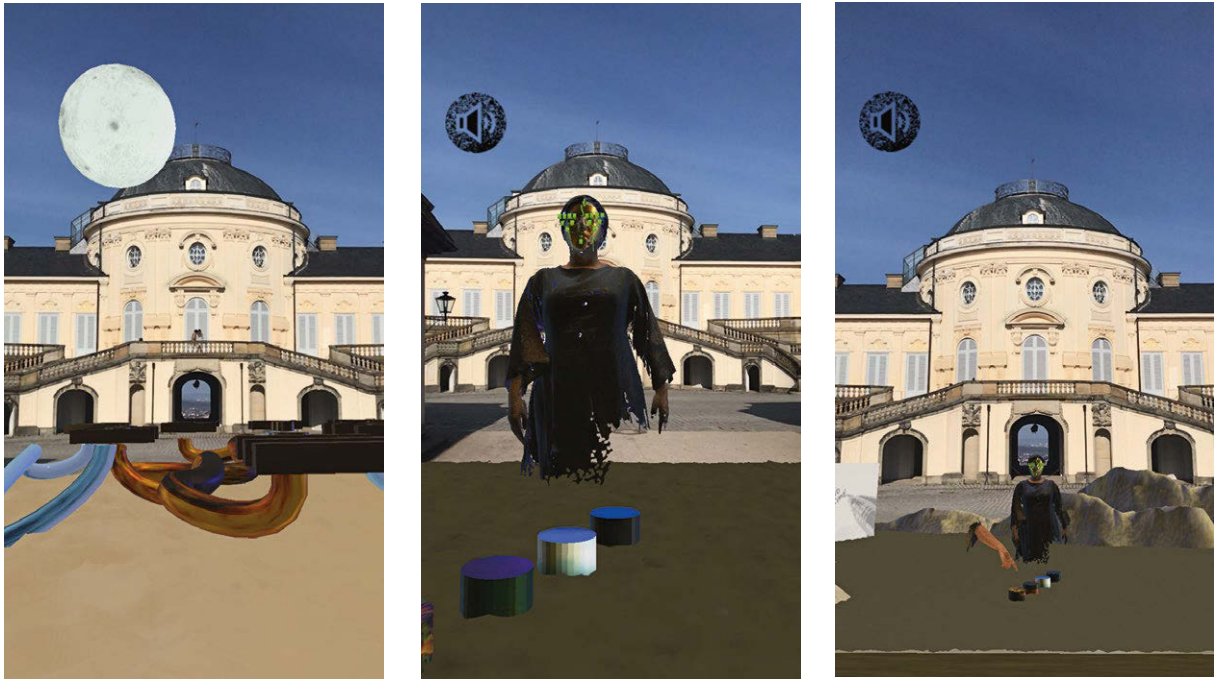
With her work, Fahimi thus revives *ilm al-raml* as a centuries-old form of algorithmic thinking. She, however, reimagines the history of *ilm al-raml* from the perspective of a female *rammal* (geomancer). Her work broaches the ways in which contemporary practice of 'occult' sciences or divination techniques are subject to gender bias, with the women who practice these methods perceived as naive, uneducated, or prone to superstition. She thereby explores how the exclusion of women from spiritual leadership in Islam influences their exclusion from political power in society.

Although 'the European rationalist gaze into Islam has made people shy away from these practices... Geomancy is still considered a noble art by some mainstream Shia scholars,' Fahimi asserts in an interview, adding that 'there are reports every day in the newspapers of people, especially women, who are arrested for practicing *Ramali* – a Farsi term for a geomancer – and labelled as charlatans.'¹⁷⁰

Fahimi's female avatar occupies the virtual realm, employing algorithmic processes not only to reveal the unseen but also to reclaim the (digital) space as one that emerges from contexts beyond the exclusively white or Western. In so doing, she imbues her 3D spatial capture technology with ancient coding techniques for social and ritual spaces.

169 Pasquinelli, 'Three thousand years of algorithmic rituals'.

170 Shirin Fahimi quoted in Zulfikar Ali Bhutto, 'Breaching towards other futures,' *CounterPulse* blog (5 February 2020), <https://counterpulse.org/breaching-towards-futures/>, accessed 16 January 2025.



141 | Shirin Fahimi, *Umm al Raml Sand Narratives: First Story*, 2021; augmented reality, screenshots. The effect may be seen through a preview link when opened on a mobile device: <https://www.instagram.com/ar/827896201094826/>.

For a web residency at the Akademie Schloss Solitude in 2021, Fahimi created an avatar of Umm al-Raml as a 3D model through an Instagram filter. This filter is accessible to viewers through Shirin's Instagram account, enabling them to virtually project Umm al-Raml into their chosen public and private spaces via augmented reality. By aligning the selected space with the filter, one encounters Umm al-Raml inhabiting a hybrid realm between the tangible and virtual (fig. 141). Within Fahimi's 3D spatial capture technology and augmented reality lies a proposition to reconfigure both digital and physical spaces as sites for commemorating alternative histories and erased memories. Like Allahyari, Fahimi establishes an alternative structure of remembrance that also resonates with the artist's diasporic position.

In their collaborative performance *Breaching Towards Other Futures*, Fahimi's avatar Umm al-Raml is entwined with Allahyari's monstrous goddess Aisha/Qandisha to project their avatar bodies towards alternative futures and sociopolitical realities (fig. 142). Incorporating geomantic divination, the work unlocks various portals to the past, future, and present. Within Fahimi's geomantic ritual, she forges pathways to different epochs – where the future morphs into the past, the past merges with the present, and the present exists as both past and future.

'In *ramali* we travel to a lineage of time unfamiliar perhaps by the Western standards, but it is this potential of time travelling that gives Umm al-Raml an eye, control, and possession for a future unknown and unreachable to others,' the artists explain.¹⁷¹ The piece interweaves their ritualistic aspirations with their own experiences – combining the geomantic reading that aspires to an alternative space with – experiences such as Trump's 'Muslim ban' (which affected their ability to travel abroad), the unfolding environmental shutdown, and prejudice and resistance towards immigrants and asylum seekers. The act of 'breaching,' as the work's title suggests, thereby becomes a common theme running through their piece: 'From gazing at fissures in the sand to opening doors and splitting bodies to serve as mediators of possibility. Most importantly, breaching is not a passive act, it is an active moment, a breaking through, pulling down walls of ignorance and forcing open multiple possibilities, past, present, and future,' the artist Zulfikar Ali Bhutto writes on their piece.¹⁷² For Allahyari and Fahimi, the act of opening doors through *ramali* not only describes the search for an unknown but becomes a source for inventing and recording alternatives to the inhumanity found in our present. 'This is about colonial catastrophism and the problem of cozy catastrophism when our dreams and fears and nightmares are picked and chosen and amplified unevenly.'¹⁷³

By appropriating state-of-the-art technologies through the lens of ancient mythologies and ritual systems, including numerology, jinns, and talismans, Fahimi and Allahyari provoke a critical reflection on archiving. Their use of thinkers, theories, and texts outside Western discourse also situates their work in the 'radical outside'.¹⁷⁴ Their work thereby resonates with many other queer and femme-led investigations by artists such as Motevalli, Zulfikar Ali Bhutto (1928–1979, born in Larkana, Sindh, Pakistan), Saba Taj (born 1986 in North Car-



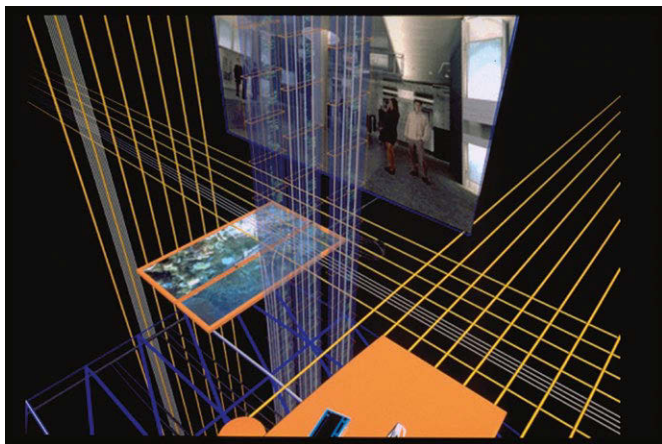
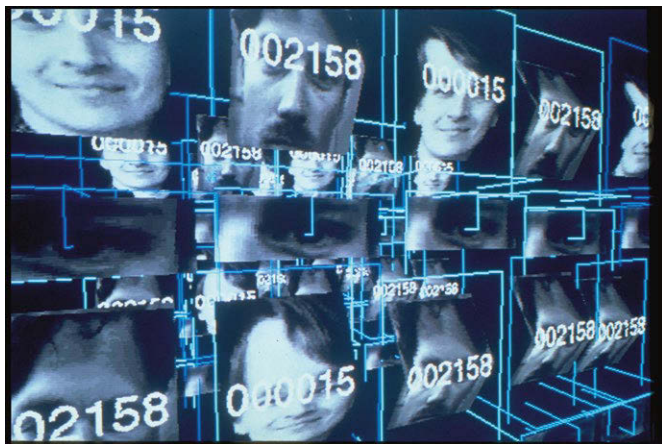
142 | Shirin Fahimi and Morehshin Allahyari, *Breaching Towards Other Futures*, 2018; performance.

171 Shirin Fahimi and Morehshin Allahyari, 'Breaching towards other futures' [video], *Vimeo* (22 June 2019), <https://vimeo.com/343792410>, accessed 16 January 2025. The quotation begins at 10:46.

172 Bhutto, 'Breaching towards other futures'.

173 Fahimi and Allahyari, 'Breaching towards other futures'. The quotation begins at 17:04.

174 See Fahimi and Allahyari, 'Breaching towards other futures'.



143 | Lynn Hershman Leeson, *The Difference Engine #3*, 1995; computer-based installation, laptop (PC), operating system (Windows 95), custom software, motor-operated camera, metal frames, plasma screen.

olina, USA), Meriem Bennani (born 1988 in Rabat, Morocco), Larissa Sansour (born 1973 in East Jerusalem, Palestine), and Baseera Khan (born 1980 in Denton, Texas, USA). Through their poetic rebellion against Eurocentric concepts, they archive, revive, re-own, or re-figure erased narratives and concepts. This, in turn, can contribute to a different reading of our contemporary, a different way of seeing and being in the world. It is this conceptual creativity and visionary impetus, using digital technologies as tools to reclaim the archive, that links the work of Motevalli, Fahimi, and Allahyari with that of previous artistic generations, as elaborated in the following section.

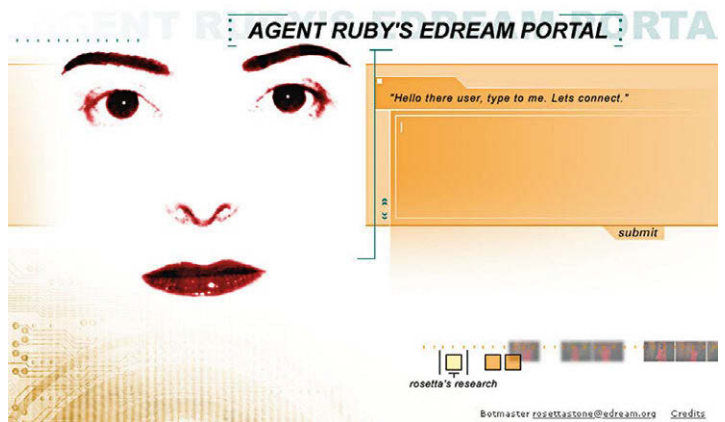
Archives 3.0

From the 1970s onwards, artists, particularly female and queer practitioners, used electronic and digital media to investigate ways of archiving underrepresented, overlooked, and marginalized histories. They did so with limited budgets and frequently without institutional recognition. Digital technology and later the internet emerged as vital platforms for female

artists to scrutinize the archive. They cultivated it as a site for critique, an embodied re-inscription of cultural narratives, and consequently, a platform for the creation of 'future histories'.¹⁷⁵

Most prominently, Lynn Hershman Leeson interrogated the archive as a site for techno-imagination and participatory aesthetics. 'While the artist has long been a New Media pioneer, the archive's link between counternarratives, digital technology, and historical "writing" helps to visualize the larger issues at stake for feminism, film history, and future expanded cinema/writing,' Vicki Callahan observes.¹⁷⁶

Leeson's enduring artistic themes encompass identity construction, the interplay between bodies and machines, and the evolving definitions of reality and virtuality. These themes have significantly influenced a contemporary cohort of media artists, including Allahyari, who studied New Media in an Anglo-American context. Like Allahyari's oeuvre, Lynn Hershman Leeson's projects such as *The Difference Engine #3* (1995, fig. 143) and *Agent Ruby* (1999–2002, fig. 144), along with works like *The Dante Hotel* (1973–1976), create alternative realities, challenge gender biases, and unsettle fixed conceptions of identity and reality. Michael Shanks, therefore, places Leeson's work at the beginning of a new archival era, 'Archive 3.0,' which describes archives that bring together physical and virtual environments. Archive 3.0 involves interactive sites of 'personal affective engagement,' where documentation is not a record but rather 'performative'.¹⁷⁷ As such, Archive 3.0 describes 'new prosthetic architec-

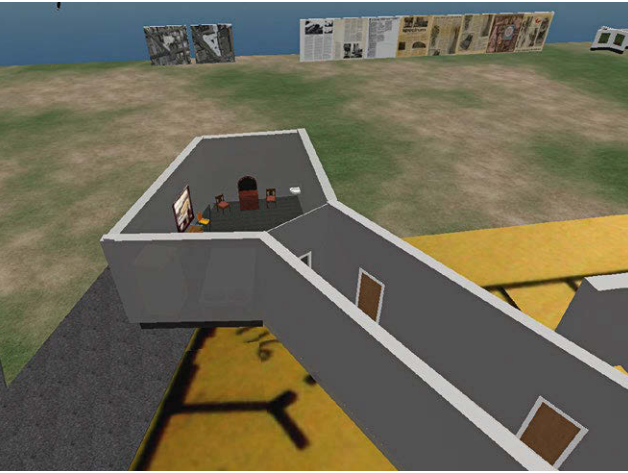


144 | Lynn Hershman Leeson, *Agent Ruby*, 1999–2002; web project, screenshot.

175 The following publications provide a comprehensive overview of the role of female artists shaping digital technologies: Donna Cox, Ellen Sandor, and Janine Fron (eds.), *New Media Futures: The Rise of Women in the Digital Arts* (Champaign, Illinois: University of Illinois Press, 2018); Judy Malloy (ed.), *Women, Art, and Technology* (Cambridge, Massachusetts: MIT Press, 2003).

176 Vicki Callahan, 'The future of the archive: An interview with Lynn Hershman Leeson', in Callahan, *Reclaiming the Archive*, 419.

177 Archive 3.0 succeeds the Archive 2.0, a phase of 'mechanization and digitization of archival databases, with an aim of fast, easy, and open access, based upon efficient dendritic classification and retrieval, associated also with statistical analysis performed upon the data. The earliest stage of archiving, the Ar-



145 | Lynn Hershman Leeson, *Dante Hotel in a Second Life: Life Squared*, 2007; interactive work in *Second Life*, original programming with Stanford Humanities Lab; dimensions variable. Installation view, Montreal Museum of Fine Arts, S.F. Museum of Modern Art of Participation.

tures for the production and sharing of archival resources – the animated archive.¹⁷⁸ The performativity of Archive 3.0 refers not only to the viewers' active participation in it, but also the archives' ongoing mutability. 'The aesthetic of fixed order is being replaced by permanent reconfigurability', Wolfgang Ernst observes regarding this progression. In her 2009 book *Performing the Archive: The Transformation of the Archive in Contemporary Art from Repository of Documents to Art Medium*, Simone Osthoff conceptualizes a similar transformation of the archive as a shift from being 'stable and retroactive' to being 'generative' as a result of artists' performative use of archives.¹⁷⁹

Hershman Leeson's projects take on the form of archives in progress. *Life Squared* (2006–present, fig. 145) is a virtual archive of the artist's practice translated into the virtual surroundings of the role-playing game *Second Life*. Produced in collaboration with the Stanford Humanities Lab, its departure point is the artist's existing physical archive housed in the Department of Special Collections at the Stanford University Libraries. The project integrates selected materials from this archive into a virtual environment modelled after Hershman Leeson's very first site-specific installation, *Dante Hotel* in San Francisco in 1972. It serves as both a virtual archive of her broader artistic practice and a focused exploration of one

chive 1.0, was marked by the 'bureaucracy in the early state, temple, and palace archives – inscription as an instrument of management'. See Michael Shanks, 'Synthetic worlds: The history of the archive and the future of memory', [lecture held at MediaX, Stanford University, 4 March 2008], *Academia.edu* repository (2008), https://www.academia.edu/19626690/Synthetic_worlds_the_history_of_the_archive_and_the_future_of_memory, accessed 16 January 2025.

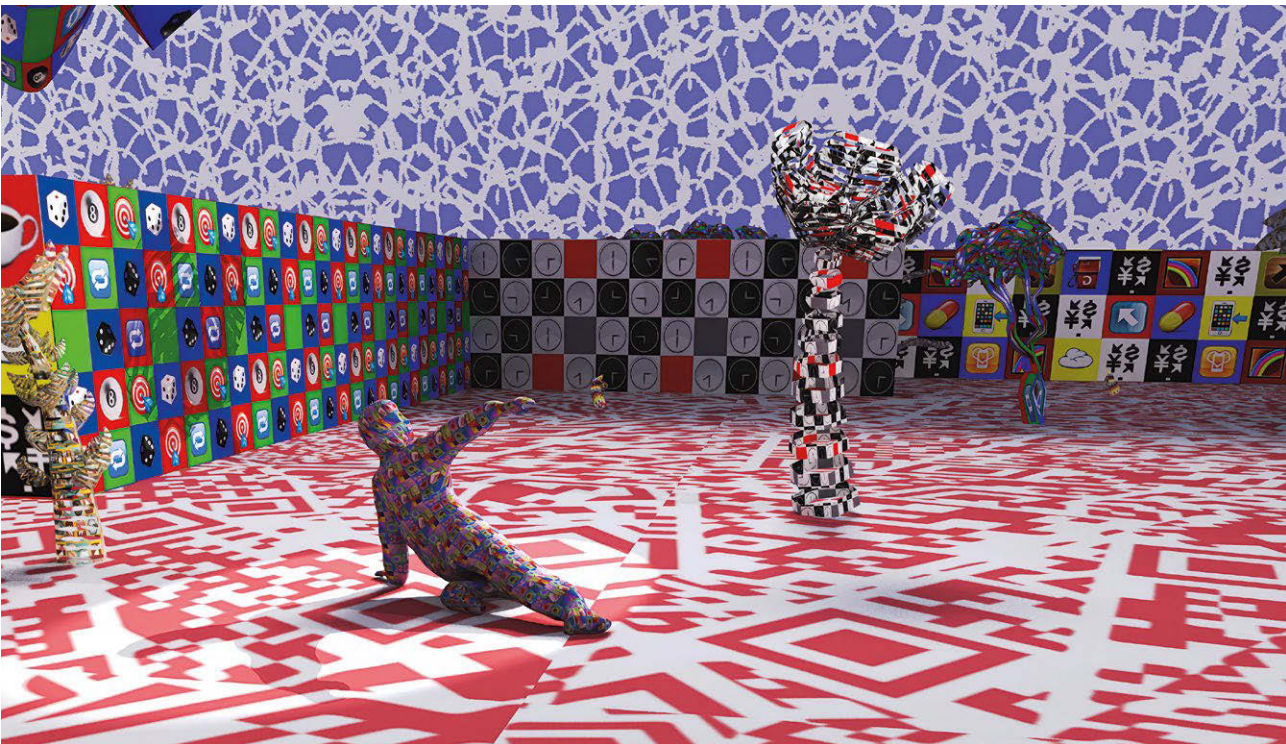
178 Shanks, 'Synthetic worlds'.

179 Simone Osthoff, *Performing the Archive: The Transformation of the Archive in Contemporary Art from Repository of Documents to Art Medium* (New York, New York: Atropos Press, 2009), 12.

particular work. Through the conversion of this archive into a digital format, complete with digitized archival documentation and virtual installations, the creators of the project have brought Hershman Leeson's archive to (digital) life. It encourages 'visitors to the site to revisit the past, while at the same time creating a new audience for this material', the project coordinators Peter Blank and Henry Lowood write.¹⁸⁰

The project enacts, visualizes, and makes experiential a feminist historical project. It takes discarded, received, and found materials and re-examines them with an eye towards what has been previously marginalized. Hershman Leeson's Archive 3.0 delves into the fluid dynamics of identity, body, and perception from a feminist perspective, echoing the approaches of Allahyari, Fahimi, and Motevalli. These artists similarly construct generative, living, and animated archives dedicated to the overlooked and erased, albeit with a pronounced physical and sculptural presence.

Like Hershman Leeson, New York-based artist Claudia Hart disrupts the notion of an essentialist identity in her work, prompting a feminist critique of the male gaze. Since the



146 | Claudia Hart, *Alice Unchained*, 2018; mixed reality installation including monumental three-channel video projection and VR for Vive, music by Edmund Campion.

180 Peter P. Blank and Henry Lowood, 'Life squared', *Stanford Libraries* exhibits website (date unknown), <https://exhibits.stanford.edu/women-art-revolution/about/life-squared>, accessed 11 December 2024.



147 | Claudia Hart, *The Dolls: A Media Ballet for Fashion Runway*, 2015; live performance on 8 May 2015, Fashion Walk 2015, The School of the Art Institute of Chicago; choreography: Kristina Isabelle; projection design: Liviu Pasare; performers: Sarah Gonsiorowski, Katie Graves, Kristina Isabelle, Angela Luem, April Torneby.

1990s, Hart has been working with virtual imaging, using 3D animation and 3D printing to make media installations and projections that question corporality and materiality (fig. 146). Hart's works, much like Allahyari's in the series *She Who Sees the Unknown*, take on a sculptural and almost theatrical quality. They involve digitally enabled sculptures, drawings, paintings, wallpaper, conceptual crafts, and the projections and performances of human bodies wearing sculptural screens. An atavistic embodiment weaves throughout her creations, serving as a unifying thread. Her creative output manifests in various art forms initially shown in gallery settings, subsequently inspiring innovative performances that have increasingly found a platform in experimental theatre and performance venues (fig. 147).

Her teaching becomes a strategy of presenting 'a technical demo as a kind of socially engaged form of performance art at that time. I would confront these boys, and to my surprise they actually loved it. There would be waiting lists of kids trying to get into my classes,' she explains.¹⁸¹ Encoded into her approach is the negotiation of a bureaucratic, technocratic world of the patriarch, the paradigm of the 'natural' white male (for her embodied by Jean-Jacques Rousseau), versus her feminist subversion in the 'romantic anarchistic warrior princess, a character of my own invention.'¹⁸² In countering mathematic calculations with the sensitive eroticism of beautiful organic life forms, she positions her work away from the white male digital art scene of the 1990s.¹⁸³ Bodies – human and otherwise – permeate the intermedia spaces that Hart calls 'post-photography' (fig. 148). This term points to one of the conceptual centres of her work, namely generating organic forms from computer models through programmes such as Maya, which she started using as early as 1998.¹⁸⁴

181 Hart, 'Claudia Hart', 187.

182 Tina Sauerlaender and Claudia Hart, 'In conversation with Claudia Hart: Liminal feedback loops and hybrid dualities', *International Journal for Digital Art History*, no. 5 (20 October 2020), 4.05, doi: 10.11588/dah.2020.5.76172.

183 'Even in an established art school like Pratt – ...there were art places in the late twenty-first century where a hyper-misogynistic culture was still in place,' she explains while describing her aesthetic as a 'counter shooter aesthetic'; see Hart, 'Claudia Hart', 188.

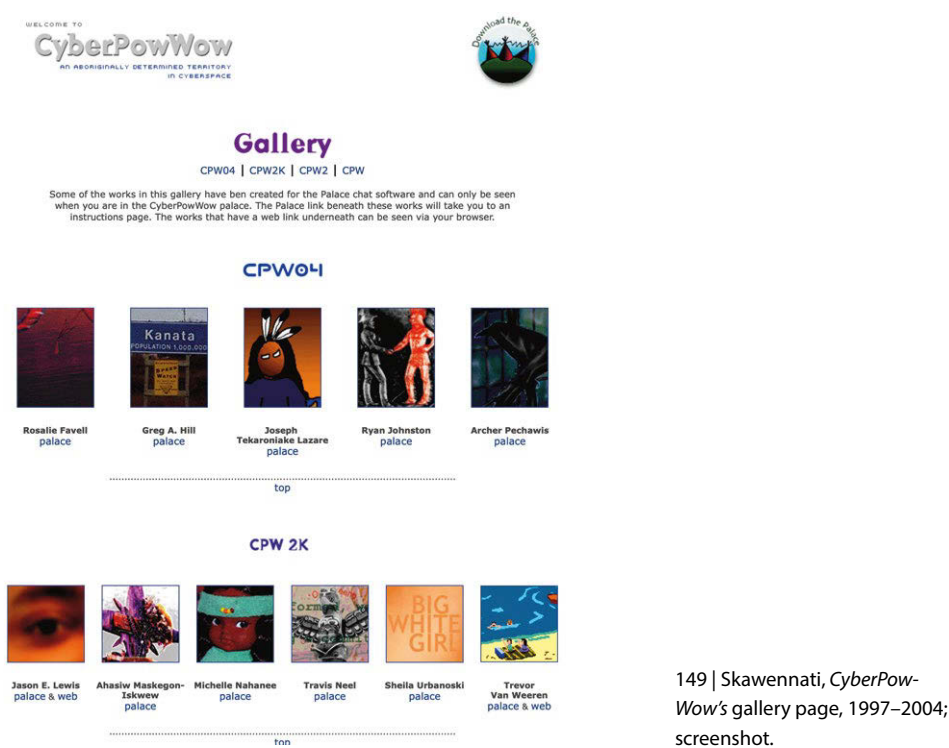
184 See Hart, 'Claudia Hart', 186.

Allahyari and Fahimi employ a similar fictional reorientation and reclamation of the female body alongside its theatrical mise-en-scene, translating these concepts into works deeply rooted in their own cultural contexts. Like Hart, the two artists view digital technology and the virtual realm as tools for constructing worlds from a feminist perspective, distinct from their militaristic origins. For Allahyari and Fahimi, storytelling plays a pivotal role in animating their sculptural archives. In contrast, Hart's practice emphasizes formalism, mathematics, geometry, symbolism, and poetry rather than a narrative focus, as she explains.¹⁸⁵ Instead of engaging in Hart's formal and conceptual inquiries within the realm of digital art, Allahyari and her contemporaries aspire to transcend the boundaries of art toward activist



148 | Claudia Hart, *Hell*, 2008–2011; 3D model integrated into photography, archival inkjet print on photo rag; framed, 108 × 135.9 cm.

185 See Claudia Hart, 'Short bio: Claudia Hart', artist's website (date unknown), <https://claudiahart.com/Short-Bio>, accessed 12 December 2024.



endeavours. They view their tools as imbued with political potential and seek to employ narrative and sculptural structures to re-assess historical and contemporary sociopolitical dynamics. The challenges faced by Allahyari, Fahimi, and other female artists using technology in Iran echo the gendered experiences of their American and European predecessors and mentors. By drawing on both the aesthetic and conceptual lexicons of Western female digital artists, the work of Allahyari, Fahimi and Motevalli not only aligns with marginalized genealogies but also extends them.

Allahyari's, Fahimi's, and Motevalli's artworks navigate the intersections of art, feminism, and decolonial movements. A notable parallel to their practice is found in the work of Skawennati, a Mohawk digital artist born Skawennati Tricia Fragnito in 1969.¹⁸⁶ The three share with Skawennati an interest in exploring the participatory potential of digital art in comprehending colonial histories, territoriality, spatial distribution, and the colonial legacies embedded within digital technology. Their artworks envision potential futures where their narratives are central and no longer relegated to the margins. Through a feminist lens applied to technology, these artists challenge one-sided historical representations by asserting their own significance and presence within these narratives. Despite being a pio-

186 Skawennati is an artist and self-directed curator who obtained her BFA from Concordia University in Montreal. Her involvement in New Media dates back to 1996.

neering figure in VR, Skawennati remained relatively unknown until recently, particularly in Europe. This observation resonates with Maria Fernandez's appraisal from 1999 that there was a lack of intersection between post-colonial theory and media theory, especially within the realm of digital or New Media art.¹⁸⁷ Skawennati's art engages with the (re)presentation of Indigenous pasts and futures through a feminist and decolonial lens. Her work illuminates the impacts of colonialism, highlighting the necessity for reclaiming space due to territorial usurpation. These artworks embody a post-colonial perspective in both a temporal and thematic sense, reflecting on the aftermath of colonialism while also critiquing its ongoing effects. Since the 1990s, Skawennati's pioneering work with immersive virtual environments has employed avatar bodies that 'act as a catalyst in order to break down the contemporary, political episteme of classification and create spaces for fluid *identities-in-politics* (Mignolo, 2011) – virtual bodies that reflect the layering of subjective personal experiences which may be multiple and changing thus provoking a rereading of bodies and identities in order to reimagine and reassert denied and silenced Indigenous voices in virtual reality.'¹⁸⁸

Skawennati's seminal virtual work *CyberPowWow* (1997–2004) stands as the first interactive online gallery showcasing Indigenous art (fig. 149). Its title pays homage to the traditional Powwow, a gathering of Native peoples for socialization and celebration in the

Chat

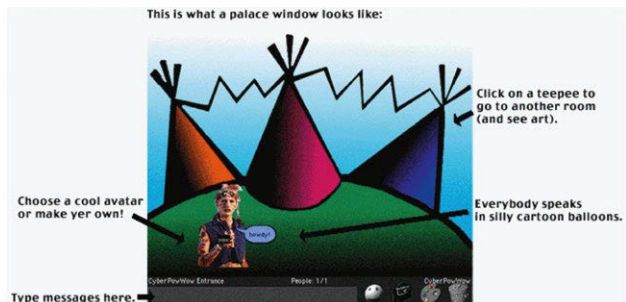
CyberPowWow used The Palace software as our graphical chatspace because it was easy to use and to customize. It featured cartoon-like text balloons, and a happy-face default avatar. Though we at Nation to Nation no longer have the resources to continue supporting The Palace, it is still possible to download it from www.ThePalace.com.

If you are reading this on a computer that has The Palace installed, you can check out the fabulous artwork, or stop by the library to read the insightful texts, all made just for CyberPowWow. To move around in a room, use your arrow keys. To go to another room, single-click on the hotspots—exactly like in a web page. The best way to learn how to use the palace is to use it.



The Download Palace icon will take you to the easy [instructions](#) page.

This is what a palace window looks like:



150 | Skawennati, *CyberPowWow*'s chat page, 1997–2004; screenshot.

187 Fernández, 'Postcolonial media theory', 59.

188 Treva Michelle Pullen, 'Skawennati's TimeTraveller: Deconstructing the colonial matrix in virtual reality', *AlterNative: An International Journal of Indigenous Peoples* 12, no. 3 (2016), 236, doi: 10.20507/AlterNative.2016.12.3.3.

Narragansett language. *CyberPowWow* by Skawennati, in collaboration with Ryan Rice and Eric Robertson, featured a participatory exhibition space, a central meeting area with a reading room featuring works by decolonial writers like Paul Chaat Smith and Audra Simpson and a chat space for instant messaging (fig. 150). The environment was established within the 'Palace', an online communication system that facilitated user interaction through basic graphical representations known as avatars. Skawennati explains that the project emerged as a direct response to the absence of Native artists in Eurocentric galleries and museums, or their problematic portrayal through ethnically themed exhibitions and stereotypes.

I came to realize that it was vital that Native people participate in the shaping of Cyberspace, so that we could determine our own image there. Prior new technologies had shaped the way non-Natives saw us – the camera taught people that we all wore headdresses; movies showed us as mute, or monosyllabic at best. But today, many of us Native types have been able to get our hands on a computer at the same time/rate as the rest of the population. We use it to tell our own stories, create our own images, and to have an effect on how the whole thing looks and works and acts.¹⁸⁹

Since embarking on her New Media journey in 1996, Skawennati has remained dedicated to challenging stereotypes about Indigenous peoples and facilitating their active participation in shaping the World Wide Web through the use and advancement of new media technologies. Viewing the internet as an extension of space that can be colonially dominated, she endeavours to empower Indigenous communities, fostering critical dialogue surrounding their art, technology, and communal identities. As Maureen Trudelle Schwarz aptly reminds us:

The term *postcolonialism* does not apply to the current American situation due to the fact that – at least from a legal standpoint – the 2.4 million Native Americans currently living within the boundaries of the contiguous United States remain a conquered people because the governmental policies and practices used to keep them under control remain in place.¹⁹⁰

It is important to underscore that in the 1990s, internet use and access were still quite limited. Artistic practices on the internet were considered highly experimental and often operated independently from traditional gallery or museum settings.

Skawennati's *CyberPowWow* thus emerged within a tightly-knit online community. Building on the insights from *CyberPowWow*, Skawennati went on to establish *AbTeC* ('Aboriginal Territories in Cyberspace'; fig. 151) with Jason Edward Lewis. This website initially focused on biannual exhibitions but swiftly evolved into a dynamic, ongoing online platform – a digitally determined, artist-driven centre – featuring solo exhibitions and thematic group shows.¹⁹¹

189 Skawennati quoted in Sharita Towne, 'Skawennati: Mohawk', *Contemporary North American Indigenous Artists* blog (11 March 2012), <https://contemporarynativeartists.tumblr.com/post/19142160162/skawennati-mohawk>.

190 Maureen Trudelle Schwarz, *Fighting Colonialism with Hegemonic Culture: Native American Appropriation of Indian Stereotypes* (Albany, New York: SUNY Press, 2014), 5.

191 *AbTeC* functions as an online collective with shared interests, with Skawennati serving as its Network Coordinator and Community Liaison. Other key figures include Jason Lewis, who oversees research for



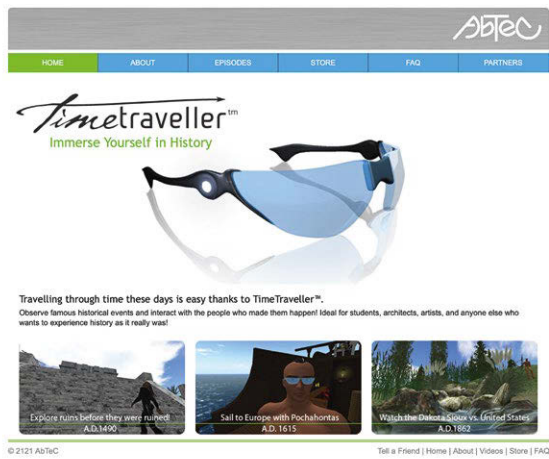
151 | Skawennati, AbTeC's home page, founded in 2005; screenshot.

Skawennati's virtual work *TimeTraveller*[™] (2007–2014, fig. 152) in *Second Life* emerged out of a collaboration with AbTeC. Continuing Skawennati's thematic trajectory, this project confronts the absence of Indigenous representation in futuristic popular culture and science fiction. Drawing from Skawennati's extensive historical research, the work reinterprets significant events from Indigenous historical narratives traditionally portrayed through colonial lenses. Through a diverse array of characters, the project delves into the artist's own identity narrative, exploring the possibilities of decolonization in reshaping Western-centric histories and empowering marginalized Indigenous voices.

In *TimeTraveller*[™], Skawennati's central characters, Hunter and Karahkwenhawi (fig. 153), embark on a journey through time to reinterpret North American histories from an Indigenous first-person perspective. In the words of the protagonist Hunter: 'When it comes to history, always get a second opinion.'¹⁹² Skawennati's depiction of the female protagonist as a resilient and self-reliant character stands in stark contrast to Hollywood productions' frequent portrayal

new projects, and Celia Pearce, a game designer. AbTeC's team includes project leads, research assistants, and project affiliates, fostering a collaborative environment for their initiatives.

192 Skawennati and Obx Labs, 'Timetraveller[™] episode 01' [video], *Vimeo* (25 September 2009), <https://vimeo.com/6757442>, accessed 13 December 2024.



152 | Skawennati, *TimeTraveller*™'s home page, 2007–2014; screenshot.



153 | From left to right:
Skawennati, *TimeTraveller*™: *Episode 01*, A.D. 1875, 2007–2014; screenshot (00:02:15).
Skawennati, *TimeTraveller*™: *Episode 04*, A.D. 1990, 2007–2014; screenshot (00:03:33).

of indigenous women as helpless victims. Through the immersive experience offered by virtual reality headsets, viewers accompany the protagonists on a journey through time and space across North and South America, uncovering forgotten and erased histories. Skawennati weaves a multifaceted narrative that unfolds over the nine episodes of her *TimeTraveller*™ series.

These episodes are created using machinima, a technique involving computer-generated scenarios and short films that punctuate the temporality of games. Machinima has been employed since the mid-1990s to capture action in video games or virtual environments. Skawennati's machinima, blending elements of machine and cinema, is rendered in *Second Life*, the same open-platform online virtual world also used by Hershman Leeson. For Skawennati, '*Second Life* is a platform and a medium. [Our] island in *Second Life* is an Aboriginally determined space. I am not very interested in creating new platforms. I'm much more excited about shaping them, creating content for them, finding the killer app for them.'¹⁹³

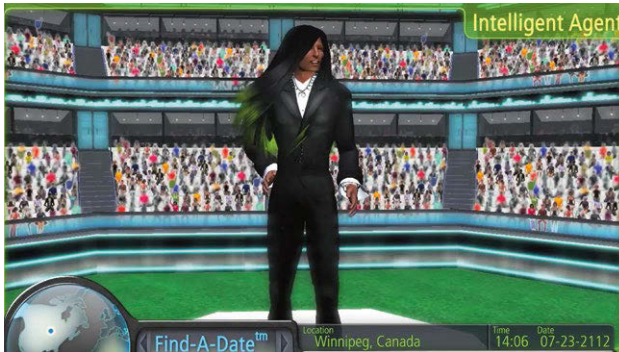
193 Skawennati quoted in Treva Michelle Legassie, 'Playing, performing, policing: Navigating avatar ex-



154 | Skawennati, *TimeTraveller™*: Episode 02, A.D. 1862, 2007–2014; screenshot (00:07:24).



155 | Skawennati, *TimeTraveller™*: Episode 03, A.D. 1990, 2007–2014; screenshot (00:07:23).



156 | Skawennati, *TimeTraveller™*: Episode 04, A.D. 2112, 2007–2014; screenshot (00:04:08).

Throughout Skawennati's work, references to pop and consumerist culture, including *Blade Runner* and 1990s gaming culture, merge with painful episodes from American history, including the Dakota Sioux massacre in Acton Township in Minnesota in 1862 (episode 2, fig. 154) or the Oka Crisis land dispute in 1990 between Mohawks and the town of Oka in Quebec (episode 3, fig. 155), which culminated in a brutal military intervention against the original owners of the land. In contrast to dystopian or apocalyptic movies such as *Blade Runner*, however, *TimeTraveller™* does not situate machines or the mixture of humans and technology as a threat. Instead, the work embraces technology as a means of fostering connections among people and cultivating political communities across time and space. While recounting stories of pain and hardship, it also celebrates triumph and love. This sentiment is notably expressed in the series's fourth episode, where the protagonist ventures into the future and encounters a society where Mohawk art and cultural life have become integrated into mainstream culture (fig. 156).

pression in *Second Life*' in Tiffany Funk (ed.), *Video Game Art Reader: Volume 2* (Amherst, Massachusetts: Amherst College Press, 2022).

Skawennati's work delicately balances the portrayal of the problematic effects of post-colonial modernity with considerations of decolonization. She aims to critically analyse the constraints imposed by hegemonic structures of a Eurocentric worldview while envisioning potential futures where Indigenous peoples form strong alliances, achieve prosperity, and maintain their distinct cultural identities.

Sculpted archives

Allahyari, Fahimi, and Motevalli share with Skawennati's visionary approach an interest in re-framing (female) identity, delinking it from 'problematic Westernized histories, and merging post-colonial theory with new media production.'¹⁹⁴ In the context of two very different cultural backgrounds, all four artists use digital technology and storytelling to examine issues of colonialism and as a means to rewrite, rethink, restage, and eventually archive history as a non-linear and non-naturalistic flow of time. Memory is thus manifested through a multitude of selves and perspectives, resituating the viewer within a fictional realm. Encouraged to adopt various viewpoints, the audience can contemplate significant personal and collective cultural moments and experiences that have been disentangled from colonial histories.

The authenticity of the events depicted in these works allows the artists to intertwine fictional elements with historically significant narratives. Through these imaginative interventions, they infuse their works with a critical dimension. Although the characters in the works of Allahyari, Fahimi, and Skawennati are fictional, their interactions with present and historical events allow users to perceive the narrative construction of colonial history. Such narratives are not inherently truthful; rather, they are shaped by contamination, complicating the notion of meaning construction.

Following artworks by feminist pioneers such as Hershman Leeson and Hart, these more recent works assume the function of living, generative, and future-oriented archives. Here, the online world and virtualized body serve as entry points for dismantling colonial modernity and decolonizing historical and contemporary identities and discourses. Skawennati, Allahyari, Fahimi, and Motevalli each re-inscribe the female and indigenous or non-Eurocentric body back into the narrative, thus emancipating history from the patriarchal and colonial matrix. Their artistic and political engagement with archives stems from an understanding of difference that emerges from intersectional feminist critique.

Simultaneously, they underscore the significance of New Media technologies in shaping identities within formerly colonized regions, as these tools offer avenues through which colonized peoples can explore and understand themselves.¹⁹⁵ Hence, Skawennati's, Allahyari's, Motevalli's and Fahimi's narratives serve as decolonial gestures for those identities silenced by the discourse of modernity. These works not only question and re-invent Western archival strategies using digital technology. They also show how diasporic or indigenous cultures are not fixed and how technologies may be crucial in exposing mechanisms of marginalization. By reviving concepts of digital archives to record the underrepresented narratives of women

194 Pullen, 'Skawennati's TimeTraveller', 236.

195 See Fernández, 'Postcolonial media theory', 60.

from the SWANA region, Allahyari, Fahimi, and Motevalli displace white, middle-class heteronormativity as the default reference point for discourses on digital culture and art. Together with artists such as Skawennati, they re-orient the discourse towards protagonists marginalized because of their race, class, sexuality, or gender. Their works thus outline a significant change in the understanding of archives, away from the archive as either merely a physical storage site of a particular set of records and their histories or simply the digital, virtual counterpart of such physical storage. Allahyari and her colleagues craft intricate, physically immersive environments that encapsulate memories of the past, present, and future. Unlike Skawennati, they explore their concerns through sculpture, installation, performance, video, spoken word, and written text. By intricately layering sculptural and textual elements, blending digital and tangible mediums, and intertwining collective myths with personal narratives, they (re-)sculpt the archive and blur the distinctions between past, present, and future.

In his seminal study on French cultural memory, Pierre Nora introduces the notion of '*lieux de mémoire*' as 'any significant entity, whether material or non-material in nature, which by dint of human will or the work of time has become a symbolic element of the memorial heritage of any community'.¹⁹⁶ This is a site 'where memory is crystallized, in which it finds refuge'.¹⁹⁷ He distinguishes those places from '*milieux de mémoire*, settings in which memory is a real part of everyday experience', like a family gathering at a church service.¹⁹⁸ Astrid Erll has further specified that the emergence and life of memory sites depend 'on repeated media representations, on a host of remediated versions of the past which "converge and coalesce" into [what Pierre Nora has called] a *lieu de mémoire*; which create, stabilize and consolidate, but then also critically reflect upon and renew these sites'.¹⁹⁹ This dynamic strongly underpins Allahyari's and her peers' memorial work.

In this work, the archive, as a memory site, assumes not only a strong sculptural but also a commemorative form. This is, for example, evident in Allahyari's installation *Aisha/Qandisha*, where the figure's elevation on a plinth, its reflection in the water, its enlargement through the digital projection on the wall, the work's soundscape, and the supporting details of her story all create the experience of entering a commemorative sculptural site. *The Laughing Snake* likewise reformats memory within the memorial, a sculptural structure housing a physical object, by commemorating stories of women from the SWANA region and reminding viewers of these stories and their subjects.

As the following chapter shows further, the works of Allahyari and her peers go beyond the mere act of archiving. Instead, they push towards enacting a future-oriented structure that commemorates, brings people together, and—monumentalizes. Allahyari and her peers engage with the 'codes' of monuments to propose embodied ways to mark and make an

196 Pierre Nora and Lawrence D. Kritzman, *Realms of Memory: Rethinking the French Past, Vol.1: Conflicts and Divisions*, tr. Arthur Goldhammer (New York, New York: Columbia University Press, 1996), xvii.

197 Nora and Kritzman, *Realms of Memory*, 1.

198 Nora and Kritzman, *Realms of Memory*, 1.

199 Astrid Erll and Ann Rigney, 'Introduction: Cultural memory and its dynamics', in Astrid Erll and Ann Rigney (eds.), *Mediation, Remediation, and the Dynamics of Cultural Memory* (Berlin: Walter de Gruyter, 2009), 4.

accessible space for painful, suppressed, and forgotten memories. The following chapter will therefore examine Allahyari's and her peers' work in the context of past and current discourses on monuments.

3.3 Archival monuments: Reflections on monumentality

Every period has the impulse to create symbols in the form of monuments which according to the Latin meaning are 'things that remind', things to be transmitted to later generations. This demand for monumentality cannot, in the long run, be suppressed. It will find an outlet at all cost.²⁰⁰

Allahyari, Motevalli, and Fahimi construct embodied places and structures housing gendered and diasporic memories and histories enacted through digital technologies.²⁰¹ Their works are conceived as commemorative structures with a clear intention to commemorate, preserve, and remind audiences of the stories of women from the SWANA region. This deliberate anchoring of memories in sculptural forms, their embodiment in a designated form and site, not only invites discussion of Allahyari's and her peers' work in the context of digital, diasporic, and generative archives, but also situates their work in proximity to monumental codes, akin to memorial structures aimed at transmitting messages for the future.

Unlike an archive, a monument indicates something that is emphasized in a double sense: in the cause for its representation as well as in its form.²⁰² A monument highlights something worthy of glorification or remembrance.²⁰³ Compared to an archive, a monument is thus not only an embodiment of a memory in a textual or physical format, but also an (often sculptural) art object with a particular motivation. From its earliest use until today, the word 'monument' refers to a human artifact erected to preserve the memory of a notable person, action, or event.²⁰⁴ Monuments memorialize and are therefore also called memorials. Monuments also represent a succinct temporal configuration. While archives document the past and its memories in broader, more diffuse formats, monuments are *intentional* memory structures, often taking sculptural form, that not only record the past but also serve

200 Sigfried Giedion, *Architecture, You and Me: The Diary of a Development* (Cambridge, Massachusetts: Harvard University Press, 1958), 28.

201 An adaption of this chapter has appeared as Mara-Johanna Kölmel, 'Sculpture expanded: In Richtung einer nomadischen Monumentalität' [Sculpture expanded: Towards a nomadic monumentality], in Anne Marlene Meuer, Markus Kersten und Sarah Hegenbart (eds.), *Grenzen der Künste im digitalen Zeitalter* [Boundaries of the arts in the digital age] (Berlin: DeGruyter, 2025), 25–51.

202 See Albrecht Graf von Egloffstein, 'Das Denkmal: Versuch einer Begriffsbestimmung' [The memorial: An attempt to define the concept], in Ekkehard Mai and Gisela Schmirber (eds.), *Denkmal – Zeichen – Monument: Skulptur und öffentlicher Raum heute* [Memorial, sign, monument: Sculpture and public space today] (Munich: Prestel, 1989), 38.

203 See Egloffstein, 'Das Denkmal: Versuch einer Begriffsbestimmung' [The memorial: An attempt to define the concept], 38.

204 See Marita Sturken, 'Monuments', in Michael Kelly (ed.), *Encyclopedia of Aesthetics* (New York, New York: Oxford University Press, 1998), 274.

to convey a message to the future. They reconstruct the past for communication to future generations while actively engaging in these past realities, capable of shaping them.

Allahyari's artworks serve as a reminder to women, femmes, and individuals from the SWANA regions that their narratives and experiences, whether real or imagined, hold significance not solely for the present moment but also for the assertion of an alternative future that is not dominated solely by white or Western perspectives.²⁰⁵ Similarly, Amitis Motevalli perceives her practice as unfolding between the archive and the monument. Iranian artist Nooshin Rostami also situates her work as a hybrid between archival and monumental structures. These pieces resonate with works of numerous other contemporary artists who are currently revitalizing and redefining the functions of monuments as critical, creative repositories for forgotten diasporic histories and memories. On the one hand, their works acknowledge the necessity, significance, and societal role of collective commemorations. On the other hand, they interrogate monumental codes inherited from colonial, racist, misogynist, imperialist, even fascist contexts. As a result, they offer innovative contributions and perspectives to ongoing debates surrounding monuments and counter-monument movements.

This final chapter, therefore, situates Allahyari and her peers within the debates on monuments of the twentieth and twenty-first centuries. By highlighting parallels and discontinuities, this section demonstrates how Allahyari's generation of artists redefines previous art-historical discussions on monumental codes through their use of digital technologies. By reconsidering the function of monuments within digital, feminist, and diasporic contexts, what forms of monumentality emerge from their work?

یادبود

یادبود (*yādbūd*) is the Persian word for 'monument, memorial, or landmark'. In a literal sense, it can be translated as 'aid to memory', something used as a reminder of something or someone. The word is tied to the Persian word بنای یادبود (*banāye yādbūd*), which likewise means 'memorial or monument' but commonly refers to a construct, figure, or building. Other words that are used for memorials are لوح یادبود (*loḥe yādbūd*), which generally means 'memorial plaque, board,' or even a valuable sheet of paper, as well as یادگار (*yādegār*), which is translated as 'relic, souvenir, memorial, memory, evocation, or token'. While memorials mainly focus on paying tribute to the dead by emphasizing loss or sacrifice, monuments in both the West and SWANA regions can honour and be a reminder of the past in more general forms.²⁰⁶ The English and German word 'monument' derives from the Latin word *monumentum*, something that reminds.²⁰⁷ The word 'monument' also links to the Latin word *manere*, something that remains.²⁰⁸ From the same origin derives *monere*, to remind, and *monimenta*, memorials or bur-

205 See Allahyari, 'She Who Sees the Unknown'.

206 See Sturken, 'Monuments', 274.

207 See Robert K. Barnhart (ed.), *Chambers Dictionary of Etymology* (Edinburgh: Chambers, 1999), 675.

208 See Hui, 'Texts, monuments and the desire for immortality', 20.

ial places that remind those passing by that they existed and are mortal.²⁰⁹ Following these origins, other things that are written or produced for the sake of memory are called *monimenta*, 'reminders'.²¹⁰ According to the *Chambers Dictionary*, the word 'monument' can either refer to 'a statue, trophy, building or sim., erected to commemorate a person or event', a 'tomb', 'anything which serves as a commemoration, a memorial' but also a 'written memorial, document, record' or 'a literary work, book, writings, literature'.²¹¹ A monument thus embodies a memory in a textual, physical, or sculptural form. Using visual codes, monuments strive to convey and impart a message. The German art historian Alois Riegel defined the monument as an object that preserves an element of the past. He distinguishes between two types of monuments: intentional ones, the lasting significance of which is determined by its makers, and unintentional ones, which achieve their monumental status through later events.²¹²

In interviews and public presentations, Allahyari has suggested that *She Who Sees the Unknown* not only aims to challenge 'the limitations and possibilities of remembering and forgetting' but is actually intended 'to remind women, femmes, the people of the Middle East that our figures and our stories, fictional and actual, matter – not just for the present but for claiming an alternative future that is not exclusively white or western'.²¹³ Consistent with the various definitions of monuments, Allahyari's work thus instructs 'pedagogically on what should be remembered and to what purpose, and...speak[s] with some permanence to the future as a means of guiding the values of the present'.²¹⁴

Allahyari's statement also evokes a Persian lineage inherited from the ancient Mesopotamian kings who not only 'studied history to foresee the future and to make correct decisions' but built monuments to access such knowledge.²¹⁵ As in the Western understanding of monuments, in Assyrian, Akkadian, and Babylonian cultures, monuments were not only erected in commemoration of events but to make political declarations that legitimized the power of the kings and ensured their influence in the future.²¹⁶ By employing traditional visual styles and themes, the past was communicated visually, with the intention of passing on knowledge to future generations. Monuments played a crucial role in conveying memory, often ensuring the legitimacy of the current ruler.²¹⁷ In Persia, too, monuments can therefore be considered as much commemoration of the past as present-day enactment of future commemoration.²¹⁸

209 See Hui, 'Texts, monuments and the desire for immortality', 20.

210 Hui, 'Texts, monuments and the desire for immortality', 20.

211 Editors of Chambers, *The Chambers Dictionary*, 12th edn (Edinburgh: Chambers, 2011), 995.

212 See Alois Riegel, 'The modern cult of monuments: Its character and its origins', tr. Kurt W. Forster and Diane Ghirardo, *Oppositions: A Journal for Ideas and Criticism in Architecture* 25 (Fall 1982), 21–56.

213 Allahyari 'She Who Sees the Unknown'.

214 Sturken, 'Monuments', 274.

215 Mehr Azar Soheil, *The Concept of Monument in Achaemenid Empire* (London: Routledge, 2018), chap. 8, 517.1.

216 See Soheil, *The Concept of Monument in Achaemenid Empire*, chap. 4, 289.0.

217 See Soheil, *The Concept of Monument in Achaemenid Empire*, chap. 8, 515.5.

218 See Soheil, *The Concept of Monument in Achaemenid Empire*, chap. 4, 289.0; Jean-Baptiste Yon, 'Hatra



157 | Morehshin Allahyari, *King Uthal*, from the series *Material Speculation: ISIS*, 2015; 3D printed resin and electronic components.

This Persian concept of the monument found embodiment in landmarks like the ancient city of Persepolis, as well as Hatra and Palmyra. Through their art, architecture, bas-reliefs, and inscriptions, these cities conveyed fundamental principles of kingship, alongside their empire's aspirations for a universal order and the guiding policies behind them.²¹⁹ The structures and artworks commissioned in these locations were designed to convey a message to the entire empire and its future generations, while also commemorating the achievements of the past.²²⁰ Jean-Baptiste Yon writes that the 'monumentalization of the public sphere is among the most striking phenomena' of the SWANA regions.²²¹ As the 'place of memory par excellence', these cities functioned as both archives and monuments that safeguarded the memorials and historical objects of the dynasty's ancestors.²²² A significant aspect of this memory practice involved preserving the memories of their ancestors through illustrated stories of kings, heroes, and religious figures, creating textual monuments.²²³

This understanding of monumentality is inscribed in Allahyari's series, *Material Speculation: ISIS*. Here the artist employs her characteristic approach of research, archiving, and 3D modeling and printing to digitally recreate twelve selected monuments from the Roman-era city of Hatra and Assyrian artifacts from Nineveh, deliberately destroyed by ISIS in 2015. One of the reconstructed monument files, *King Uthal* is available for download on rhizome.org (fig. 157). Allahyari also showcases her reconstructed monuments in museum settings, where she presents them in translucent material, each containing a hard drive with her research and printable files of the pieces themselves. While her work adopts the formal language of commodified cultural heritage available for purchase in museum shops, it

and Palmyra: The monumentalization of public space', in Lucinda Dirven (ed.), *Hatra: Politics, Culture and Religion between Parthia and Rome* (Stuttgart: Franz Steiner Verlag, 2013), 161.

219 See Soheil, *The Concept of Monument in Achaemenid Empire*, chap. 2, 86.3.

220 See Soheil, *The Concept of Monument in Achaemenid Empire*, chap. 4, 287.0.

221 Yon, 'Hatra and Palmyra', 161.

222 Soheil, *The Concept of Monument in Achaemenid Empire*, chap. 8, 517.1.

223 See Hui, 'Texts, monuments and the desire for immortality', 19.



158 | Morehshin Allahyari, *Material Speculation: ISIS*, 2015–2016. Installation view, Trinity Square Video.

simultaneously proposes methods for democratizing heritage accessibility through online distribution and 3D technologies. Allahyari's project does not claim to replicate destroyed artifacts and monuments in their entirety. Instead, the objects maintain their identity as plastic containers, emphasizing that it is the information they carry that the series deems sacred and influential (fig. 158).

In Allahyari's endeavour to remember, commemorate, and preserve the stories from the SWANA region, the commemorative and sculptural nature of her work mirrors the monumental codes familiar to a Persian understanding of monuments. This holds true not just for *Material Speculation (ISIS)*, but also for her series *She Who Sees the Unknown*. Every element of Allahyari's installation of *Aisha/Qandisha* (see fig. 118), for example – including the figure's elevation on a plinth, its reflection in the water, its expansion and augmentation through digital projection on the wall, its soundscape, and the narrative underpinning the story – collectively contribute to a grand, space-encompassing monumental structure reminiscent of what Yon refers to as the 'monumentalization' of space in the 'Middle East'.²²⁴

In *The Laughing Snake*, another of Allahyari's works from the series, memory is once again reimagined and presented within a commemorative, sculptural, and experiential framework, with a distinct intent. The deliberate construction of her work as an embodied and sculptural locus for memory is further emphasized when viewed within an exhibition context. Set within a room lined with mirrors, the hyper-narrative is accessible via a flat screen. A 3D printed and painted figure of the Laughing Snake itself hangs from the ceiling, completing a futuristic, shrine-like presentation in what resembles a devotional space (see fig. 115). Once more, the presentation of the work evokes a sense of sanctity. The spatial encounter enlarges the view-

224 Yon, 'Hatra and Palmyra', 161.

er's presence, extending it along with the sculptural object beyond its physical boundaries. As the spectator gazes into one of the mirrors, their experience mirrors the faith of the Laughing Snake. As one enters Allahyari's installation, physicality and virtuality, as well as reality and hyperreality, converge. Thus, the mirrored room replicates the experiences of navigating the digital space of the hyperfiction and its commemorative structure. The interplay between mirror and screen captivates the spectator visually, enticing them into an affective engagement. The installation immerses the viewer in an overwhelming spatial encounter reminiscent of the space-encompassing and monumental function also seen in *Aisha/Qandisha*.

Amitis Motevalli's work is also deeply influenced by a SWANA concept of the monument, which she approaches through the lens of the shrine. Her surname, Motevalli, translates as 'Keeper of Shrines'.²²⁵ For centuries, her father's family served as caretakers of a Shia shrine in Sari, Iran. However, in recent decades, all shrines were nationalized, and the Sari shrine was taken from her family.²²⁶ The memories of childhood visits to the shrine profoundly permeate her work on conceptual, aesthetic, and structural levels, sparking her keen interest in public monuments and the associated rituals. Motevalli blends symbolism from Islamic art and ritual with the secular experiences of social justice movements and broader struggles for equality and justice. This synthesis is evident not only in *Golestān Revisited*, an archive and memorial for women who perished in 2010 and beyond during the so-called 'war on terror' (see 'Diasporic archives' in the previous chapter), but also in her other works.

One such piece, *Haram eh Massomeen va Shohadha – Threshold of the Innocents and Martyred* (2008; fig. 159), is a hand-carved wooden shrine sculpture and installation inspired by her family's shrine in Sari, Iran. This work serves as a tribute to individuals killed by LAPD police officers in 2008 and is a direct response to the global Black Lives Matter movements (fig. 160). Conducting research into forty-one documented police cases, Motevalli commissioned and carved portraits of fourteen men and women of African-American descent whose images were attached to their files. Throughout her exhibition, she documented additional violent incidents on a second rectangular structure made of plexiglass, which she placed inside the shrine. During weekly performances, she inscribed each new story in reverse on the structure to ensure legibility from the outside. Family members of the victims would sometimes visit the shrine to pay tribute or provide feedback for corrections or additions to her records. Her work culminated in a wall text featuring an Iranian Shia prayer dedicated to those who lost their lives as victims of violence. By appropriating the devotional and spiritual iconography of her family's shrine through local materials, iconographies, and histories, Motevalli creates a collective, collaborative public monument.

The Iranian and New York-based artist Nooshin Rostami also sees her work imbued with questions related to commemorative structures. Her works *Corner of my Room* (2018) and *And the Alleyway to the Prison's Garden* (2018), serve as embodied and sculptural allegories of family dynamics in diaspora, while simultaneously acting as deeply personal monuments to her

225 Amitis Motevalli, 'Bio', artist's website (date unknown), <https://amitismotevalli.com/bio>, accessed 16 January 2025.

226 Motevalli, 'Bio'.



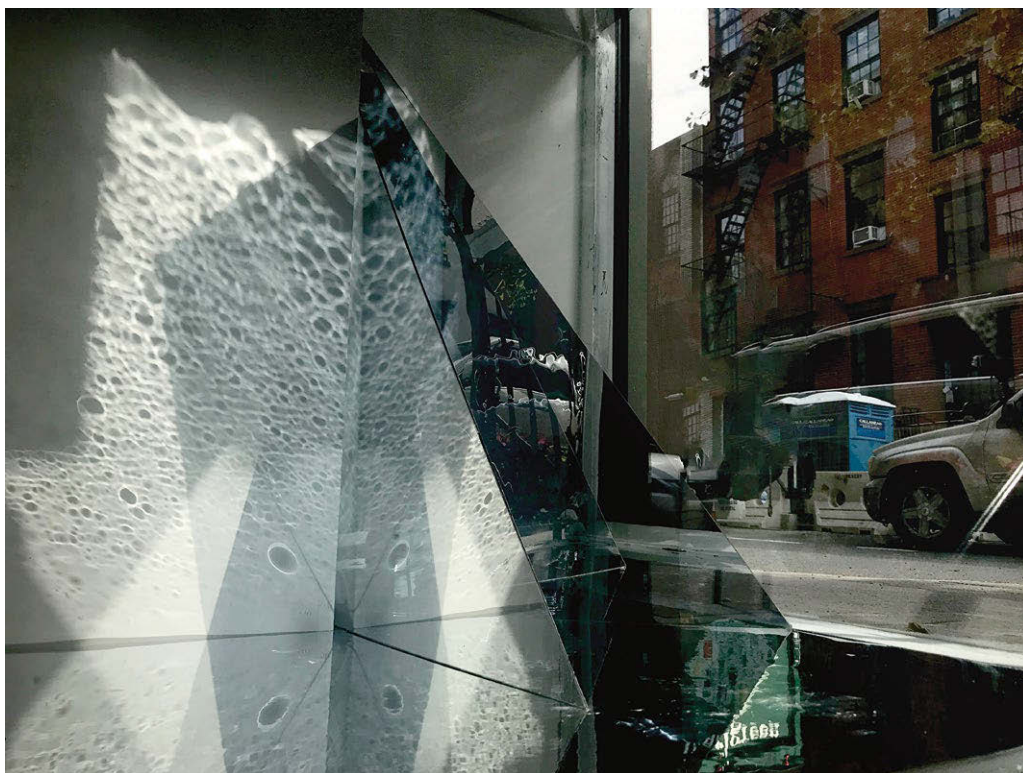
159 | Amitis Motevalli, *Haram eh Massomeen va Shohadha – Threshold of the Innocents and Martyred*, 2008; hand-carved wooden shrine sculpture and installation; 181.88 × 274.32 cm. Installation view, Los Angeles, 2008.



160 | Amitis Motevalli, *Haram eh Massomeen va Shohadha – Threshold of the Innocents and Martyred*, 2008; collapsible installation made with stencils spray-painted on paper. Installation view, Los Angeles, 2008.

late father. Eliciting a sense of displacement, these complementary projects delve into how physical distance alters familiar relationships. Based on interviews Rostami conducted with her parents residing in Iran, a place she is no longer able to visit, the works explore a series of spatial landscapes characterized by light and shadow – recurring motifs in Rostami's oeuvre.

161 | Nooshin Rostami, *And the Alleyway to the Prison's Garden*, 2018; wood, metal, glue, reflective materials, video light projection. Installation view, Trestle Gallery, New York, 2018.



162 | Nooshin Rostami, *Corner of My Room*, 2018; reflective film, see-through mirrors, light, audio track; 61 × 61 × 91.5 cm. Installation view, corner of a building in West Village, New York, 2018.

The accompanying video, crafted by the artist herself using planes of reflective film where light interacts with folded steel sculptures, forms an integral part of the artistic narrative.

For the first iteration of her project *And the Alleyway to the Prison's Garden* Rostami projects elements from her video onto the walls of a confined space, employing surface, space, light, voids, and shadows (fig. 161). Constructing a disorienting architectural experience and landscape based on her father's recollections, the title derives from the street where her father spent his childhood in Shahroud, Iran. Thus, it becomes a deeply personal, site-specific memorial encapsulating elements and memories of their relationship. A later work, *Corner of my Room*, was shown in a semi-public space at the corner of a building on New York's West 10th Street as part of an exhibition curated by Art in Buildings. Here, Rostami constructs an infinite room based on her mother's reminiscences (fig. 162). Light takes on fluid forms reminiscent of ocean waves, with audio containing fragments of her mother's responses to the videos playing on the street as pedestrians pass by. Out of the interplay of surface, space, light, voids, and shadows, Rostami fashions an intricate architecture, landscape, and ultimately, sculptural structure imbued with a memorial essence, articulating her personal journey as a woman in the diaspora.

Monuments in the twenty-first century

The works of Allahyari, Motevalli, and Rostami can be described as monuments, since they are memorial structures intended to convey a message. Yet the works are also decoupled from the typically colossal aesthetics of a monument. Instead, they function as future-oriented sites for commemoration. By invoking a sculptural memory structure with clear intentionality – one of the monument's primary functions – these Iranian artists create visual metaphors to articulate their personal experiences of diaspora. The works by Allahyari and her peers not only reconstruct the past to present it to future generations but also actively participate in our current realities and aim to shape them. To this end, Allahyari and her peers mobilize the logic of monuments to 'localise' and 'select cultural memory' to the degree that it is capable of 'directly contributing to the maintenance and preservation of the identity of an ethnic, religious, tribal, or familial community'.²²⁷

By highlighting monuments' power to reflect and solidify values, and ultimately reimagine a world, these works offer new perspectives in recent decades' debates over monuments and counter-monuments. In light of the rapidly changing aesthetic and political contexts of the twentieth century – including, among other events, two world wars, the Holocaust, the Vietnam War, the Cold War, repeated wars in the SWANA regions, and the collapse of Communist regimes – the concept of the monument and its aesthetics came to face a significant challenge.²²⁸ Arguably, by the end of the nineteenth century, monuments were

227 Marija Kulišić and Miroslav Tuđman, 'Monument as a form of collective memory and public knowledge', *INFUTURE 2009: Digital Resources and Knowledge Sharing* (6 November 2009), 126–127, https://www.researchgate.net/publication/268439131_Monument_as_a_Form_of_Collective_Memory_and_Public_Knowledge, accessed 12 December 2024.

228 See James E. Young, 'Twentieth-century countermonuments', in Kelly (ed.), *Encyclopedia of Aesthetics*, 278.

no longer important subjects of study in the field of art history.²²⁹ Modernism sealed the fate of monuments, countering their intentional character and one-sided interpretation of the past artificially with unintentional, unmonumental, and ephemeral forms.²³⁰ For modern artists and critics, its heroic stiffness and naive pretentiousness doomed the monument forever as archaic, and it was discarded as an artistic form. 'The notion of a modern monument is virtually a contradiction in terms; if it is a monument, it is not modern, and if it is modern, it cannot be a monument,' Lewis Mumford wrote as early as 1938.²³¹ Krauss famously designated monuments as unable to refer to anything beyond their base, 'functionally placeless and largely self-referential'.²³² In the context of debates on German postwar monument culture, historians suggested that rather than commemorating events, monuments can also bury them beyond ideological layers of national interests.²³³ Others argued that instead of preserving public memory, the monument displaces it altogether, supplanting a community's memory work with its own material form.²³⁴ And yet, by contesting the monument, postmodernism also triggered a new interest in the subject. If monuments historically were fixed to a site, then modern monuments were characterized by 'a kind of sitelessness, or homelessness, an absolute loss of place'.²³⁵ Krauss discussed these characteristics in relation to modernist sculpture and concluded that a monument's status, meaning, and function were 'essentially nomadic'.²³⁶ In Germany, the extensive historical and social reckoning with the Nazi era has led to an unprecedented level of reflective preoccupation and public debate around the notion of the monument.²³⁷ Hermann Lübke identified the peak of the building

229 See Horst W. Janson, *The Rise and Fall of the Public Monument*, ed. Andrew W. Mellon (New Orleans, Louisiana: Graduate School, Tulane University, 1976); Krauss, 'Sculpture in the expanded field', 33.

230 See, for example, Michael Diers and Andreas Beyer (eds.), *Mo(nu)mente: Formen und Funktionen ephemerer Denkmäler* [Mo(nu)ments: Forms and functions of ephemeral memorials] (Berlin: Akademie Verlag, 1993).

231 Lewis Mumford, *The Culture of Cities* (New York, New York: Harcourt, Brace and Co., 1938), 438.

232 Krauss, 'Sculpture in the expanded field', 34.

233 See Martin Broszat and Saul Friedlander, 'A controversy about the historicization of national socialism', in Peter Baldwin (ed.), *Reworking the Past: Hitler, the Holocaust, and the Historians' Debate* (Boston, Massachusetts: Beacon, 1990), 102–134.

234 See Andreas Huyssen, 'Monument and memory in a postmodern age', *The Yale Journal of Criticism: Interpretation in the Humanities* 6, no. 2 (1993), 249; Andreas Huyssen, *Twilight Memories: Marking Time in a Culture of Amnesia* (New York, New York: Routledge, 1995); Hermann Lübke, 'Zeit-Verhältnisse' [Time relations], in Wolfgang Zacharias (ed.), *Zeitphänomen Musealisierung: Das Verschwinden der Gegenwart und die Konstruktion der Erinnerung* [Temporal phenomenon musealization: The disappearance of the present and the construction of memory] (Essen: Klartext, 1990), 40–50.

235 Krauss, 'Sculpture in the expanded field', 34.

236 Krauss, 'Sculpture in the expanded field', 34.

237 See, for example, Arkadi Zeltser, *Unwelcome Memory: Holocaust Monuments in the Soviet Union*, tr. A. S. Brown (Jerusalem: Yad Vashem, 2018); William John Niven and Chloe E. M. Paver, *Memorialization in Germany since 1945* (Basingstoke: Palgrave Macmillan, 2010); Peter Carrier, *Holocaust Monuments and National Memory Cultures in France and Germany since 1989: The Origins and Political Function of the Vél'd'Hiv'in Paris and the Holocaust Monument in Berlin* (New York, New York: Berghahn Books, 2005); Brigitte Hausmann, *Duell mit der Verdrängung? Denkmäler für die Opfer des Nationalsozialismus in der Bundesrepublik Deutschland*

of monuments and memorials in the 1970s and 1980s.²³⁸ In response, a generation of white and often male conceptual artists countered the problematic history of the monument with proposals for counter- and anti-monuments, such as Hans Haacke's *Und Ihr Habt Doch Gesiegt* (1988), Sol LeWitt's *Black Form – Dedicated to the Missing Jews* (1987/1988), Jochen Gerz and Esther Shalev-Gerz's *Monument Against Fascism* (1989) in Hamburg-Harburg, and the projections of Krzysztof Wodiczko (1983 onward).

In the face of these efforts, the counter-monument was swiftly incorporated into the artistic canon. It now signifies both a site of cultural conflict and a place of potential for reclaiming the memories of those who have been marginalized or victimized. While monuments today are 'born resisting the very premise of their birth', public spaces all over the world are still cramped with the weight of colonial or fascist figures, looted artefacts, and trophies of war.²³⁹ Some of these monuments have been removed from their original contexts, defiling their history and the identity of the people they belonged to.²⁴⁰ While contemporary discussions surrounding monuments may offer critical reflections on their complex and troubled historical trajectories, governments and public agencies persist in preserving, designing, and even commissioning monuments that oversimplify and reduce the significance of multifaceted events and individuals. As Young reminds us, 'only rarely does a nation call on itself to remember the victims of crimes it has perpetrated. Where are the national monuments to the genocide of American Indians, to the millions of Africans enslaved and murdered, to the kulaks and peasants starved to death by the millions?'²⁴¹

Allahyari, Motevalli, and Rostami acknowledge and actualize the need for, importance of, and social function served by collective commemorations when they charge the Persian heritage of monuments with meanings that are pertinent to their own lived experiences. At a time when demonstrations all over the world take down monuments celebrating colonial histories, they activate the ability of the monumental to commemorate complex historical trajectories, as well as gendered and diasporic experiences.²⁴² Their works reveal how

1980 bis 1990 [Duel with repression? Memorials to the victims of national socialism in the Federal Republic of Germany 1980 to 1990] (Münster: Lit, 1997); Günter Morsch and Christine Brade, *Ich dachte, Sie wären tot: NS-Mahnmale und Erinnerungsprozesse in Ostwestfalen-Lippe* [I thought you were dead: NS memorials and remembrance processes in East Westphalia-Lippe] (Bielefeld: Verlag für Regionalgeschichte, 1997); Günter Morsch (ed.), *Von der Erinnerung zum Monument: Die Entstehungsgeschichte der Nationalen Mahn- und Gedenkstätte Sachsenhausen* [From memory to monument: The history of the development of the national warning and memorial site Sachsenhausen] (Berlin: Hentrich, 1996); Mai and Schmirber (eds.), *Denkmal – Zeichen – Monument* [Memorial, sign, monument].

238 See Lübke, 'Zeit-Verhältnisse' [Time relations], 40–50.

239 See Young, 'Twentieth-century countermonuments', 278.

240 See Young, 'Twentieth-century countermonuments', 278.

241 James E. Young, 'Counter-monument: Memory against itself in Germany today', W. J. T. Mitchell (ed.), *Art and the Public Sphere* (Chicago, Illinois: University of Chicago Press, 1992), 52.

242 See Tyler Stiem, 'Statue wars: What should we do with troublesome monuments?', *The Guardian* online (26 September 2018), <https://www.theguardian.com/cities/2018/sep/26/statue-wars-what-should-we-do-with-troublesome-monuments>, accessed 13 December 2024; Britta Timm Knudsen and Casper Andersen, 'Affective politics and colonial heritage: Rhodes Must Fall at UCT and Oxford', *International Jour-*

monuments in the contemporary era continue to perpetuate a particular, one-sided form of history. The artists address a significant gap that previous efforts by a generation of white (post-)conceptual artists has failed to acknowledge. Yet Allahyari and her peers also share with their predecessors an interest in exploring the relationship between monuments and memories – past, present, and future – highlighting their ‘anthropological function.’²⁴³ They delve into the Persian tradition of remembrance, which envelops the historical trajectory of both textual and physical monuments, posing uncomfortable questions about history and memory. By safeguarding the narratives of individuals historically marginalized from public representation, their works foster engagement and discourse about who is commemorated. In essence, they pose the pivotal question: ‘Who matters?’

To this end, Allahyari, Motevalli and Rostami refashion conceptual codes of monuments through newer media forms. Allahyari, in particular, revises and revisits the concept of monument in the virtual and digital sphere. Put differently, Allahyari remediates the commemorative logic of monuments using the function inherent to digital computer technologies.

Remediated monuments

In their seminal study *Remediation: Understanding New Media*, David Jay Bolter and Richard Grusin introduce the concept of remediation to examine processes like Allahyari’s, in which newer media refashion previous media forms. At least ‘since the Renaissance,’ Bolter and Grusin contend, media ‘are continually commenting on, reproducing, and replacing each other, and this process is integral to media. Media need each other in order to function as media at all.’²⁴⁴ The logic of remediation described by the authors thus encapsulates the mediation of mediation. Each mediation depends on other acts of mediation; in other words, ‘all representations of the past draw on available media technologies, on existent media products, on patterns of representation and medial aesthetics.’²⁴⁵ Linked up with this process is the ‘double logic of remediation,’ namely the oscillation ‘between immediacy and hypermediacy, transparency and opacity.’²⁴⁶ This ‘double logic’ describes the paradox of remediation, namely that the appropriation of existing media allows the new medium to strengthen its claim to immediacy. The new medium aims to foster an ‘experience of the real’ that erases its inherent sense of mediation and becomes transparent.²⁴⁷ ‘Our culture wants to multiply

Journal of Heritage Studies 25, no. 3 (4 March 2019), 239–258, doi: 10.1080/13527258.2018.1481134; Wikipedia, ‘Rhodes Must Fall’, *Wikipedia* online encyclopaedia (date unknown), https://en.wikipedia.org/w/index.php?title=Rhodes_Must_Fall&oldid=935851041, accessed 15 January 2020; Steven Morris, ‘Edward Colston statue retrieved from Bristol harbour’, *The Guardian* online (11 June 2020), <https://www.theguardian.com/uk-news/2020/jun/11/edward-colston-statue-retrieved-bristol-harbour-black-lives-matter>, accessed 13 December 2024.

243 See Kulišić and Tudman, ‘Monument as a form of collective memory and public knowledge’, 126–127.

244 Jay David Bolter and Richard A. Grusin, *Remediation: Understanding New Media* (Cambridge, Massachusetts: MIT Press, 2000), 55.

245 Erll and Rigney, ‘Introduction: Cultural memory and its dynamics’, 4.

246 Bolter and Grusin, *Remediation*, 17.

247 Bolter and Grusin, *Remediation*, 5.

its media and erase all traces of mediation; ideally, it wants to erase its media in the very act of multiplying them,' Bolter and Grusin write.²⁴⁸ On the other hand, this process also generates 'an experience of the medium,' which makes remediation an act of hypermediacy.²⁴⁹ By multiplying media, it reminds the viewer of the presence of a medium. Bolter and Grusin's concept of the double logic of remediation also introduces a helpful framework for thinking about the dynamics of cultural memory and its storage in monuments. In fact, one can argue that cultural memory not only relies on a process of mediation, or what Jan and Aleida Assmann called 'objectification' (see also 'Storytelling' in chapter 3.1). Instead, it needs remediation to travel through time. Thus, remediation is a suitable concept for describing the mechanisms that underpin memory and its links with monuments: 'Just as there is no cultural memory prior to mediation there is no mediation without remediation,' argue Astrid Erll and Ann Rigney.²⁵⁰ 'Most memorial media strive for ever greater "immediacy". The goal is to provide a seemingly transparent window on the past, to make us forget the presence of the medium and instead present us with an "unmediated memory",' Erll and Rigney write.²⁵¹ This process also highlights the process of remembering through a particular media and thus speaks of an act of hypermediacy.

Considering Allahyari's work, one could argue that the logic of immediacy and hypermediacy is achieved by 'the recycling and multiplying' of older memory media. More concretely, Allahyari translates the representations of her jinns in *She Who Sees the Unknown* by sourcing them from illustrations and texts, then transforming them into sculptures, 3D animations, and video essays. Her storytelling and their presence across multiple media imbue the figures with a sense of aliveness, thereby enhancing the immediacy of her work. At the same time, Allahyari's practice magnifies the capacities of an older memory medium, namely that of sculpture and its memorial function. In the installations for *Material Speculation: ISIS* and *She Who Sees the Unknown*, her 3D printed figures are enthroned on plinths, thus imitating traditional sculptural presentations. This sculptural experience relativizes the immediacy of her digital projection and emphasizes the hypermediacy of her memory work. It reminds the viewer of the presence of a medium and thus Allahyari's conscious conception of her work as a memory site. Allahyari thus appropriates different memory media by using digital technologies ranging from 3D sculpting and animation to 3D scanning and 3D printing to bring forth a different kind of monumentality.

Intermedial monumentality

Allahyari remediates cultural memory of the jinns in *She Who Sees the Unknown* or the destroyed artefacts in *Material Speculation: ISIS* across the medium of sculpture, digital files, projections, speech, and text. By expanding her act of remembrance into the public sphere of the museum, as well as online, the artist constructs various types of memory sites. Her

248 Bolter and Grusin, *Remediation*, 5.

249 Bolter and Grusin, *Remediation*, 70.

250 Erll and Rigney, 'Introduction: Cultural memory and its dynamics', 4.

251 Erll and Rigney, 'Introduction: Cultural memory and its dynamics', 4.

work thereby invites a collective form of remembrance that can take root in a community and strongly resembles the functions and structures of monuments while being decentralized, unlike traditional monuments. Allahyari fuses participatory, interactive, and time-based qualities with a three-dimensional experience space encompassing sculptural presentations. More precisely, it is Allahyari's intermediality – her mixing of analogue and digital techniques, including storytelling, moving image, and sculptural vocabularies – that allows her to expand upon the historical codes of monumentality. Allahyari fosters an intermedial monumentality that uses its own heterogeneity to question monuments' ability to bury painful memories under often homogeneous material forms.

Following Klaus Bruhn Jensen's reflections on the twentieth-century avant-gardes and their embrace of heterogeneous media, the term intermedia can once again be employed to speak of the transgression and innovation of a lasting sculptural form – the monument – that is now, however, articulated in the interstices between a number of other media forms.²⁵² Such intermedial monumentality uses numerous media types to diversify its message and thus re-inscribe and transmit memories: Crafted from myth, historical data, and deeply personal experiences, Allahyari's works employ hybrid modes to reframe relationships between the past, present, and future, thereby inscribing the marginalized into this evolving narrative. In its intermedial monumentality, her work serves as evidence of the monument's enduring relevance and its ongoing social function – while simultaneously bearing witness to the dramatic shift in aesthetic codes of monuments and counter-monuments, as well as their expansion into the digital sphere.

In this way, Allahyari subtly subverts and criticizes the institutional implications of monuments (from their erection to their distribution), while also critiquing the iconoclastic acts of destruction they have faced since their inception. Her use of digital technology not only allows her to critically comment on ordinary public monuments but to actively reshape their aesthetic and functions as repositories for the memory of women of the SWANA regions. These works then not only exhibit an intermedial monumentality but equally speak to the idea of a nomadic monument, one that can be easily adaptable and erected within spaces controlled by political interest. In their potential to migrate across sites and various media, her works' nomadic features closely resemble those of the artist's own personal trajectory.

Nomadic monumentality

Allahyari's works respond to a monumental aesthetics of solidity, permanence, fixity, and rigidity with a monumentality that is participatory, generative, and mutable and that unfolds between virtual and physical spaces. A prime example is Allahyari's *King Uthal* from her series *Material Speculation: ISIS*. Remediated as a downloadable STL and OBJ file, the destroyed monument of King Uthal has exchanged its solidity for a nomadic mutability. This transformation is further contextualized by research documents and data on the original statues,

252 See Klaus Bruhn Jensen, 'Intermediality', in Eric W. Rothenbuhler, Klaus Jensen, Jefferson Pooley, Robert T. Craig (eds.), *The International Encyclopedia of Communication Theory and Philosophy*, Wiley Online Library (2016), doi: 10.1002/9781118766804.wbiect170.

all included in the downloadable folder. Thus, through an act of resurrection, preservation, and, crucially, transformation, the work comes to embody a nomadic monumentality, reaffirming and expanding its presence as a memory site each time the folder is downloaded onto someone's hard drive. The memory sites marked by Allahyari's nomadic monuments can be seen as occupying multiple locations and materialities simultaneously. They possess a digital materiality (see chapter 2.2, in particular 'Im-materiality in materiality'), existing as files on Rhizome's servers, or upon download, on an individual's computer. Additionally, they can assume a tangible materiality and location as 3D printed objects in physical space.

The nomadic monumentality of Allahyari's work thereby not only references the memorial character of monuments but simultaneously transgresses limited conceptions of a fixed monumental form. In essence, her works serve as monuments to the absence of monumentality itself. They stand as proxies and reminders of destroyed memory sites, simultaneously revealing and documenting the information and circumstances leading to their absence. It is within this tension between monument and the absence of monumentality that her work gives rise to a new '*lieu de mémoire*,'²⁵³ a novel form of nomadic monumentality that spans both physical and digital realms while retaining its sculptural essence.

Allahyari's work could then also be seen as part of a wider development, namely the increasing encroachment of monumental structures towards the digital and augmented sphere. An example of this growing presence of nomadic monumentality occurs in the augmented reality game *Pokémon Go*, which superimposes actual and virtual space. The game establishes a hybrid playing field where players capture virtual Pokémon in real-world locations like urban areas or their own homes. *Pokémon Go* is replete with digital monuments, plaques, and statues generated through crowd-sourced information from players, actively shaping how users perceive history and their surroundings.²⁵⁴ The 'Unmarked Slave Graveyard' in Charlottesville is an example of such nomadic monumentality encountered in the app: 'This area contains unmarked graves believed to be those of slaves of the Maury family, owners of Piedmont in the nineteenth century,' the app explains, highlighting the absence of a physical plaque in an act of superimposing virtual information with the actual site.²⁵⁵ In *Pokémon Go*'s digital architecture, almost all sites are marked by light blue squares of the same size and shape. Here, problematic confederate memorials have been shrunk and are 'no grander, no more prominent, than any other sites in town.'²⁵⁶ All of these diverse sites blend together into a multitude of indistinguishable icons, thus challenging the power structures that have historically favoured specific monuments over others.

Another example of such a crowd-sourced monument is the memorial for twelve-year-old African-American Tamir Rice, shot and killed by Cleveland Police Department officers. When players reach the gazebo in Cleveland where Rice was shot, they encounter a pop-

253 Nora and Kritzman, *Realms of Memory*, xvii.

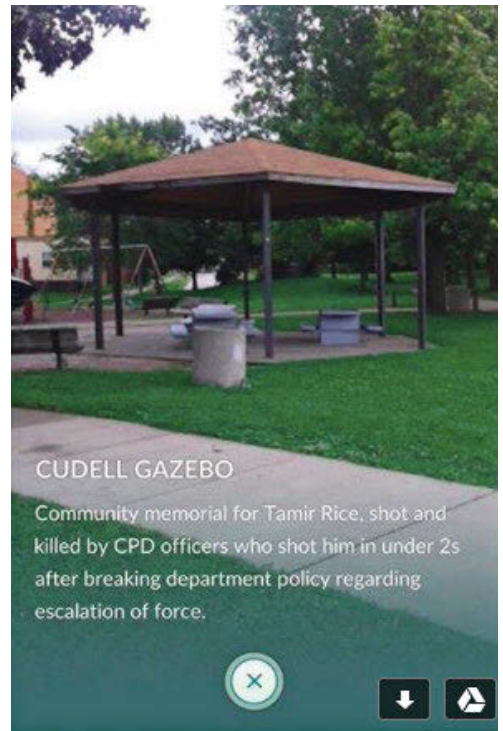
254 See Rebekkah Rubin and Anne Trubek, 'Memorializing Tamir Rice with Pokémon Go', *Belt Magazine* online (20 July 2016), <https://beltmag.com/memorializing-tamir-rice/>, accessed 13 December 2024.

255 Cassius Adair, 'Pokémon Go, before and after August 12', *Nursing Clio* blog (5 September 2018), <https://nursingclio.org/2018/09/05/pokemon-go-before-and-after-august-12/>, accessed 10 December 2024.

256 Adair, 'Pokémon Go, before and after August 12'.

up message: 'Community memorial for Tamir Rice, shot and killed by CPD officers who shot him in under 2s after breaking department policy regarding escalation of force' (fig. 163).²⁵⁷ While the city has not erected a monument to his young citizen, *Pokémon Go* players have addressed this absence by creating a digital monument that becomes part of the actual space when viewed through the screen on site. These in-game monuments are akin to what scholar Dylan Gauthier describes as a 'roadside memorial, and one of a number of such sites of social memory within online worlds, which form a seamless connection between "real world" social memory and virtual world remembrance'.²⁵⁸

In a similar vein, the artist John Craig Freeman (born 1959 in Los Angeles, California, USA) has created several VR monuments and memorials. One notable piece is *Border Memorial: Frontera de los Muertos* (2012, fig. 164), an augmented reality public art project and nomadic monument. It serves as a tribute to migrants who have lost their lives along the U.S./Mexico border while attempting to cross the desert in search of work.²⁵⁹ The project is built for smartphone mobile devices and uses GPS coordinates of each recorded death. When aimed at the landscape, the application uses virtual objects or augmentations in the form of skeletons to reveal the locations where human remains have been recovered. The skeleton, known as a *calaca*, is inspired by traditional wood-carving techniques from Oaxaca, where such figures are used to commemorate deceased souls during the Mexican festivals for *Día de los Muertos*, the Day of the Dead. In the Aztec belief system, death was considered a joyous and not a mournful occasion, despite the grief of loss. This interpretation is reflected in the imagery of the *calaca*. Translated by the artists into the virtual realm, the *calacas* become virtual grave markers integrated in physical locations. Panning the camera of their phones along the locations on the border, viewers experience the *calacas* as existing in the real world (fig. 165). The work thereby reveals the vast numbers of those who have lost their lives in search of better ones (fig. 166). In



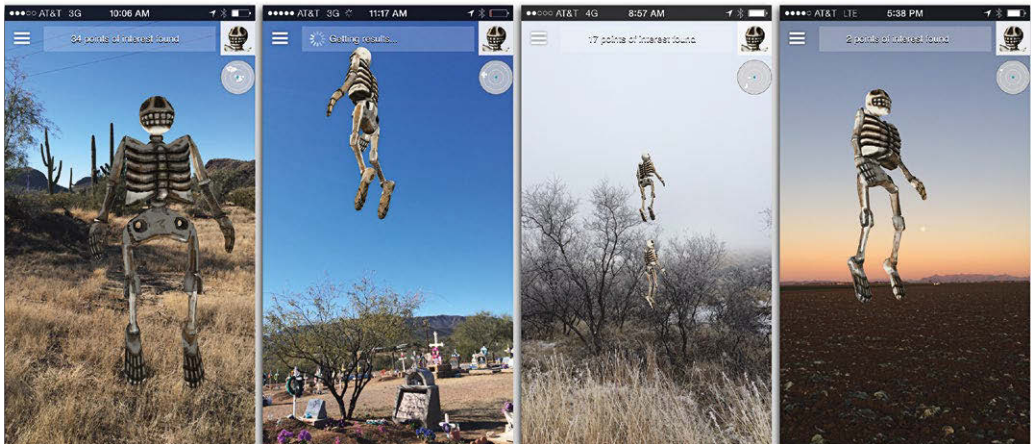
163 | Pokémon Go, screenshot.

257 Rubin and Trubek, 'Memorializing Tamir Rice With Pokémon Go'.

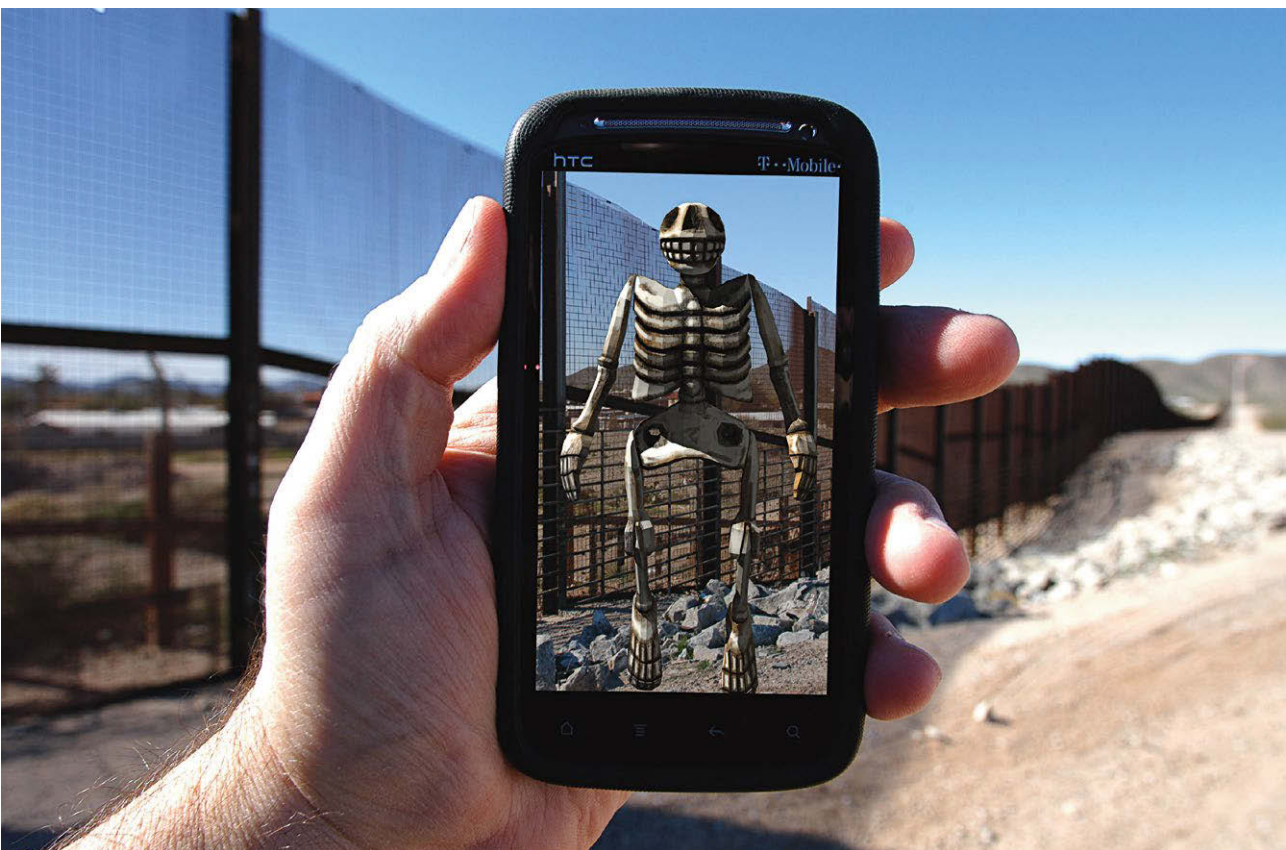
258 Dylan Gauthier, 'Networked monumental: Some conditions of working in public – online and IRL', *Academia.edu* online repository (31 October 2014), https://www.academia.edu/22105974/Networked_Monumental_Some_conditions_of_working_in_public_online_and_IRL, accessed 11 December 2024.

259 See John Craig Freeman, 'Border memorial: Frontera de los muertos', artist's website (30 December 2013), <https://johncraigfreeman.wordpress.com/border-memorial-frontera-de-los-muertos/>, accessed 11 December 2024.

3 MONUMENTALITY: SCULPTING MEMORIES BETWEEN MONUMENTS AND ARCHIVES

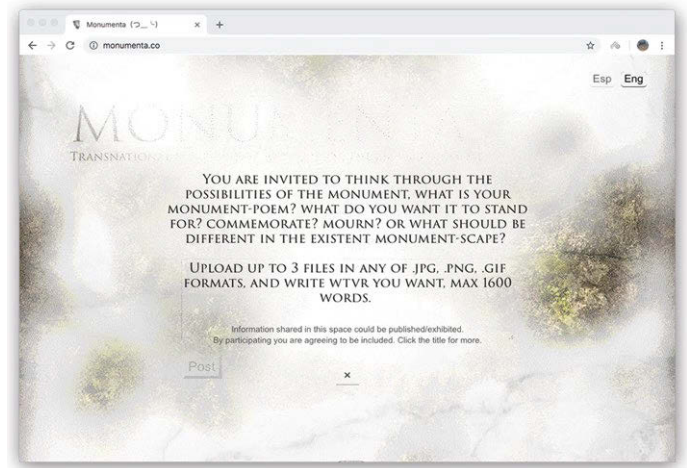
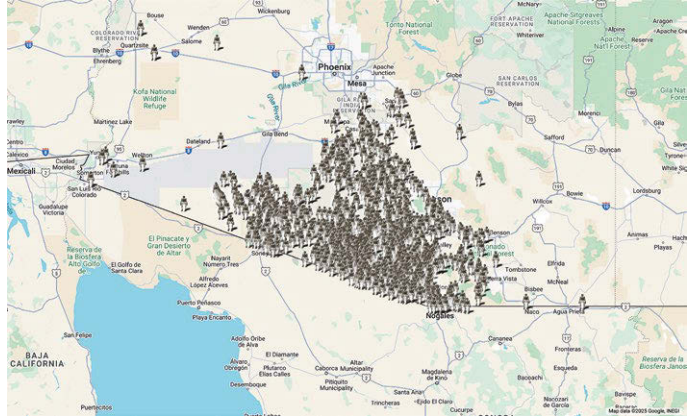


164 | John Craig Freeman, *Border Memorial: Frontera de los Muertos*, 2012; augmented reality public art, Lukeville border crossing, Arizona.



165 | John Craig Freeman, *Border Memorial: Frontera de los Muertos*, 2012; screenshot sequence, augmented reality public art, southern Arizona, 2012.

166 | John Craig Freeman, *Border Memorial: Frontera de los Muertos*, 2012; augmented reality public art. Data provided in partnership between the Pima County Office of the Medical Examiner and Humane Borders, Inc. displayed in Google Maps (map: John Craig Freeman).



167 | Gabriella Torres-Ferrer, *Monumenta*, 2018–present; participative website.

the tradition of *Día de los Muertos*, the *Border Memorial* project is designed to honour, celebrate, and memorialize the deceased and to raise public consciousness and political debate surrounding this issue in the US.

Puerto Rican artist Gabriella Torres-Ferrer (born 1987 in Arecibo, Puerto Rico) explores a related form of nomadic and networked monumentality in their crowd-sourced project *Monumenta* (2018–present). Their participatory web space invites the public to use an interface allowing both the archiving of existing monuments and the submission of proposals for future commemorative sites (fig. 167). According to the artist, the concept of *Monumenta* emerged ‘in response to the intent of the government of Puerto Rico to make a monument to the victims of Hurricane Maria, which were due more to their own incompetence and negligence than to climate disaster’.²⁶⁰

260 Gabriella Torres-Ferrer, ‘Monumenta’, project website (date unknown), <http://monumenta.co/#en>, accessed 13 December 2024.

The project invites viewers to reconsider the purpose and audience of monuments, thereby questioning the process by which history and cultural identity are constructed. Beyond the traditional, male-centric, phallic-monumental forms that have long dominated the public sphere, the artist poses the question: 'What other forms, figures, stories, metaphors, identities, aesthetics, and uses could conform [sic] the monument today?'²⁶¹ Torres-Ferrer agrees with the artist Natalia Skobeeva's (born 1975 in Russia) concept of the 'UnNational Monument' based on the idea that 'a public monument shall be constructed by the public, not for the public.'²⁶² Like Allahyari, Torres-Ferrer probes the potential of networked technologies to offer possibilities for decentralized and non-prescriptive approaches to memorial structures and monuments.



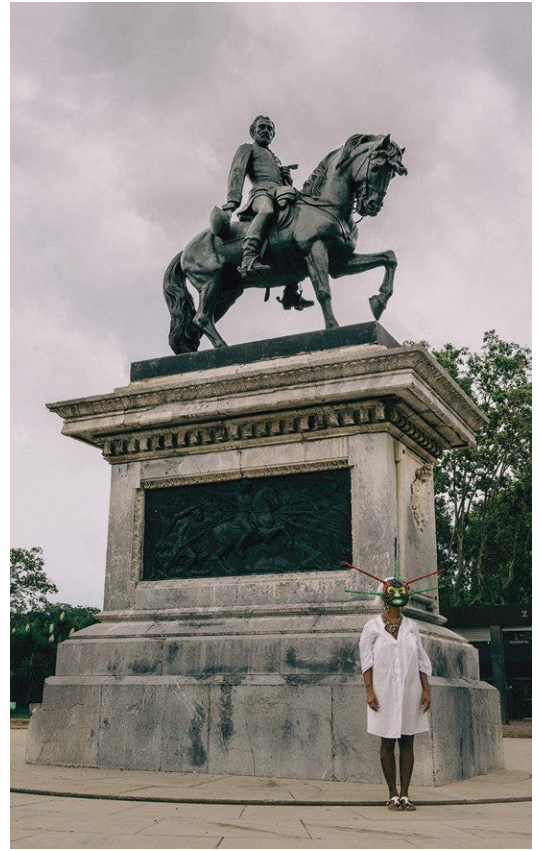
168 | Diana 'Spaghetto' Manfredi, *Monument to the Present*, 2020; Instagram filter @spaghetto.

261 Torres-Ferrer, 'Monumenta'.

262 Natalia Skobeeva, 'UnNational monument', *Is This It?* website (date unknown), <https://www.isthisitis.com/text>, accessed 13 December 2024.

Scrolling through *Monumenta*, one comes across numerous imaginative, subversive projects that expose the highly problematic forces constructing collective memory and history in public space. One such contribution comes from Diana 'Spaghetto' Manfredi (born 1983 in Milan, Italy), who uses Instagram's augmented reality filter to replace the statue of Indro Montanelli in Milan with her own *Monument to the Present* (2020, fig. 168). Indro Montanelli was a celebrated Italian journalist who voluntarily joined the fascist army during Italy's war in Eritrea (1935–1937). During this time he bought and then married a twelve-year-old Eritrean girl called Destà. In an interview with Gianni Bisiach, Italian journalist and activist Elvira Banotti interrupted to ask him whether he had raped the girl.²⁶³ Montanelli defended himself arguing that he was married and therefore rape was out of the question. In a later published collection of essays he referred to his marriage as a leasing contract. In Manfredi's *Monument to the Present*, when the smartphone camera is pointed at the statue of Indro Montanelli in Milan or any reproduction of it on a photo or screen, Manfredi's reclamation appears superimposed over the real work: On the plinth where Montanelli sits, a number of black girls of different ages, areas, and cultural backgrounds manifest. They reclaim his disturbing presence in the public space of Milan, causing him to temporarily disappear through their powerful presence.

Noland Chaliha's (born 1985 in the United States) contribution, *Destroy All the Confederate Statues Left in the US*, proposes an app that allows its users to simulate the destruction of any problematic Confederate monument in the U.S. simply by waving their hand. Artist Marcia X (born 1985 in Chicago, Illinois, USA) shows documentation of her research project into how to confront architectural and colonial monuments through Afro-Indigenous Puerto Rican spiritual markers and performances (fig. 169). Joiir Minaya (born 1990 in New York City, USA) wraps Christopher Columbus in a four-way stretch spandex covered in tropical



169 | Artist Marcia X, *La Sangre Llama, Prim y Prats I*, 2019.

263 Indro Montanelli and Elvira Banotti, 'Il madamato: Indro Montanelli racconta l'atroce vicenda della sua sposa bambina' [The little Mrs: Indro Montanelli recounts the atrocious matter of his child bride] [video], *YouTube* (18 June 2019), <https://www.youtube.com/watch?v=z8lJr2STfil>, accessed 13 December 2024.



170 | Joiiri Minaya, *The Cloaking or the Statues of Ponce de Leon at Torch of Friendship and Christopher Columbus behind the Bay-front Park Amphitheatre in Miami, Florida, 2019*; four-way stretch spandex; dimensions variable.



171 | Miguel Luciano, *The Inflatable Head of Columbus & Once Failed, 2006*.

prints designed by the artist (fig. 170). On the basis of Minaya's research into the colonial categorization of Caribbean plants, her fabrics revitalize untold narratives of colonization, calling attention to the flattening of Caribbean histories, as well as identities and the colonial legacy of erasure and violence in the act of erecting statutes to colonial figures. Other projects recorded on Gabriella Torres-Ferrer's webpage include ephemeral interventions in real space that now exist merely in the form of digital images, such as the documentation of Miguel Luciano's (born 1972, in San Juan, Puerto Rico) *The Inflatable Head of Columbus*, a humorous parody on a failed Christopher Columbus monument in Puerto Rico (fig. 171), or *The Wax Monuments* by artist Sandy Williams IV (born 1992 in Belleville, New Jersey, USA) (fig. 172). The entries range in scale from monumental architectural projects to subtle virtual



172 | Sandy Williams IV, *The Wax Monuments*, 2020.

gestures, from expressions of personal memory to collective memories, from proposals for specific monuments at particular sites to online interventions intended to be accessed by people from every part of the world.

This nomadic monumentality unfolding between online and actual worlds creates innovative means for democratic participation and public engagement.²⁶⁴ Like Allahyari's works, the proposed monuments on Gabriella Torres-Ferrer's webpage and the augmented memory sites by John Craig Freeman or the *Pokémon Go* community counteract material destruction and violence by imagining themselves as transient but repeatable, as distributed and migratory, and thus nomadic. Perhaps more precisely, these works acquire site, weight, and presence in a participatory act or a distributed manner.

They consciously resist and reject the fixity and permanence seen with traditional monuments. While they are site-specific, they do not lay sole claim to a site, but superimpose themselves on the site and then depart with the viewer. Using digital technologies, these artists thus remodel and remediate the notion of a monument. As an intermedial, nomadic, and migratory form of commemoration, the monument is no longer a precious object empowered by sacred effect, solidity, grandeur, material vehemence, and weight. Rather, it functions as an (re-)movable nomadic memory site that can be enacted at any time in real life or online. The cultural information and critique that these works convey become more important than the object itself. At their best, the nomadic monuments of Allahyari and

264 Dylan Gauthier speaks instead of a networked monument, discussing a number of other artworks in online spaces, see Gauthier, 'Networked monumental'.

her peers resist institutionalized appropriation and destructive iconoclasm by symbolically critiquing these forces through the very malleability of their forms.

As this chapter has argued, theirs is both an intermedial and nomadic approach to monumentality that inscribes the marginalized back into the developing script of modern monuments. Their cross-media approach uses hybrid modes spanning from physical sculpture to video, virtual and augmented reality experiences, the internet, and at times performance to redefine relationships between the past, present, and future. Their nomadic features allow for monuments that shift forms and can be easily adapted to and erected in several locations and materialities at the same time. Yet they also adhere to the socially acceptable function of the recreated artefact – the aid to memory – as a memory site and as a hinge between an individual and collective form of remembrance. In this sense, the artistic stance of Allahyari and her peers addresses the evocative power of monumental structures. Their works not only critically examine the tendency of monuments and archives to be deployed in ways that reproduce (colonial) power relations, what Allahyari has termed ‘digital colonialism’.²⁶⁵ They also remind us that history and its memory are always subject to forms of representation, and that it is through both a conceptual and an aesthetic confrontation that such heritage can be addressed critically.

Interim conclusion: Refiguring the future-past – Towards a nomadic, intermedial, and diasporic monumentality

As illustrated above, Allahyari and her contemporaries are at the forefront of a redefinition of monumentality in the digital age. Their works serve a dual purpose, functioning as both archives and monuments that exist in online and offline realms, physically and virtually, within and beyond traditional art institutions. Focusing on Allahyari’s practice, this chapter has explored how her sculptural approach to memory is deeply intertwined with diaspora and gender. It has highlighted how Allahyari – alongside fellow artists such as Shirin Fahimi, Amitis Motevalli, and Nooshin Rostami – engages with memories and their materialization in both archival and monumental forms. Through an intermedial, nomadic, and, particularly in Allahyari’s case, still sculptural approach to monumentality, this generation of artists challenges the conventional notion of monuments as vehicles for extinguishing and homogenizing memory.

‘The remarkable thing about monuments is that one does not notice them. There is nothing in the world so invisible as a monument,’ the Austrian novelist Robert Musil once claimed.²⁶⁶ Writing his famous essay in 1927, in the early stages of the so-called mass me-

265 Allahyari, ‘Digital colonialism (2016–2019)’; artist’s website (date unknown), <http://www.morehshin.com/digital-colonialism-2016-2019/>, accessed 10 December 2024.

266 Musil translated by Carrier, *Holocaust Monuments and National Memory Cultures in France and Germany since 1989*, 15. For the original quotation, see Robert Musil, ‘Denkmale’ [Memorials], in *Nachlaß zu Lebzeiten* [Bequest in one’s lifetime] (Hamburg: Rowohlt, 1957), 59.

dia age, he worried that public monuments were losing relevance in the face of the rapidly growing and pervasive media landscape. He believed that as the public became more familiar with monuments, the monuments became less noticeable and eventually faded into the background. Of course, writing from the perspective of a well-established European intellectual, little did Musil consider that the 'unnoticed monuments' surrounding him might be deeply disturbing to others – especially to those bearing painful histories and memories. A similar lack of awareness resonates in the presence of many problematic monuments in public spaces today. Contrary to Musil's prognosis, however, mass media, in the form of social media and the contemporary digital media landscape, have served to highlight and thematize the continuous presence of deeply problematic monuments in public spaces. One example is the striking removal of a monument to Edward Colston during the worldwide Black Lives Matter protests in 2020, documented and shared via social media.²⁶⁷ As a participant in the Royal African Company, Colston amassed his wealth through the plundering of individuals from West Africa, whom he then sold into slavery in the Caribbean. So far, he has mainly been remembered as a benefactor and philanthropist in his hometown, Bristol. During one of the myriad protests sparked around the world by the murder of George Floyd by a Minneapolis policeman, a demonstration took place in Bristol. The frustrations of the crowd were directed at the monument to this certainly not innocent enslaver, which was eventually toppled into the harbour. Around the same time, monuments of other colonial figures were symbolically decapitated, set on fire, tagged with graffiti and/or covered in red paint.

These recent developments, extending from the physical into the digital sphere, have reignited a radical discussion about the aesthetics of monumentality. If monumentality up until the twentieth century implied qualities such as inertness, opacity, permanence, remoteness, distance, preciousness, and grandeur, more recent generations of artists, including those using the digital sculptural technology discussed here, challenge these core values. Notably, many monuments occupying public spaces still uphold these values – despite their problematic nature.

Contemporary digital artists working with monumental sculpture replace an outdated sculptural vocabulary with an artistic language that is not cold, hard, or permanent, but nomadic, flexible, intermedial, accessible, critical, and engaging. Undermining the grandeur and pompousness of traditional monumental representation systems such as nineteenth-century public sculpture, these artists not only appropriate past functions of monuments but also update their familiar aesthetics with a new immediacy using digital production and distribution systems. In re-evaluating the academic study of monuments, they exemplify how monumentality and its relationship to sculpture need to be reconsidered.

The use of digital technologies to construct alternative memory sites prompts renewed theoretical and empirical scrutiny not only of the very idea of the monument and its counterpart, the archive, but also of the sites they operate in. Building on the approaches of female

267 See, for example, BBC News, 'Edward Colston statue pulled from Bristol harbour' [video], *BBC News* online (11 June 2020), <https://www.bbc.com/news/av/uk-england-bristol-53004755>, accessed 11 December 2024.

pioneers such as Lynn Hershman Leeson, Claudia Hart, and Skawennati, Allahyari and her colleagues build spaces that enable interactions with monumental and archival structures. These interventions speak of an active reclaiming of public space – one that goes hand in hand with a general expansion of the very idea of the public realm towards virtual and digital spheres. For instance, on some days the number of people that visit popular social media platforms like tumblr or Instagram can exceed the population of a small country. The reality is that large sections of the public engage with these online spaces daily, often spending more time in virtual ‘public’ spaces than they do in physical ones.²⁶⁸

By operating in and claiming the virtual sphere as a space for enacting monumental structures, Allahyari, Fahimi, Skawennati, Torres-Ferrer, Craig Freeman, and their fellow artists are committed to uncovering the mechanisms of absence – which are not accidental, but structured. Their works can then be seen in a lineage of post-colonial and feminist artistic discourses across the globe.

‘History is changed with time and place or, better said, history reveals itself only through the production of specific narratives,’ Michel-Rolph Trouillot writes in his 1995 book *Silencing the Past: Power and the Production of History*. ‘What matters most are the process and conditions of production of such narratives. Only a focus on that process can uncover how the two sides of historicity intertwine in a particular context. Only through the overlap can we discover the differential exercise of power that makes some narratives possible and silences others.’²⁶⁹ Trouillot urges us to acknowledge such asymmetries of power by carefully dissecting ‘the presences and absences embodied in sources (artefacts and bodies that turn event into fact)’ as well as the way they constitute memory sites themselves, the facts ‘collected, thematized and processed as documents and monuments.’²⁷⁰ These presences and absences of history ‘are neither neutral or natural. They are created. As such they are not mere presences or absences, but mentions and silences of various kinds of degrees.’²⁷¹

Following such reflections, it is, therefore, misleading to think of monuments merely as reminders of important historical events.²⁷² In their durability, monuments inscribe a particular form of memory and history into public life. Monuments at their creation are already subject to and mirrors of dominant, and thus public, interests and knowledge. The powers that control public space also control the outflow of knowledge, thus ensuring the dominance of their messages and personal/political goals.²⁷³ As such, any form of monu-

268 According to recent statistics, 5.34 billion people (66 percent of the world’s population) currently have an internet connection, and 5.04 billion have access to social media. See Ani Petrosyan, ‘Number of internet and social media users worldwide as of January 2024’, *Statista* website (January 2024), <https://www.statista.com/statistics/617136/digital-population-worldwide/>, accessed 10 March 2024.

269 Michel-Rolph Trouillot, *Silencing the Past: Power and the Production of History* (Boston, Massachusetts: Beacon, 1995), 25.

270 Trouillot, *Silencing the Past*, 48.

271 Trouillot, *Silencing the Past*, 48.

272 See Trouillot, *Silencing the Past*, 14.

273 See Kulišić and Tudman, ‘Monument as a form of collective memory and public knowledge’, 31.

ment inherently embodies a claim to truth through its assertion of history. Monuments represent not universal history but rather subjective historicity. 'At best, history is a story about power, a story about who won', writes Trouillot.²⁷⁴ The same argument could apply to monuments. How then can we reconsider and redefine the concept of a monument through a decolonial, feminist, and intersectional approach to sculptural memory practice?

The writings of Black and Chicana feminists such as Rasheedah Phillips, Maria Cotera, Maylei Blackwell, and Gloria Anzaldúa offer some clues to solving this problem. In reflections that strongly relate to Trouillot's writings, Cotera calls for active '*encuentro* [encounter] with the past to create new knowledge that engage the present in critical ways.'²⁷⁵ Cotera speaks of a Chicana memory praxis that involves 'collecting and re-collecting,... membering and re-membering.'²⁷⁶ The Chicana feminist Gloria Anzaldúa has referred to such praxis as 'com[ing] to knowledge and *conocimiento*.'²⁷⁷ She describes the process of encounter and exchange between past and present as a synthesis and interpretation that simultaneously recuperates and ruptures the past:

She [i.e., the one engaging in such memory praxis] puts history through a sieve, winnows out the lies, looks at the forces that we as a race, as women, have been part of.... This step is a conscious rupture with all oppressive traditions of all cultures and religions. She communicates that rupture, documents the struggle. She reinterprets history and, using new symbols, she shapes new myths.²⁷⁸

This methodology of *autohistoria-teoría*, of putting history through a sieve, stems from the method by which Chicanas gather historical narratives. Drawing from myth, historical data, and personal experiences, their primary objective is to integrate Chicana narratives into the evolving narrative. Maylei Blackwell proposes retrofitting memory into a social practice of counter-memory that 'uses fragments of older histories that have been disjunctured by colonial practices of organizing historical knowledge.'²⁷⁹ Such counternarratives involve excavating and critiquing both the dominant historical record and counter-hegemonic (yet nevertheless deeply masculinist) articulations of history to illuminate the suppressed knowledge of multiply oppressed subjects. They illuminate aspects obscured by the dominant perspective. Through this process, Chicana feminists craft new visions of political subjectivity in and

274 Trouillot, *Silencing the Past*, 48.

275 María Cotera, 'Unpacking our mothers' libraries: Practices of Chicana memory before and after the digital turn', in Dionne Espinoza, María Eugenia Cotera, and Maylei Blackwell (eds.), *Chicana Movidas: New Narratives of Activism and Feminism in the Movement Era* (Austin, Texas: University of Texas Press, 2018), 302.

276 Cotera, 'Unpacking our mothers' libraries', 302.

277 Gloria Anzaldúa, *Light in the Dark/Luz en lo Oscuro: Rewriting Identity, Spirituality, Reality*, ed. AnaLouise Keating (Durham, North Carolina: Duke University Press, 2015), 4.

278 Gloria Anzaldúa, *Borderlands/La Frontera: The New Mestiza*, 4th edn (San Francisco, California: Aunt Lute Books, 2012), 104.

279 Maylei Blackwell, *¡Chicana Power!: Contested Histories of Feminism in the Chicano Movement* (Austin, Texas: University of Texas Press, 2016), 2.

through narratives about the past or – in Anzaldúa's words – 'myth re-members a history that has been forgotten and erased.'²⁸⁰

Allahyari's act of remembering, or rather re-figuring, in *She Who Sees the Unknown* blurs the lines between fiction and history, as well as individual and collective memories. It can be contextualized within the work of these revisionist feminist thinkers. Much like Chicana writers, Allahyari, Fahimi, Motevalli, and Rostami employ storytelling, fictioning, and myth-making as tools to reveal social, physical, or historical disparities. They aim to foreground alternative perspectives, different models of reality, and new memory structures that challenge dominant narratives.²⁸¹ Within their rethinking of monumental and archival codes, the diasporic – as an identity that dwells between different worlds – and the liminal play a crucial role. It becomes a mode of practice that allows them to adopt and continue pre-existing and acquired discourses, assume and play with different cultural identities, and reject, re-evaluate, and redefine them. Through their works, Allahyari, Fahimi, Motevalli, and Rostami depict the United States, Canada, and Iran as heterogeneous and dynamic societies that have long been intertwined. In doing so, they reveal the inconsistencies inherent in the categories upon which official and diasporic nationalisms rely. Rather than being confined to North America or Iran, their work critically traverses back and forth, establishing connections from one site of contention to another across time and space.

'What memories are forced upon us and what memories are we forced to forget?', Rasheedah Phillips asks in the introduction to her book *Black Quantum Futurism*. Phillips ran *The Afro-Futurist Affair* in Philadelphia (now succeeded by the *Black Quantum Futurism* web-space), and her theory and practice mobilize Black and African cultural traditions, quantum physics, and futurism.²⁸² She aims to develop 'a new approach to living and experiencing reality by way of manipulation of space-time in order to see into possible futures and/or collapse space-time into a desired future in order to bring about that future's reality.'²⁸³ In contrast to the linear model of time dominating Western society in which the 'past is fixed, and the future is inaccessible until it passes through the present', ancient African time consciousness treats modes of time as equivalent. In an African conception of time, the present pervades the future and the future and the past pervade the present.²⁸⁴ 'Your activity is what determines how quickly or slowly time moves, not a mathematically predetermined rate of time where, if you do not fit your activity within the rate, you either end up with a surplus or shortage of time. Time is not its own entity in the African consciousness; it is a component

280 Debbie Blake and Carmen Ábrego, 'An interview with Gloria Anzaldúa', *Iowa Journal of Cultural Studies* 14, no. 1 (1 January 1995), 16, doi: 10.17077/2168-569X.1190.

281 For some of the most comprehensive overviews on fictioning in contemporary culture, see Burrows and O'Sullivan, *Fictioning*; Shaw and Reeves-Everson (eds.), *Fiction as Method*; Gunkel, Hameed, and O'Sullivan (eds.), *Futures and Fictions*.

282 Rasheedah Phillips, 'Constructing a theory and practice of Black Quantum Futurism', in Rasheedah Phillips (ed.), *Black Quantum Futurism: Theory & Practice: Volume 1* (Philadelphia, Pennsylvania: AfroFuturist Affair, 2015), 11.

283 Phillips, 'Constructing a theory and practice of Black Quantum Futurism', 11.

284 Phillips, 'Constructing a theory and practice of Black Quantum Futurism', 24.

of events and an experience that can be created, produced, saved, or retrieved.²⁸⁵ Phillips argues that ancient indigenous African practices and their understanding of space-time consciousness prefigure the findings of quantum physics, with both troubling the notion of linear time.²⁸⁶ They delimit the model of linear time developed alongside institutions of imperialism, patriarchal oppression, colonialism, and slavery by treating it as something reversible, layered, and existing on top of other time dimensions. As such, they provide an important methodology for untying monuments from prevailing ideas that they freeze and enforce one particular view of time. Allahyari and her peers share with such anti-Eurocentric memory practices the ways they use the past to theorise the present. In their own commemorative structures, they aim to move through the past towards future scenarios, so that people who have been historically denied access to their histories can regain their own narratives and consequently their own pasts and futures. To this end, the artists mobilize monumental and archival codes to expand the sculptural form and vessel.

As demonstrated in the past three chapters, it is the intermedial nature of the works by this group of artists that significantly contributes to the ongoing debate on monumentality. Enhancing this contribution are the works' nomadic features, the interplay between three-dimensional (sculptural-tactile) and four-dimensional (time-based, performative) qualities, and their proximity to 'diasporic' and 'living archives'. All these characteristics allow the artists to update and advance debates on monuments with a new immediacy:

To address the past (and future), to speak with ghosts, is not to entertain or reconstruct some narrative of the way it was, but to respond, to be responsible, to take responsibility for that which we inherit (from the past and the future), for the entangled relationalities of inheritance that 'we' are, to acknowledge and be responsive to the non-contemporaneity of the present, to put oneself at risk, to risk oneself (which is never one or self), to open oneself up to indeterminacy in moving towards what is to come.²⁸⁷

Every reaction to what Giedion refers to as a period's 'demand for monumentality' entails a responsibility – a call to address such a time with suitable, significant, empathetic, and occasionally revolutionary frameworks for memory.²⁸⁸

Monuments should encompass a collective commitment to collective memory – a capacity to assume responsibility, to reflect upon, to nurture, and to coexist with their contemporary context. It is this responsibility, inherent in the creation of monumental structures, that Allahyari and her contemporaries confront through their critical interaction with archives and monuments. These artists employ sculptural forms to activate forgotten and

285 Phillips, 'Constructing a theory and practice of Black Quantum Futurism', 24–25.

286 Physicists such as Carlo Rovelli have argued that time is an illusion and that our perception of time's linear flow is caused by our inability to see the world in all its details. See Carlo Rovelli, *The Order of Time* (London: Allen Lane, 2018).

287 Karen Barad, 'Quantum entanglements and hauntological relations of inheritance: Dis/Continuities, spacetime enfoldings, and justice-to-come', *Derrida Today* 3, no. 2 (November 2010), 264, doi: 10.3366/drt.2010.0206.

288 Giedion, *Architecture, You and Me*, 28.

suppressed memories, echoing Audre Lorde's sentiment that, 'it is not difference which immobilizes us, but silence. And there are so many silences to be broken.'²⁸⁹

289 Audre Lorde, 'The transformation of silence into language and action', in *Sister Outsider: Essays and Speeches* (Berkeley, California: Ten Speed Press, 1984), 44.

CONCLUSION: FLESHING OUT THE MESH

The course of history, as it presents itself under the notion of catastrophe, can really claim the thinker's attention no more than the kaleidoscope in the hand of a child, where all the patterns of order collapse into a new order with each turn. The image is profoundly justified. The ideas of those in power have always been the mirrors thanks to which the picture of an 'order' came about – The kaleidoscope must be smashed.¹

Digital technology has fundamentally changed the landscape of sculpture within the contemporary art sphere, challenging traditional notions of the art object. This book has sought to explore and map out a theoretical landscape of sculptural creation within the realm of digital technology in the twenty-first century. Via the three sculptural categories of corporeality, plasticity, and monumentality, it has probed how digital technology has transformed sculpture. Using iconographic analysis, detailed examinations of production processes, and discussions with various artists, this study has positioned specific works as pivotal focal points for examining both contemporary and historical contexts. The sculptural works of Allahyari, Channer, Crispin and their contemporaries are neither simply 'new' nor can they be placed in a linear chronology of historical 'progress'. Instead, they shed light on historical contexts through the lens of recent developments, fostering alternative interpretations of contemporary artistic practices in conversation with their predecessors. Consequently, these artists contribute to and reshape previous appraisals of the Western sculptural canon within the framework of digital technologies and methodologies.

More-than-human bodies: An altered understanding of corporeality

Of all the visual arts, sculpture has a privileged relationship to the body and its decay. Corporeality seems meaningless without three-dimensionality. For centuries, Western sculpture has emphasized the monolithic, static, figurative, vertical, and independent body, typically crafted from inert, durable materials designed to endure over time. The first part of this book, *Corporeality: Sculptural bodies of the twenty-first century*, argued that, in a departure from this established tradition, contemporary sculptural work is reconfiguring and transforming such conceptions of bodiliness. In particular, contemporary sculpture employing

¹ Walter Benjamin, quoted in translation in Marina Warner, *Monuments and Maidens: The Allegory of the Female Form* (London: Weidenfeld and Nicolson, 1985), 1. For the original German, see Walter Benjamin, 'Zentralpark' [Central park], in *Gesammelte Schriften* [Collected writings], vol. 1, part 2, ed. Rolf Thiedemann and Hermann Schweppenhauser (Frankfurt am Main: Suhrkamp, 1972), 660.

3D technologies aesthetically and conceptually evokes bodily experiences that decentre the human subject as the locus of the sculptural representation, act, and experience. Alice Channer's post-industrial production cycles – which involve 3D scanning, 3D sculpting, 3D printing, and the casting of bodily objects – vividly illustrate this shift. In dialogue with works by Baremboym, Bonneviot, Humeau, and Rosenkranz, the analysis of Channer's work demonstrated how traditional sculptural techniques have been expanded through cutting-edge technologies to depict abstracted, fragmented, metamorphosed, and/or liquefied bodies.

These works are intimately connected with their post-industrial surroundings and processes of production that shape them, and they posit the body as an inextricable part of this environment. In this sense, contemporary sculpture employs artistic and digitally infused figurations to explore and grasp corporeality in what has become known as the Anthropocene. These sculptural objects do not depict the human body in a position of dominance, but rather as enmeshed within a complex web of technological, sociopolitical, and environmental influences. In parallel with contemporary insights in philosophy, these works reflect a condition in which the human subject no longer holds a central position in the world. Situated between digital and analogue processes, between futuristic technologies and ancient sculptural techniques, the examined works explore the evolving dynamics of human-technological interaction. They reveal a blurring of agency and boundaries between human and non-human entities. Corporeality, therefore, extends beyond the human realm alone. These works foster an appreciation for diverse forms of corporeal existence and for the myriad beings that inhabit the world.

Artists such as Robert Smithson, Robert Morris, and Hans Haacke had already shown a deep interest in process and the material configurations of our world; these contemporary sculptors expand on that interest, using digital techniques and displaying a concern with representations of bodies caught between human, animal, and mineral. Eschewing the 'anti-industrial, unclean, and unsolid' materials used by Morris and his generation, Channer, Baremboym, and Bonneviot exhibit a different kind of 'process art'.² It arises from the entanglement of bodies with our contemporary situation: On the level of representation and production, their works display an interest in how bodies are embedded in and made up of the specific post-industrial processes and digitally mediated networks of our time.

In addition to portraying the human figure as intertwined with objects of both artificial and natural origins, the artists' exploration of their own creative processes seeks to transcend the artificial dichotomies that oppose the human to the natural or the producer to the product. This dismantling of hierarchies and the malleability of materials also evoke the 'eccentric abstractions' and 'anti-forms' of the 1960s, as well as the post-human and abject bodies of the 1980s and 1990s. These different generations of sculptors share an interest in examining and questioning materials. This exploration is closely tied to bodily experiences, disordered subjects, and corporeal themes – albeit pursued from very different stances. While discussions of post-minimalism emphasized the artist's pivotal role in the creative process, often highlighting the human creator as the driving force behind artistic endeavours

2 Krauss, 'Sculpture in the expanded field', 33.

and the sole originator of the artwork, Channer and her contemporaries see the artist as only one part element of the creative and production process.

Another notable departure from the practices of post-minimalist sculptors in the 1960s is that Channer and her contemporaries rely extensively on digital mediation throughout all stages of production.³ As is common in digital design strategies and corporate aesthetics, Channer, Baremboym, Bonneviot, Humeau, and Rosenkranz prioritize rationality, meticulous planning, and deliberate thought over spontaneity or intuition in the creation of their material constellations. Their explorations extend beyond the agency of 'raw' materials to encompass their various processed and commodified states. In their approach, process is not prioritized over product. These artists arrive at corporeality – human and non-human alike – through digitally and industrially driven processes. Unlike their renowned predecessors, they veer away from abject and gendered associations towards a post-gender, 'glam' eco-eroticism. Their material amalgamations transcend the traditional dichotomy between the depiction of a body and its passive surroundings, evoking a post-human landscape where boundaries between genders, sexualities, races, and subjectivities dissolve. The intricate interplay of power dynamics and sexual differences gives rise to the non-human, the post-human, the animal, the mineral, and the cyborg.

In these works, the political is no longer confined to the personal realm but extends to the outsourced. This embodied understanding of corporeality challenges the archaic and masculine ideals of the body as the measure of all things or of its transformation into a technologically enhanced and perfected extension of machinery. The artworks of Channer and her contemporaries reflect a state of corporeality inextricable from neoliberal digital culture and post-industrial processes. From inception to execution to dissemination, the digital realm plays a pivotal role in shaping their material compositions. Moving between the domains of high touch and high tech, their work is thus distinct from that their artistic predecessors because the digital appears in it as a 'meta-medium'.⁴ As a result, these works are not so much 'eccentric abstractions' but glamorous, post-human abstractions. No longer 'anti-forms', they are outsourced, digitized, and alienated forms. This approach complicates and reevaluates the logic of sculpture and its ancient association with mortality, so that these artists provoke contemplation of the essence of corporeality and embodied experience in our technological age.

Algorithmic visions: Tracing the emergence of a digital plasticity

Where the first part of this book traced a changing notion of corporeality, *Plasticity: Contagious codes and algorithmic visions* focused on the emergence of digital plasticity in contemporary sculpture. Throughout the history of art, sculptural plasticity has been deeply tied to materiality, mutability, material agency, and the depiction of (human) form. Sterling Crispin's

3 Stakemeier, 'Prothetische Produktionen' [Prosthetic productions], 176.

4 Stakemeier, 'Prothetische Produktionen' [Prosthetic productions], 177.

Data-Masks were taken as a departure point in this chapter to demonstrate the form-generating and plastic potential of evolutionary algorithms and their perception, projection, and understanding of human form. If plasticity, as its etymological origin in the Greek word *plassein* suggests, is understood as the capacity to give and receive form, Crispin, along with a group of contemporary sculptors, probes this ability on the level of digital code. Their work sees an emergence of digital plasticity in recent sculptural production, driven and deeply influenced by algorithmic processes. As a result, we need to reconsider code as both artistic material and mutable matter.

Crispin and his peers echo the aesthetics and concepts prevalent in early twentieth-century sculpture. Sculptors like Rosso and Rodin, through their emphasis on form-shifting qualities, evoked a sense of form emerging from the material substance used. This approach reverberates in recent digital sculptural production. It resonates not only in the genetic, agential, and self-evolving algorithms used by some sculptors, but also in the vocabulary employed to describe such works made from digital technology: they are 'mutable', 'liquid', 'variable'.⁵ The discourse of modern sculpture points to an understanding of plasticity that begins to separate form from the authority of the human maker, indicating a shift away from the notion of a sculpture as a passive object animated by an active viewer.

Unlike their predecessors, Crispin, Blas, Rafman, and other contemporary sculptors distance themselves from the subjectivity of a human maker. Their works' formal language is distant and sterile, and the sculptural vocabulary used is a stand-in for algorithmic processes. Furthermore, if the transient and mutable manifestations seen in the fluid forms of modern sculpture can be understood as a response to the dynamics of mechanization and industrialization, the shapeless masks created by Crispin and Blas speak to a shifting subjectivity influenced by the pressures of our post-industrial surveillance state.⁶ Through the modern security phenomenon of facial recognition techniques, the roots of this work can be traced back to the advent of modern photography and its immediate application in the fields of criminology and eugenics.

While Rosso and Rodin explored questions around dematerialization by translating their objects into images, Crispin and his peers translate images into objects to explore the various forms of materialization underpinning digital technology. Where modern sculpture pictorialized the sculptural object, contemporary sculpture objectifies the image. The works of this group of sculptors can therefore be more appropriately termed 'image-objects', as they originate from the image plane before attaining objecthood through 3D printing or CNC milling.⁷

The plasticity of their works activates the compressed mathematical and invisible space underlying contemporary surveillance systems, rendering it visible. Crispin's *Data-Masks* are therefore less about dematerializing an image or object than about witnessing the material presence of something that is invisible yet omnipresent in our present-day world. The digital

5 Manovich, *The Language of New Media*, 36.

6 See Simmel, *Die Großstädte und das Geistesleben* [Large cities and the life of the mind].

7 For the concept of the image-object see also Vierkant, 'The image object post-internet'.

plasticity of these works primarily resides within the flatness of a vertical plane. Their employed 'material' is not initially brought forth to be visible in three-dimensional space; rather, it must always be transformed into geometries and images to be accessible to human vision. In the light of leading thinkers on digital materiality, it can be argued that the algorithmic systems underpinning the digital plasticity of Crispin's, Blas's, and Rafman's works are physical but invisible.⁸ These very visible works then indicate the increasing superposition of the realms of information and materiality on one another. Digital code, much like the mutable matters of wax and gesso used by sculptors of preceding centuries, threatens the idealist concepts of form and matter, of matter and spirit – a structure which also nurtured and sustained the physical and material productions of the immaterial.

In recent sculptural production, code has thus become not only an artistic material but also a mutable matter. The characteristics of code – its processuality, mutability, and malleability – echo ongoing discussions of plasticity initiated around the end of the nineteenth century. These discussions encompass various developments, from process-oriented, generative, and self-replicating cellular automata through the perceptron and early computer art of the 1960s to parametric architecture and design in the 1990s.

The second part of this book has also highlighted the significant roles women have played in the development of computing and the conceptualization of digital plasticity. Anticipating the sculptural practices of recent women artists, early digital practitioners like Vera Molnár and Lillian Schwartz explored the malleability of code by reducing referents to binary data. They merged mechanics with computational mathematics, shifting the artist's creation process towards writing programmes. This shift, away from mould to modulation, from object to object-event, is aptly described by Deleuze's notion of the 'objectile', which prefigured what I have termed digital plasticity.

American artists Claudia Hart, Michael Rees, and Barry X Ball were pioneers in using software and rapid prototyping technologies to realize digital sculptures. These overlooked figures in 3D prototyping technology bridged actual and virtual worlds in their practice two decades before the 'post-internet' generation. Yet while the plasticity of 1990s prototyped sculptures mainly related to aesthetic and conceptual exploration within art discourse, the digital plasticity demonstrated by Blas and Crispin is politically and commercially charged. The proliferation of physical objects shaped by digital processes has produced a deeper reflection on the embeddedness of the digital in our material world and its circulation in the art market. Works by Crispin or Blas not only bear the imprint of technological forces but also aim to aesthetically reflect on the technologies' larger implications. They open up debates over the 'digital plasticity' of surveillance systems in which ever more people are undemocratically ensnared and where governmental, military, and commercial endeavours intertwine. Digital plasticity thus expands beyond formal-aesthetic discourse towards a visual examination of current sociopolitical transformations. The artistic patterns identified in works by Crispin and his peers become visual indicators of the otherwise invisible plasticity of technological systems, the uncanny architectures of our moment and its evolving codes.

8 See Kirschenbaum, *Mechanisms*, 19.

Between sculpted archives and archival monuments: Towards an intermedial, nomadic and diasporic monumentality

The book's exploration of the triad of plasticity, corporeality, and monumentality concluded with an analysis of how contemporary sculptors fashion memories at the intersection of monument and archive. *Monumentality: Sculpting memories between monuments and archives* traced how recent sculptural practices unravel and challenge traditional Western notions of monumentality as static, colossal, imposing, and definitive. Starting from the Persian term یادبود (*yādbūd*) – which translates to 'aid to memory', something used as a reminder – this third part identified a monument as a structure that both remembers and reminds. The discussion focused on the gendered memory sites of Persian diasporic artists Morehshin Allahyari, Nooshin Rostami, Amitis Motevalli, and Shirin Fahimi. Placing their sculptural works within the context of discourses on archives and monuments, it argued that both archives and monuments have been expanded and to some degree merged through the use of 3D technologies, augmented/virtual reality, and the internet. The result of this conjunction is an intermedial, diasporic, and nomadic form of monumentality that can be observed in commemorative structures which highlight the trajectories of those who have historically been forgotten, erased, or left behind.

Central to these reflections was Allahyari's series *She Who Sees the Unknown*, in which memories and stories are aestheticized, embodied, and sculpted by means of 3D technologies. Allahyari's artworks thus become sculptural amalgamations of various individual and collective experiences, influences, and narratives centred around women from the SWANA region. The continual blurring and intermingling of both personal and collective memories in Allahyari's series suggest connections to the artist's own diasporic identity – an identity that, much like the jinns she portrays, inhabits the liminal spaces between different worlds. In Allahyari's work, the diasporic condition emerges as a mode of practice that allows her to engage with and preserve discourses, to adopt and manipulate diverse cultural identities, and to challenge, reassess, and redefine them. This mediation – between the collective and the individual, between present and past memories, and across digital technologies – animates and shapes Allahyari's diasporic archive.

Like Allahyari, artists such as Motevalli and Fahimi can be situated within a lineage of female and queer practitioners who have used electronic and digital media to archivally represent underrepresented, overlooked, and marginalized histories. The challenges faced by Allahyari, Fahimi, Motevalli, and other SWANA artists working with technology today echo the gendered experiences of their American and European predecessors and mentors, including Claudia Hart, Lynn Hershman Leeson, and the First Nation Mohawk artist Skawen-nati. For these latter artists, digital technology and the burgeoning internet of their time served as vital platforms for interrogating the archive, thereby transforming it into a space of critique and an embodied re-inscription of cultural narratives, offering the potential for the recovery of forgotten histories.

Situated at the intersection of art, feminism, and decolonial praxis, the works of Allahyari, Rostami, Motevalli, and Fahimi not only align with the marginalized genealogies of Hart,

Leeson, and Skawennati but also extend them. Their artistic and political engagement with archives emerges from an understanding of difference rooted in intersectional feminist critique. Using digital technology, they probe the colonial and patriarchal matrix, seeking to rewrite, reconceptualize, restage, and ultimately archive history outside of linear and Western narratives of progress. Through the interplay of sculptural and textual elements, digital and tangible modes, and the blending of collective myths with personal narratives, their works shape and sculpt the archive, always remaining anchored in the production and reception of their archival endeavours.

The archive, as a memory site, assumes for Allahyari, Motevalli, Fahimi, and Rostami not only a strong sculptural but also a commemorative form. They invoke monumental codes to construct embodied structures that encapsulate gendered memories and histories, while also offering visual metaphors to articulate their contemporary experiences of diaspora. Their works can be interpreted as commemorative structures with a clear intention to commemorate and preserve stories of and from SWANA regions – and crucially, to remind viewers of these stories. This engagement with monumental codes reflects similarities to the roles of monuments in Assyrian, Akkadian, and Babylonian cultures, as well as in Western societies.

But through their choice of whom and how to commemorate, Allahyari and her Iranian diaspora counterparts challenge a monumental aesthetic associated with solidity, permanence, and rigidity, opting instead for a monumentality that is participatory, dynamically mutable, and exists within both physical and digital realms. Juxtaposing their works with those of John Craig Freeman, Gabriella Torres-Ferrer, Diana ‘Spaghetti’ Manfredi, and Noland Chaliha – as well as considering potentially non-artistic interventions on platforms like *Pokémon Go* – we find that monumental structures in the digital and augmented landscape are becoming more and more prevalent. By engaging artistically with this trend, Allahyari, Rostami, Motevalli, and Fahimi not only embrace the potential of a nomadic monumentality but also cultivate an intermedial monumentality. Through their diverse media – from interactive, time-based events to sculptural simulacra with digital extensions – these monumental manifestations challenge the conventional notion of monuments as entombing memory within a uniform material framework.

It is in the tension between their monumental character and refutation of (conventional) monumentality that such works give rise to a new ‘*lieu de memoire*’.⁹ This kind of monumentality bridges both actual and digital sites while still maintaining a sculptural presence. Leveraging digital technologies, artists in this field reshape and reinterpret the concept of a monument. As an intermedial, nomadic, and migratory form of commemoration, this new monument no longer embodies the traditional attributes of a precious object endowed with sacred effect, solidity, grandeur, or material strength and weight. Instead, it functions as a flexible, nomadic memory site that can be activated at any time, either in physical spaces or online.

These works attain site, substance, and presence through participatory engagement, distributed across various platforms. They resist fixity, permanence, and site-specificity, thus

9 Nora and Kritzman, *Realms of Memory*, xvii.

destabilizing the characteristics traditionally associated with monuments. At a time when protests worldwide are toppling monuments commemorating colonial histories, these works not only critique the tendency of monuments and archives to perpetuate (colonial) power dynamics but also harness monumental functions to provide fresh insights into complex historical narratives, gendered experiences, and diasporic identities.

Sculpture as a critical posture that makes power relations visible

One of art's functions is to recall that which is absent – whether it is history, or the unconscious, or form, or social justice.¹⁰

Lucy Lippard, tracing the congruencies between prehistoric and modern art, reminds us that art must investigate the absent. Contemporary sculpture certainly grapples with understanding and embodying that which is absent, or at least not readily disclosed. This may include the absence of appropriate forms of commemoration (Allahyari), the lack of deeper reflections on bodily transformations in the era of the Anthropocene (Channer), or the concealment of the plasticity of the technological system and its architectures of power (Crispin). Indeed, one could argue, following Jonathan Crary, that a fixation on the aesthetic properties of the digital and its underlying technology indicates a readiness 'to evade the subordination of the image to a broad field of non-visual operations and requirements'.¹¹ Crary's phrase encapsulates a discerning insight into where power resides today – namely in algorithms, machine vision, and big data.¹² These are essentially non-visual entities, inaccessible to the human eye until translated through another media.¹³ While Crary is referring to the digital image, the same could be said for the digital object. In an era where it is ostensibly challenging to represent power structures, practitioners in the visual arts are exploring the connections between digital technology and power through sculpture. In so doing they render aesthetically experiential and visible what is typically concealed.

This raises the question of how digital technologies such as virtual reality, 3D scanning and printing, artificial intelligence, augmented reality, and machine vision may also be influenced by art history, particularly sculptural discourse. In his compelling book *3D: History, Theory, and Aesthetics of the Transplane Image*, Jens Schröter traces the precursors of modern prototyping technologies through the perspective of sculpture reproduction techniques. These include James Watt's sculpture machines, used to produce small copies of sculpture on an industrial scale (1804), Sir David Brewster's research into stereoscopic depictions of sculptures (1851), François Willème's photoscultures (1880), and the creations based on

10 Lucy R. Lippard, *Overlay* (New York, New York: Pantheon Books, 1982), 4.

11 Jonathan Crary, *24/7: Late Capitalism and the Ends of Sleep* (London: Verso, 2013), 47.

12 See Joshua Simon, 'The digital revolution as counter-revolution', in Sarah Hegenbart and Mara-Johana Kölmel (eds.), *Dada Data. Art and Post-Truth Politics* (London: Bloomsbury, 2023), 197–212.

13 See Simon, 'The digital revolution as counter-revolution'.

Willème's model by H. Pötschke, W. Reissig, and W. Selke.¹⁴ Comparing these early principles of photosculpture to contemporary rapid prototyping methods by artists such as Karin Sander, he concludes that the photosculpture is an early manifestation of virtual optics.¹⁵ While Schröter primarily focuses his investigations on the (transplane) image, research from the perspective of contemporary sculptural objects and discourses would certainly be a valuable addition to this evolving field. In addition to considering the augmented field of sculpture from the perspective of historical precursors, it is also intriguing to speculate how contemporary sculpture's expansion, transformation, and augmentation through digital technologies might develop in future. Where in the augmented field might artists go next?

Wandering in the augmented sphere: An outlook on future research

While this book has examined the particular effects of digital technologies on bodies and corporeality in recent sculptural production, it is equally important to assess how developments in biology, biogenetics, and robotics affect the sculptural form. As living systems continue to merge with inert (sculptural) forms, how will sculptural bodies need to be reassessed? And how, in turn, might contemporary art and sculpture inform the modelling of new artificial systems?

In June 2020, Boston Dynamics launched the commercial sale of 'Spot' which is now used across various industries, including manufacturing, electric utilities, mining, and research facilities. This agile robot bears features resembling those of a dog. It is designed to navigate unpredictable environments and thus a variety of terrains ranging from 'power generation facilities, decommissioned nuclear sites, factory floors, construction sites, and research laboratories'.¹⁶ Spot, the robotic 'dog', has been used to 'document construction progress, monitor remote or hazardous environments, and provide situational awareness'.¹⁷ Additionally, it possesses abilities similar to dancing. In contrast to Boston Dynamics' *Spot*, Elon Musk's *Optimus* AI robot aspires to revolutionize humanoid robotics but still remains far from fulfilling its bold promises. While promoted as a breakthrough for industrial automation, a prototype showcased in 2022 demonstrated only basic movements, highlighting the gap between vision and reality.¹⁸ In the tradition of breaking down the boundaries between art and life, one could examine these objects not only in the context of the everyday but

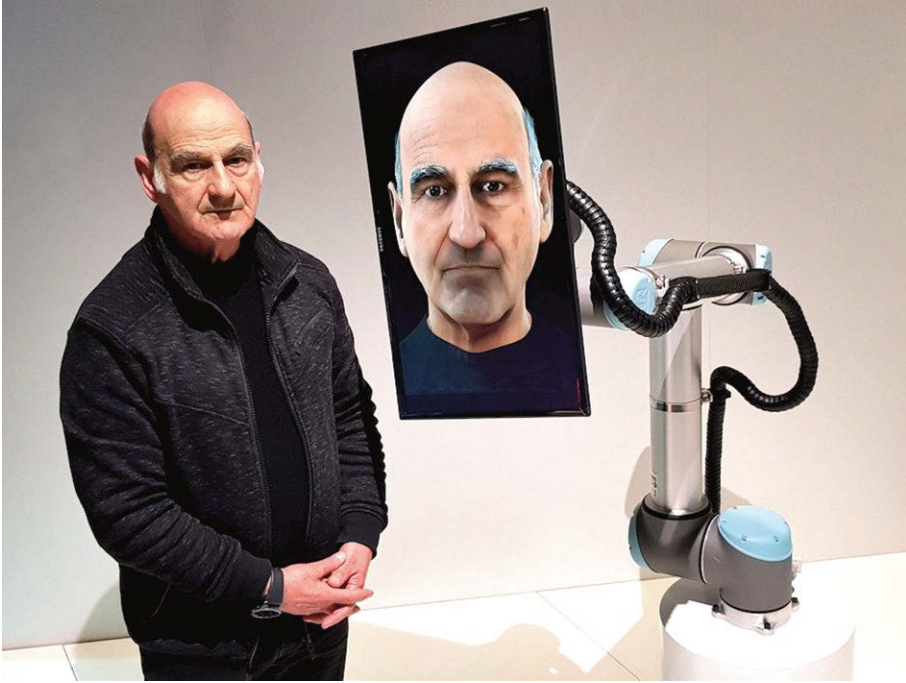
14 See Jens Schröter, *3D: History, Theory and Aesthetics of the Transplane Image* (London: Bloomsbury Academic, 2014), 104–143.

15 Schröter, *3D*, 129–130.

16 Boston Dynamics, 'Boston Dynamics launches commercial sales of Spot® robot' [press release], *Boston Dynamics website* (16 June 2020), <https://www.bostondynamics.com/press-release-spot-commercial-launch>, accessed 17 January 2025.

17 Boston Dynamics, 'Boston Dynamics launches commercial sales of Spot® robot'.

18 Mark Sweney, 'Elon Musk claims Tesla will start using humanoid robots next year', *The Guardian* online (23 July 2024), <https://www.theguardian.com/technology/article/2024/jul/23/elon-musk-tesla-humanoid-robots-optimus>, accessed 18 September 2024.



173 | Stelarc in collaboration with Damith Herath and Christian Kroos, *Articulated Head*, 2009. Installation view, *Born or Built Exhibition*, Questacon, Canberra (Australia).

also from a sculptural point of view. As emergent sculptural forms, how will AI and robotic systems change our understanding of the body, and how will sculpture and its theory conceptualize and respond to this change?

Scholars like Rosi Braidotti, Donna Haraway, and N. Katherine Hayles have extensively explored how biotechnology has infiltrated the market, resulting in the commodification of life. As sculpture and its theoretical frameworks may mirror this shift in their representations of bodies, they also have the potential to influence both pure and applied research in robotics and engineering. Indeed, one could argue that just as augmented reality is understood as a computer-based extension of reality, the sculptural sphere serves as an artistic extension of real-life corporeality. Certainly there continues to be overlap between the scientific and artistic communities (see chapter 2.3 above).

The *Articulated Head* (fig. 173) project, for example, is a collaboration between artist Stelarc and robotics researchers Damith Herath and Christian Kroos, integrating a Fanuc LR Mate 200iC robot arm with an LCD screen displaying a 3D rendering of Stelarc's *Prosthetic Head*.¹⁹ Originally conceived as an Embodied Conversational Agent (ECA) in virtual form, this

19 See Damith Herath and Christian Kroos, 'Engineering the arts', in Damith Herath, Christian Kroos, and Stelarc (eds.), *Robots and Art: Exploring an Unlikely Symbiosis* (Singapore: Springer Science+Business Media, 2016), 5, doi: 10.1007/978-981-10-0321-9.

physical version incorporates situational awareness through auditory localization, stereo vision, and monocular vision sensors. Artist Sterling Crispin, meanwhile, worked as a neuro-technology prototyping researcher for Apple. Whether his research on surveillance systems had a positive impact on Apple's product range or merely helped perfect the totality of their technological influence is an open question.

Another important aspect that this book has explored and which certainly demands further attention is the contribution of female-identified, POC, disabled, and LGBTQ artists to the fields of sculpture and technology, both historically and in contemporary work. Further investigation could focus on artists who have historically been underrepresented in sculptural spaces and have faced unique barriers in accessing the tools to produce sculptural objects. Such research would bring together practitioners from different generations and cultural backgrounds to explore the unique challenges and barriers faced by artists in the sculptural field.

Indeed, the history of sculpture tends to be narrated in a way that erases not only female but also non-Western influences or practitioners. Thus, in light of its technological transformation, sculpture still needs to be thoroughly reassessed in a manner that considers non-Western perspectives. A full account of sculptural history would also need to shed light on how technological developments and sculptural forms historically intersected and have been used as tools for control and domination. The long duration of colonialism invites a reading of what is called 'technological innovation' from the perspective of sculpture. While recent sculptural practices such as those discussed in this monograph explore power relations inscribed in the digital and technological spheres, sculptural theory and discourse should also seek to understand more thoroughly how older power structures are sustained and acquire new forms. Allahyari's notion of 'digital colonialism' could offer a fruitful stepping stone for future investigations that delve deeper into the sculptural canon. What if sculptural discourse were to consider alternative notions and methods?

Such investigations go far beyond the art-historical canon and reveal it as often uncritically assumed.²⁰ With radical inquiries in this vein, Krauss's conception of the sculptural field can be further extended towards an augmented sphere. Sculpture in the augmented sphere no longer revolves solely around formal-aesthetic inquiries internal to art-historical discourse; instead, it is shaped by the very fabric and challenges of our contemporary world. Yet it also represents the need to transform the nature of thinking practiced in the field of sculpture discourse. An innovative approach will no longer simply replicate the traditional chronological narratives of sculptural and technological progress. Instead, it will invite exploration into alternative ways of recounting history, offering new perspectives and insights into the evolving relationship between sculpture and technology.

In 'The history of art as a humanistic discipline', Erwin Panofsky illuminates how in certain research endeavours, assumptions are inadvertently made before an investigation even begins. There is a tendency to believe that we already know what we are looking for, so that

20 See Kamini Vellodi, 'Speculation, critique, constructivism: Notions of art history', in Sjoerd van Tuinen (ed.), *Speculative Art Histories: Analysis at the Limits* (Edinburgh: Edinburgh University Press, 2017), 212.

‘the beginning of our investigation always seems to presuppose the end.’²¹ This observation highlights a trajectory where the starting point is predetermined, limiting the potential for true exploration. What we truly require instead is critical thought and discourse that breaks free from this cycle of presupposition. We need discourse that no longer ‘cements thought in its own presupposed image, not as a search for the “sources and boundaries” of its “natural” conduct as determined prior to its practice – but [discourse and critique] as the undoing of all previous assumptions, as a movement of thought outside the conditions of an inherited image.’²²

Kamini Vellodi employs a similar approach in her examination of Deleuze, conceptualizing thought as a creative endeavour that breaks free from predetermined terms, established territories, and conceptual confines – even challenging entrenched rationalist assumptions. In this perspective, thought is not merely a critical process aimed at validating its own legitimacy. Instead, it represents a dynamic and often disruptive act of creativity, sparked by the exploration of the unknown and the encounter with the unfamiliar.²³ Such forms of thought are able to challenge the conventional notion of time as linear progress. For instance, Afro-futurist ideas, as discussed by the Black Quantum Futurism initiative, reject chronological linearity in favour of a non-linear temporality. This alternative view suggests that the future can influence and reshape both the current moment and our understanding of the past. In this conception art history becomes not a single narrative but a collection of diverse histories that influence one another. What kinds of knowledge are imposed upon us, and what knowledge are we compelled to overlook? How can we envisage contemporary sculptural discourse that remains receptive to both historical contexts and alternative present realities?

Sculpture in the Augmented Sphere has explored the intersection of technology and reality, and how contemporary artists engaging with this intersection blur the boundaries between digital and analogue existence. My hope is that the book has gone even further, prompting us to consider, in the words of Peter Osborne, the ‘coming together of different but equally “present temporalities or “times”’ – a fusion of present moments that are distinct yet interconnected.²⁴ In that spirit, the work of this book goes beyond simply integrating augmented and digital reality into the realm of sculpture. Through a critical stance that embraces speculative, feminist, and decolonial sculptural concepts, I have sought to illuminate the potential for an alternative approach. As the creativity and visionary spirit of the examined artists show, the intersecting realms of sculptural and digital landscapes can be spaces imbued with responsiveness – the capacity to engage with structures of power and to contemplate, empathize with, and attend to those whom these spaces have so long overlooked, effaced, or left behind.

21 Erwin Panofsky, ‘The history of art as a humanistic discipline’, in *Meaning in the Visual Arts* (London: Penguin, 1993), 29; See also Vellodi, ‘Speculation, critique, constructivism’, 212.

22 Vellodi, ‘Speculation, critique, constructivism’, 212.

23 See Vellodi, ‘Speculation, critique, constructivism’, 213.

24 Peter Osborne, *Anywhere or Not at All: Philosophy of Contemporary Art* (London: Verso, 2013), 17.

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