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(IM)MATERIALS—(IM)MATERIALITIES—(IM)MATERIALIZATIONS

Some Thoughts on the Analogital Condition(s) of the Sculptural

Abstract

This essay explores contemporary conditions of the sculptural with a special focus on the relationship, the tensions, and the transformations of and between both analog and digital material(itie)s and media. It proposes to capture these conditions with the overarching term and concept "analogital." After a more general introduction and discussion of both key terms and concepts (analogital, sculptural), a third and likewise dynamic term and concept is introduced with "(im)materials," inspired by Jean-François Lyotard's considerations of "the immaterials" (Les immateriaux, 1985). To further explore the analogital conditions of the sculptural, a special focus is set on the dynamics of (im)materializations and on the multiple relationships and entanglements between digital and material features and qualities of concepts, tools, working processes and results, addresses and (re)presentations, and selected examples of artists' projects from the mid-1990s to present are discussed. Finally, further research avenues for the analogital conditions of the scuptural in the expanded field of (im)materials, (im)materialities, and (im)materializations are proposed.

Key Words
Analogital, digitality, materiality, sculptural, (im)material

This essay aims to explore contemporary conditions of the sculptural with a special focus on the relationship, the tensions, and the transformations of and between both analog and digital material(itie)s and media—in brief: with a focus on the analogital.[1] While I will further

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1   It should be mentioned that rather than simply proposing "analogital" as an alternative term for what others call "post-digital," my focus is on concepts and practices for which I would consider the former term as a more precise denomination (although I would also admit that for these very reasons it also helps me to nail down my opinion on our topic much better than a term that is as widely and divergently used as post-digital, not to mention my chronic hesitations about the prefix "post-"; see Verena Kuni, "Was postdigital war," in *War postdigital besser?*, ed. Martin Conrads and Franziska Morlock [Berlin: Revolver, 2014], unpaginated). For a more detailed discussion of the term "post-digital," as well as of the related concepts and research, see the introduction to this volume by Ursula Ströbele and

expand on the term and the concept in more detail in the next section, let me start with some more general remarks on my approach. I am deeply convinced of the inextricable entanglement of media and matter, the very basis of our material and media cultures. For this very reason I also consider it important to delve deeper into the structures and the effects of these relationships, in order to better understand them in more detail. And I think it is a great fortune that there are artists who already have done and are doing a lot of promising work in this area—so it makes sense to do our research not only *on* art, but also *with* art as a companion, providing concepts, methods, and insights itself (and if I did not know about the ongoing debates and neoliberal appropriations of the phrase "artistic research" that make it critical to mention it without stressing further arguments and debates around it, I would rightly call it by its name).

Regarding the subject of this essay, this is probably especially true for what has been called "net art" or "net.art," an art form, or perhaps more precisely: an approach characterized by a considerably high degree of critical "self-", media and context reflection—and, very soon, also by a keen awareness of its very own instability and evanescence. I would claim both aspects as good reasons for developing a certain affinity for materializations, and also for the analogital. But actually, the latter was out there anyway, with sometimes fictive, sometimes very real extensions of projects genuinely conceived for digital media into object matter. To mention but a few: Olia Lialina's *My Boyfriend Came Back from the War* (1996),[2] Vuk Cosic's *classics of net.art* (1997),[3] Eva Wohlgemuth's *EvaSys* and *BodyScan* (1997),[4] and Blank & Jeron's *Dump Your Trash* (1998).[5] And from early onward there were projects explicitly putting the connectedness of digital networks and analog spaces, digitality and materiality, on the agenda,[6] like Eva Grubinger's *Netzbikini* from 1995.[7]

In our everyday culture, transfers of material practices into the digital were already established early on anyway, ranging from screen icons (like a sheet of paper for text documents, scissors and eraser for digital procedures, an envelope and a post box for email)

Mara Kölmel, to whom I also owe great thanks for the inspiring exchange, their critical reading of this essay, and their valuable comments.

2   See http://www.teleportacia.org/war/ (accessed March 20, 2022).

3   See http://www.ljudmila.org/~vuk/books/ (accessed March 20, 2022).

4   The original project (at thing.at/bodyscan) is not online any longer; for basic information and impressions, see https://web.archive.org/web/19981206211538/http://thing.at/bodyscan/, http://www.medienkunstnetz.de/works/eva-sys/ and http://www.medienkunstnetz.de/works/body-scan/ (accessed March 20, 2022).

5   The original URL is defunct; for more information go to http://blankjeron.com/sero/dyt/ (accessed March 20, 2022).

6   Although perhaps needless to say, I would like to emphasize that, both as concepts and as conditions, digitality and materiality should neither be separated nor set into opposition, but rather be understood as deeply entangled in many ways. I should also mention that this more general perspective is—for that very reason—not aiming to buy into the debates around already historical understandings of "the digital" (see, e.g., Nicholas Negroponte, *Being Digital* [New York: Alfred A. Knopf, 1995]), but rather to widen the latter.

7   The original URL is defunct; for a reconstruction, see https://www.evagrubinger.com/netzbikini/ (accessed March 20, 2022).

to whole processes and applications (see e.g., procedures and filters in photo manipulation software). Partially inspired by these transfers, and also on the absurdity some of them would necessarily render visible literally at a glance (e.g., "the paperless office"), and for sure also partially pushed forward by the mentioned instability of digital media,[8] there came a whole wave of artistic reflections on contemporary media cultures and contributions to a media archaeology of the present, including material emulations of digital objects and practices—for example Aram Bartholl's paper cutouts of video game items, Stephanie Syuco's materializations of digital database images, the analog arcade games based on slide projection crafted by the Swiss artists and filmmakers collective Mobiles Kino, or a hacked knitting machine transforming credit card data into Pac-Man ghost patterns (Fabienne Blanc and Patrick Rüegg).[9]

I will also come back to some of these projects and/or artists later, but the main emphasis of the following section will be on a systematic perspective and on the possibility of applying the latter to analogital in-formation of contemporary art(ists) work(ing) *in* and *with* the third dimension. Starting with two sections dedicated to the fundamental terms and concepts of (the) ANALOGITAL and (the) SCULPTURAL, I will then proceed to the eponymous (IM)MATERIALS, (IM)MATERIALITIES, and (IM)MATERIALIZATIONS, discussing the latter by taking a closer look at selected projects, to finally end up with … well, probably an open end with open perspectives.

Analogital

In the first place, "analog" and "digital" are technical terms that describe different ways to measure the state of a system and its variations, of signal acquisition, and communication. While analog systems and signals are captured as continuous variations of physical quantities, in digital systems and signals this is done in discrete numbers.

However, both terms have meanwhile found their way into the languages of everyday culture, and into the arts (and thus into the disciplines concerned with the latter), and although the termini as such are obviously applicable to objects/systems and processes in

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8   For me, this instability has been a motivation for thinking about the (im)materiality and (im)materializations of net culture and of web-based art in the expanded field; see e.g., Verena Kuni, "Re-Enactments from RAM? On Working in the Ruins of a Virtual Museum and on Possible Futures of a History of Web Based Art," in *Image-Problem? Media Art and Performance Within the Current Picture/Image-Discussion*, ed. Dawn Leach and Slavko Kacunko (Berlin: logos, 2007), pp. 113–29; "Why I Never Became A Net Art Historian," in *Net Pioneers 1.0. Contextualizing Early Net-Based Art*, ed. Dieter Daniels and Gunther Reisinger (Berlin: Sternberg Press, 2009), pp. 181–97.

9   For a more detailed discussion of these examples, see below (Bartholl, Syjuco) and Verena Kuni: "Wenn aus Daten wieder Dinge werden – From Analog To Digital And Back Again?" in *Die Sprache der Dinge: Kulturwissenschaftliche Perspektiven auf die materielle Kultur*, ed. Elisabeth Tietmeyer, Claudia Hirschberger, Karoline Noack, and Jane Redlin (Münster: Waxmann, 2010), pp. 185–93; Verena Kuni, "(F) ANALOGITAL," in *Post-digital Culture*, ed. Daniel Kulle, Cornelia Lund, Oliver Schmidt, and David Ziegenhagen (Hamburg: University of Hamburg, 2015), http://post-digital-culture.org/kuni/ (accessed March 20, 2022).

these areas, they have also been charged up (ah, another tech metaphor!) with a broader spectrum of meanings. In consequence, "analog" is often used for (almost) everything "outside the computer," and "digital" for (almost) everything "inside the computer" and made accessible by computers (and what is nowadays called "digital devices"). So, what is probably true for signal processing is obviously wrong when absorbed in a generalized and generalizing perspective on the processes and systems involved.[10] Yet, while the generalization is problematic, as it renders important parts and agencies of processes and systems invisible, it can nevertheless make sense to discern analog and digital features and qualities, including the consequences these bring about for and within past, present, and probably also future entanglements of technology and culture.[11]

From this background, the term "analogital" points us to these entanglements, and to the broad, diverse, and variable spectrum of transfers and transformations between analog and digital features, systems, processes, functions, and agencies we may encounter here.

These can be transfers and transformations of analog features, systems, processes, functions, and agencies into digital ones—and/or also the other way round: transfers and transformations of digital features, systems, processes, functions, and agencies into analog ones. Moreover, just as our analog past has paved the way for digital technologies and culture, dealing with and experiencing digital technologies and digital culture also changes the way we are dealing with and experiencing analog technologies and culture—thus, in a broader perspective, we might even say we are living in an analogital culture, featuring not only the analog and the digital, but, together with the transfers and transformations in both directions, also a spectrum of hybridizations, some of which are probably even decisive for both the present and for future developments of our (techno-)natureculture.[12] After all, what has been changing and is changing are the questions we are asking, and the tools, methods, and strategies we can use whenever we do our research.

Now, before asking to what extent this is relevant for contemporary approaches to and understandings of sculpture and the sculptural, we should of course take a closer look at these terms as well.

10   This applies both to the tech itself (see e.g., analog computers and computing, hardware, etc.) and—even more so—to the technical and socio-technical systems in which computers are integrated.

11   Still recommendable for both the basics as well as for further considerations of this are the contributions in Jens Schröter and Alexander Böhnke (Zons), eds., *Analog/Digital – Opposition oder Kontinuum? Zur Theorie und Geschichte einer Unterscheidung* (Bielefeld: transcript, 2004); digital open access edition (2015): https://doi.org/10.14361/9783839402542 (accessed March 20, 2022).

12   Here, I am not only thinking of Donna Haraway's fundamental contributions, but, with regard to the analogital, also of the above-mentioned processes of becoming (becoming object, subject, actor, matter, etc.) that also may include both metaphorizations and thingifications of metaphors; on the latter see, e.g., Sue Thomas, *Technobiophilia: Nature and Cyberspace* (New York: Bloomsbury, 2013).

Sculptural

In art history there is a long and ongoing debate concerned with the definition of sculpture, and in order to not break the mold, we should probably waive any attempt to recap it here. However, it will nevertheless be important to at least mention some of the aspects relevant for our more specific issues—and this will probably prove to be complex enough in consequence.[13]

While the term "sculpture" in English (just as *Skulptur* in German) can be applied to singular pieces of work as well as to a genre, "sculptural" almost immediately points us to features and qualities related either to the former and/or the latter.[14] Some classic definitions of "sculptural" as a quality resulting from the application of related techniques to matter will make an important difference compared to other techniques of plastic arts: in sculpture, matter is carved away rather than added. According to this definition, just as we can discern "sculpting" from "plasticizing" and other additive techniques, like "molding," "modeling" or "mounting," we could theoretically state that casts, ceramics, and/or assemblages should not be called "sculptures." But are they lacking sculptural qualities? Obviously, this humble question can already tell us we are delving into a complicated subject matter.

Now, if our next steps lead us into the realms of the digital, of digital media and digital technologies, our classical definition based on techniques rather than resulting qualities makes even less sense: whoever "pushes pixels" or, to switch from the metaphor to the application, uses programs to create visualizations that our human eye identifies with three-dimensional objects is creating simulations of the latter.[15] While in the process of creation lines of code are added somewhere and/or numbers are filled into spaces, on the layer of the code this visualization-simulation is not based upon addition and/or subtraction of any substance (and for sure not of something like "pixels"). On the level of visualization,

13   With regard to these, for more general perspectives on the relations between "sculpture" and "media"/ "digital media," still recommendable are the contributions of, among others, the editors in Gundolf Winter, Jens Schröter, and Christian Spies, ed., *Skulptur – zwischen Realität und Virtualität* (Munich: Wilhelm Fink, 2006).

14   For a more detailed and concise discussion of core dimensions of the sculptural (some of which will be addressed in this essay only later), see Martina Dobbe and Ursula Ströbele, "Gegenstand: Skulptur," in *Gegenstand: Skulptur*, ed. Martina Dobbe and Ursula Ströbele (Paderborn: Wilhelm Fink, 2020), pp. 1–16.

15   In technical terms, so this is to be taken literally—while at the same time it is important to keep in mind that simulations, including digital ones, do not "reproduce" existing objects. Moreover, digital simulation is about providing certain dimensions, certain functions, and a "look" (as in "look and feel"); there is actually no need to match the latter with any analog object(s). That is, of course, one of the powers of digital objects (including objects discussed here as "sculptural").

however, it depends on the designs chosen for display.[16] Here, everything is literally a matter of interpretation.[17]

Thus, we might even come back to discerning processes of addition and/or subtraction, and to looking for sculptural qualities (if not "the sculptural"). And, as we will soon see, this is especially the case within the realms of the analogital as defined above, encompassing approaches from within analog as well as digital space(s), and thereby also leading to new processes, practices, and perspectives for (inter-)actions with and between objects and subjects in the third dimension.[18]

At the same time, we should not proceed too fast: obviously, it is relatively easy to imagine, for example, VR spaces with simulations of objects that look like a bronze cast, a ceramic or a carved stone. Likewise, we can identify Aram Bartholl's steel cutout signs from *Map* (2006–19)[19] as "sculptural" while calling Morehshin Allahyari's 3D-printed objects from a project like *Material Speculation: ISIS* (2015–16)[20] "plastic." But in both cases our categorization is limited to objects in the narrow sense, while the projects themselves are reaching much further, stressing dimensions and faculties of the analog, the digital, and the analogital. And, speaking of these very dimensions in the plural: What could be more exciting than taking a closer look at projects including objects and/or agents that are themselves in transformation and metamorphosis, as in the work of artists like Ed Atkins or Ian Cheng?[21]

Actually, it seems like all these projects acknowledge, cherish, and/or problematize past concepts of analog sculpture and the sculptural as defined in analog dimensions, to do the very same for and within digital dimensions at the same time. Moreover, the way(s) they are doing it point us toward the multiple and multifold entanglement of these dimensions within an analogital culture. While some of art history's standard categories and systems of

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16 See, e.g., the different designs for desktop icons that—just to link even more directly to our overall subject matter—show different levels of figuration and of abstraction playing on a considerably broad scale of simulations between 2D and 3D in relation to the objects they are referring to.

17 In stating this, of course, I do not want to relativize the fundamental importance of techniques and technologies in any way; rather, it is about acknowledging not only the technological impregnation of culture, but also the cultural impregnation of technology. At the same time, whenever we communicate with machines, interpretation is at the core of our communication. On the basic level, computers "speak" in zeros and ones—and even this is already an interpretation of "offs" and "ons." Thus, even coding is based on interpretation.

18 For a detailed discussion of the latter, with focus on a different, yet related subject, see Jens Schröter, *3D: Zur Geschichte, Theorie und Medienästhetik des technisch-transplanen Bildes* (Munich: Wilhelm Fink, 2009.

19 See https://arambartholl.com/map/ (accessed March 20, 2022).

20 See https://morehshin.com/material-speculation-isis/ (accessed March 20, 2022). For a more detailed discussion see Ursula Ströbele's essay in this volume.

21 For good reasons, this essay has to keep the focus on the sculptural; however, a discussion of analogital objects and/as agents (including together with metamorphosis also analogital animation and animism) should include these two artists; see related work documented and discussed in publications like Thomas Trummer and Kunsthaus Bregenz, eds., *Ed Atkins*, exh. cat. Kunsthaus Bregenz (Cologne: Walther König, 2020); Joseph Constable, Rebecca Lewin, and Veronica So, eds., *Ian Cheng: Emissaries Guide To Worlding,* exh. cat. Serpentine Galleries, London (Cologne: Walther König, 2018), and on Ian Cheng's website, http://iancheng.com (accessed March 20, 2022).

classifications are losing grip, others, like material(ity) and technique/technology, remain important. That is what I want to claim at least, and what I hope to illuminate in more detail in the following sections, starting with some thoughts on (im)materials and (*Les) immatériaux*.

(IM)MATERIALS and *LES IMMATÉRIAUX*

Now, while standard dictionaries will have entries of "material," of "immaterial" (the latter not only as the counterpart of matter, but also signalizing insignificance), and of "materials" (in the plural), there is obviously no such entry for "immaterials," as if immateriality, as a concept, should remain one, almost literally a singularity. Indeed, "immaterials" is first of all a translation of the French *immatériaux*. However, in case you try to spot the latter in a French dictionary, you will soon find out that just like in English, there are *matériaux* and there is *l'immatériel*, but no such "things" like *immatériaux*. *(Les) immatériaux* is a neologism created by the French philosopher Jean-François Lyotard, who, in 1985, together with the curator and design scholar Thierry Chaput, made an eponymous exhibition for the Centre Pompidou in Paris.

It would certainly break the mold to go into more detail on the show itself, characterized by John Rajchman as "the creation of a kind of 'environment' for the enactment of ideas."[22] Yet, it should be mentioned that it is probably no coincidence but exactly for reasons rooted in its highly conceptual, systematic approach that both the project and its accompanying publications have gained renewed attention from art history and media studies in general, and especially among those concerned with the very issues associated with what is often captured by the term "post-digital,"[23] or, as I'd prefer to put it, the "analogital."[24]

Indeed, the core questions posed by the project were about the relations between and entanglements of technological, epistemic, social, and aesthetic transformations unleashed and brought forward by digital media and technologies, as well as the conditions and consequences of these transformations—transformations we not only experience or encounter as something "brought to us," but that we are actively designing, creating, and pushing forward whenever we engage with media and/as matter.

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22 John Rajchman, "Les Immatériaux or How to Construct the History of Exhibitions," in *Tate Papers*, no. 12 (2009), https://www.tate.org.uk/research/publications/tate-papers/12/les-immateriaux-or-how-to-construct--the-history-of-exhibitions (accessed May 5, 2021).

23 See above, and, as already mentioned there, for a more detailed discussion of the term, the concept, and its aspects, also the editor's introduction as well as the other contributions to this volume.

24 For both a more general approach and further research, see the collection of resources as well as the valuable contributions provided by Andreas Broeckmann and his *Immatériaux Research Project*, https://les-immateriaux.net/ (accessed March 20, 2022); for a direct link to post-digital and analogital perspectives, see the exhibition *Zum Beispiel Les Immatériaux*, Kunstverein für die Rheinlande und Westfalen, Düsseldorf, April 5–August 10, 2014; the former Kunstvereins director and co-curator of the show, Hans-Jürgen Hafner, provides a PDF of the exhibition brochure in his online archive, https://www.hjhafner.de/archiv.html (accessed March 20, 2022).

In a "communication diagram" conceived by Lyotard and distributed in the so called *Petit journal*[25]—actually a kind of exhibition guide—we find a map-like model that is built from terms (and concepts, respectively) all starting with an "m," and based on an amalgamation of then already classic communication models by Harold Lasswell, Claude Shannon, and Norbert Wiener that was, as Anthony Hudek appropriately put it, "hardly rigorous," but rather "an epistemological short-circuit between heterogeneous discourses—the one poetic, the other scientific"[26]:

> "N'importe quelle réalité est prise comme un message. A partir de la racine 'mât' on dit :
> le matériau est le supporte de message
> la matrice est le code du message
> la matière du message est son référent (ce dont il est question, comme dans 'table de matière')
> la maternité désigne la fonction du destinateur du message."[27]

However, even more telling than Lyotard's prominently printed comment is the diagram itself. The core element is the message, *message* originating from *matérnité* (maternity), neatly embedded in *matériau* (materials), surrounded by *matrice* (matrix) below and *matière* (matter) above the message-within-the-materials-complex, and finally followed by *materiel* (a material in singular, and, probably even more important, the related qualities), the material basis for the storage of the process.[28] Thus, we find all elements of this communication concept deeply rooted in different aspects of matter, material, and materialization, and therefore the whole concept considerably far from rendering communication as something immaterial or dematerialized. If considered from this perspective, the exhibition title, *Les immatériaux*, is rather to be read with a pause, *(Les) im-matériaux*, hinting us toward both the intended and unintended disappearance of matter(s) and materialities in communication processes—and it seems all the more logical that the exhibition itself was built upon objects. It was indeed in the tension between concept(s) and object(s), academic theories and everyday practices, the latter both continuously dealing with re-/de-mediation(s)[29] and

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25   See *Les immatériaux: Petit journal* (Paris: Editions du Centre Georges Pompidou, 1985). The diagram is on p. 2 of the *Petit journal*, and only there, as it is not included in the main publication, the exhibition catalogue (2 vols.).

26   Anthony Hudek, "From Over- to Sub-Exposure: The Anamnesis of Les Immatériaux," in *Tate Papers*, no. 12 (2009), https://www.tate.org.uk/research/tate-papers/12/from-over-to-sub-exposure-the-anamnesis-of-les-immateriaux (accessed May 5, 2021); revised version in *30 Years after Les Immatériaux: Art, Science & Theory*, ed. Yuk Hui and Andreas Broeckmann (Lüneburg: Meson Press, 2015); digital open access edition: https://meson.press/books/30-years-after-les-immateriaux/ (accessed March 20, 2022), pp. 71–91, here pp. 74–75.

27   Jean-François Lyotard, "Avant-propos," in *Petit journal*, 1985, p. 2.

28   Translation by the author; Hui and Broeckmann provide a different translation than mine, see Yuk Hui and Andreas Broeckmann, "Introduction," in Hui and Broeckmann, 2015, pp. 9–24, here p. 11 (figure 1).

29   While I appreciate the concept of remediation developed by Bolter and Grusin—see Jay David Bolter and Richard Grusin, *Remediation: Understanding New Media* (Cambridge, MA: MIT Press, 1999)—and while its discussion especially in the context of memory studies can be of interest here, I would indeed

re-/de-materialization(s), and creating them, that makes *Les immatériaux* not only histori-cally important, but also appealing for our present perspectives on the analogital in general, and on the analogital conditions of (the) sculptural.

If, how, and to what extent reflections of this dynamic mélange should directly draw from Lyotard's communication model may remain open, if not debatable. Now, as before, it seems a good choice to take up his considerations about the mutual interpenetration of media and matter, material and immaterial, with what the philosopher tried to capture with his (in)famous neologism *immatériaux*. We will probably find that these interpenetrations—rather than "the" media in general and/or "the" digital media respectively, as some would still suggest[30]—have indeed altered the relationship between human beings and material(s), and that this alteration is an ongoing process. However, as we do so, we should also ask if and how "immaterials," including those related to, processed, and/or produced by dig-ital technologies (and thus with technologies that at least partially can be classed among this category as well), change our relationship with the sculptural and its (im)materialities. Moreover, we will certainly have to assume dynamic relationships, potentially between all elements, parts, and processes involved.

But what does that mean in concrete terms?

To answer this question, let us take another look at some of the projects mentioned above. The signs from Aram Bartholl's *Map* are monumental materializations of Google Map's iconic pins, placed at positions in urban space equivalent to those that the search engine marks as the center of a city. However, the transfer from digital to analog spaces, places, and practices is only one part of a whole that is more than its parts. Also, the aerial photographs capturing the installation process as well as the sculptures on site are of im-portance: the latter blur the border between imagination and image, digital and analog realities—due to their perspectives, they could almost pass as screenshots of Google Maps' photo mode. The former, however, work toward a disillusion and invite us to rethink the powerful entanglements between these realities.

Morehshin Allahyari's 3D-printed plastic models of artifacts from the Mosul Museum Baghdad that were destroyed by ISIS can be immediately recognized as objects related to and relating to the originals, both as placeholders and as (micro-)monuments.[31] The material qualities, almost all of the craft and workmanship invested in the original sculptures, have vanished; the raw surface of the printed models makes the loss even more visible and al-most painfully tangible. At the same time, a good part of the reference and the memory has

also propose to take likewise the complementary concept of "demediation" into account; see the fundamental approach (on books transformed into artwork) taken by Garrett Stewart, "Bookwork as Demediation," in *Critical Inquiry* 36, no. 3 (2010): 410–57.

30   There are indeed good arguments to "blame" digital media for being a driving force of this process; however, I would nevertheless claim that the interpenetration is decisive for the dynamic mélange as such, and for the analogital culture resulting from it.

31   For more insights into a broader concept of monumentality, see Mara Kölmel's contribution to this volume.

become an (in)visible ingredient of the models. Embedded in the models are memory sticks that contain data gathered by Allahyari as part of her research, text and image documents about the destroyed artifacts: Storage devices as material containers for digital repositories that, due to their inaccessibility, are questioning their own status; subjective collections, fragmented and partial, unstable media and unstable matter(s), and above all also unapproachable—because they are accessible only at the price of destroying the models they are contained within. At the same time, they provide us with a considerably precise description of the cultural status quo of the destroyed sculptures, and they are also an appropriate answer to the machismo gesture of the demolition, documented on and staged for video, in advance of the world-wide circulation as digital images. Alas, another disillusion, and another invitation to rethink the relations and entanglement between material and media realities.

In both cases, however—this is for the signs as well as for the models—the interrelations and entanglements no longer allow a strict divide between analog and digital: as with the dynamics of the former, the latter are not only merging into each other; but it rather becomes clear that they have already merged. In both cases, it is decisive that the projects are unfolding under analogital conditions that are characteristic for our present.

(IM)MATERIALIZATIONS

After decades of making all kinds of efforts in transforming our calculating machines into digital multi-tools providing us with programs that can pass as lookalikes of their analog predecessors (e.g., digital text and image processing, digital cameras, emails, messaging, etc.) and/or hide in shells mimicking them, it is actually anything but surprising that materializations of digital media, applications, and objects have become matters of course.[32]

Art has trained this relatively early, starting with the desire to print computer graphics that otherwise would have remained on screen, although it should be pointed out that we find computer graphics and their materializations already in the time of analog computers.[33] Just like early plotter printing, artistic 3D-printing started as an experimental genre before the professional technology had been soaked into everyday culture, with artists like Karin Sander or Eva Wohlgemuth (the latter also a pioneer of net.art) as early adopters. But what is even more important is that quite generally both a materialization and a spatialization of digital objects, be it as/in imagination(s) and/or simulation(s), were present in computer-based art from early on. And, as pointed out in the introduction, mentioning only some of the more prominent works of that decade, we can likewise notice an increasing importance of related concepts and projects especially from the mid-1990s onward, together with an

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32   See Kuni, "(F) ANALOGITAL," 2015.
33   See e.g., as a prominent example, the work of Frieder Nake, such as Frieder Nake, *Ästhetik als Informationsverarbeitung* (Vienna: Springer, 1974).

increasing accessibility and popularization of digital art via personal computers and "the" internet.[34]

While debates about digital art often focus on digitalization as a dematerialization of material culture, we actually find many aspects of reverse processes that are not limited to digital reimaginations and reconstructions of material objects and their uses (e.g., the envelope symbol for emails, paper planes for sending them, a nostalgic tin mailbox for the digital inbox), but rather ask for the materiality of digital media. Actually, the popular prominence of digital metaverses from the time of early cyberpunk fiction up till today's business plans should anyway not obscure the fact that the majority of digital applications are directly connected to material realities in many ways, and that digital and analog handling, digitalization, and materialization work hand in hand: we scan documents to send them and print out documents we receive as digital files on paper; a CAD program does not make too much sense if it is not used to build something that materializes, for example a building or a car, which in turn are controlled by interacting with their digital simulations.

This points us to two aspects that we probably should keep in mind when further exploring analogital cultures: first, there is a strong connection between everyday uses of technology and their reflections both in the arts and in everyday culture. And second, probably for that very reason, while there is an immediate link between digital presents and analog pasts that enables and also reinforces a movement from analog to digital and back again, the latter turn of this movement is not necessarily and not only driven by nostalgia—although the longing to touch, to grasp, and to keep "things" seems to play a role.[35] Rather, it is again the intertwinement and entanglement of analog and digital technologies, objects, structures, and practices that matters. While materialization and memorizing, materiality and monumentality can be mutually interrelated, this is not mandatory; both memorizing and monumentality are not necessarily bound to material(s) and/or materialization. Likewise, the relations between analog and digital are not limited to the processes of de-/re-materializations, but are far more complex—and so when we want to understand them in detail, we will have to take a closer look at each case. And what is probably most important: these processes are not to be understood as "technical" or "technological" only, but within the social and cultural frameworks that have produced and brought forward the very technologies in use.[36]

34 Of course, the first wave of this process was in the 1980s; however, I'd suggest that just as it needed a popularization of personal computers for the move from command shells to desktop icons, it needed broader access to the internet, and to the World Wide Web, for developing the latter to a "user-friendly interface," and to a system that allowed the display of images and attractive multimedia content.

35 See for the nevertheless important aspect of nostalgia Dominik Schrey, *Analoge Nostalgie in der digitalen Medienkultur* (Berlin: Kulturverlag Kadmos, 2017); for a broader scope on the latter-mentioned aspects, Kuni, "Wenn aus Daten wieder Dinge werden," 2010, Kuni, "(F) ANALOGITAL," 2015, and Kuni, "Medien zu Monumenten, Daten zu Dingen," in *Medienrelationen: Von Film und Videokunst bis Internet*, ed. Cornelia Gockel and Susanne Witzgall (München: Kopaed, 2011), pp. 119–38.

36 Among the areas in which such transfers have been commonplace for a long time is, for example, needlework; see Verena Kuni, *Ha3k3ln + Str1ck3n für Geeks: Von gehäkelter Mathematik bis zum Strickmaschinen-Hack. Wissenswertes, Ideen & Inspirationen* (Cologne: O'Reilly, 2013).

Indeed, all artistic projects mentioned so far can be understood as reflections of the tension generated by the interrelations of analog and digital, and the (im)materializations taking place within this field—and they immediately point us to the considerably broad spectrum of cultural practices and frameworks that are to be found even within a certainly limited cultural geography. But what does this mean for our subject, sculpture? Obviously, it makes a difference whether it is about embodiment or about objectivity, mattering or matter, memory or representation, in the first instance, even in case in the next moment we might see these aspects intermingling again: our task is to disentangle the different strands, and to ask for the directions and purposes of their entanglements in order to proceed with finding answers to our questions. So let us try to do so for some of the projects mentioned above:

Dump Your Trash by (Joachim) Blank & (Karlheinz) Jeron (1998) is first of all a "classic of net.art" (to abuse the title of Cosic's project from 1997).[37] The landing page asks people to enter their email addresses as well as the URLs of their homepages (or another website if they don't have one); the data of the latter are used to generate a graphic simulation of a personalized epitaph that is then sent to the email address together with the invitation not only to take a look at the "DYT" page's gallery, where the digital epitaph can be con-templated together with the epitaph's of other homepages, but also to order the analog version of the epitaph carved in stone. Later, Blank & Jeron added a variation of this concept by engraving Alexei Shulgin's and Natalie Bookchin's *Introduction to net.art* (1994–99) into monumental marble slabs.[38] Both projects relate to the traditional format of the epitaph to point out that the lifetime of digital technologies, of objects created with and distributed by digital media, and in consequence also the memory of net.culture, is limited. To this end, the projects use materials and techniques, gestures and functions of the sculptural: the monumentalization of digital objects (in this case: html documents)—the marble epitaph is literally a materialized metaphor of both the process and its result—points us to the un-solved problems of unstable media, oscillating between ridiculous exaggeration and tragic sadness of an impossibility to save major parts of net-based cultural history from oblivion. The projects address core dimensions of the sculptural without leaving the surface logic and aesthetics that are characteristic for their digital roots.

The latter is indeed important, also generally for the approach taken here and thus not only applicable to Blank & Jeron's early contributions to the field. About a decade later Stephanie Syjuco takes digital images of objects found on popular platforms like eBay or Thingiverse as both the material and conceptual starting points for projects dealing with communities, markets, and cultures deeply informed by digital transformation. In her instal-lation *Everything Must Go (Grey Market)* (2006), there are photographs of home electronics

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37 See, again, http://blankjeron.com/sero/dyt/ and http://www.ljudmila.org/~vuk/books/ (accessed March 20, 2022).

38 See https://bookchin.net/projects/introduction-to-net-art/ and http://www.easylife.org/netart/ (accessed March 20, 2022).

like TVs, hi-fi systems or game consoles taken from rather dubious offers found on eBay and Craigslist; in *RAIDERS: International Booty, Bountiful Harvest (Selections from the Collection of the A____ A__ M_____)* (2011) there are photographs of pottery taken from a prominent Asian arts and antiquities museum's website and online database, a mode of representation that is often also an involuntary documentation of the inhomogeneous and sometimes also fragmentary provenance of the objects.[39] In both cases, the digital "found footage" photographs have been printed "lifesize" true to scale mounted on flat panels (in one case Styrofoam, in the other plywood) and installed on platforms (in one case pedestals, in the other wooden pallets). As a consequence, photographs of the installations could be mistaken for showing three-dimensional objects—wouldn't there be the pixelated surfaces, blurs, reflexes, and highlights unveiling the two-dimensional image sources. "Lifesize" turns out to be the result of a blow-up, an unforeseen and inadequate (re-)materialization that is, in the end, not even a (re-)materialization, but rather the demonstration of transformations that take place with(in) digital technologies, and the effects these have on material objects and the material world.

To finally cross another decade, and thereby also reach the epoch that saw the term "post(-)digital" finally enter our discourses about the transforming and transformed relations between analog and digital cultures (and art) on a broader front:[40] Katja Novitskova's installative work from the 2010s onward encompasses a whole range of three-dimensional elements and objects—and it is not by chance that her projects are almost always named whenever the term "post-digital" is connected to "art."[41] Indeed, her signature aesthetics from that decade are characterized by visual material drawn from the internet: gifs from digital folklore are meeting blown-up micro-, macro-, and telescope photography, 3D-printed into PETG or on aluminum dibond, and arranged like stage sets.[42] The combination and composition of familiar, but at the same time also strange transformed or mutant images generated from nonhuman and/or artificial source materials and technologies creates literally sur-real spheres that can become spaces for imagination and reflection.

Of course, this cannot be about direct comparisons between conceivably different projects and bodies of work. However, when it comes to our topic, and if we ask about

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39   See https://www.stephaniesyjuco.com/projects/everything-must-go-grey-market and https://www.stephaniesyjuco.com/projects/raiders-international-booty-bountiful-harvest-selections-from-the-collection-of-the-a-a-m (accessed March 20, 2022).

40   Of course, the term as such has been traded much earlier and slowly entered into academic discourse from the 2000s onward; and already in 1998 there was an exhibition in San Francisco titled *Sub-techs: The New Post-Digital Sculpture* (at Lab Space, curated by Charles Gute, featuring, among others, Gebhard Sengmüller's *VinylVideo*—and thus a project perfectly fitting the broader framework of "analogital," although its labeling as "sculpture" should perhaps remain susceptible to debate, even when taking the now somewhat outdated concept and term "video sculpture" into account), see https://www.vinylvideo.com/ (accessed March 20, 2022). However, the bigger wave of debates, initiatives, and publications came after 2010.

41   See https://www.katjanovi.net/ (accessed March 20, 2022).

42   See, e.g., Novitskova's series *Pattern of Activation* (since 2014), https://www.katjanovi.net/patternofactivation.html (accessed March 20, 2022).

the analogital condition(s) of the sculptural specifically, then it can be noted that all these projects are (re-)calling core qualities of the latter and at the same time negating them, for example by simulating a view from all angles (*Allansichtigkeit*) in three dimensions, and at the same time disappointing related expectations, as we are thrown back to their "deep surfaces."[43] They literally materialize the impact of "the digital" on our perception, and together with the mattering of digital media they also demonstrate their materiality, a materiality of becoming, and one that has always been there, and that has always been "real." Gestures quite similar to those already found in Aram Bartholl's *Map*, and at the same time quite different in each case, as each project is about different functions and operations of digital images and their referents or references in analog space and its material(itie)s. And also gestures that can lead us back to Lyotard's "communication diagram," and to the more general perspectives of *Les Immatériaux* on the intertwinements and entanglements of technological, social, and aesthetic conditions (in)forming the analogital condition of the sculptural. Indeed, the transfers and transformations of digital matters are probably not the only option, but for sure not by chance a more prominent one to articulate (the) sculptural within (the) analogital logic. They can point us to the mutual in-formation of the (im)materials involved—a process that is both taking place in and mirrored by the interplay between planes and bodies, surfaces and spaces, material(itie)s and media.

PERSPECTIVES

In emphasizing that this is only one option for articulating these conditions, I deliberately acknowledge there are others—and also this one certainly deserves a more intense discussion than I was able to offer here. However, I'd still like to mention some of the aspects that I would have looked at more closely had the given framework allowed it.[44]

Among these would be MODELING, a track we could follow from the mid-nineties up till today, from projects by Eva Wohlgemuth (as already mentioned: *EvaSys* and *BodyScan*, 1997) and Karin Sander (*3D Body Scans*, since 1997)[45] to those of Morehshin Allahyari (e.g., her *Material Speculation: ISIS*, 2015–16, as already discussed above), Nora Al-Badri (e.g.,

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43 Both literally (as plain code is used to create 3D spaces and objects) and with reference to the metaphor; for the latter and for an overview over the ongoing debate especially in cultural and comparative literary studies, see Hans Jürgen Balmes, Jörg Bong, and Helmut Mayer, eds., *Tiefe Oberflächen: Neue Rundschau* 113, no. 4 (2002); Timo Heimerdinger and Silke Meyer, eds., *Äußerungen: Die Oberfläche als Gegenstand und Perspektive der Europäischen Ethnologie* (Vienna: Selbstverlag des Vereins für Volkskunde, 2013); for an attempt to explore the metaphorology of digital surfaces, see also Verena Kuni, "Auf den Planken des Bateau Ivre durch die Phönix-Asteroiden: Der Surfer: Versuch über ein Mythologem," in Bernhard Balkenhol and Holger Kube Ventura, eds., *Surfing Systems: Die Gunst der 90er. Positionen zeitgenössischer Art*, exh. cat. Kasseler Kunstverein (Basel and Frankfurt: Stroemfeld, 1996), pp. 209–16.

44 Actually, these perspectives (and projects) shall be discussed in more detail in a book publication I am preparing on the subject matter of analogital culture and art that is still work in progress.

45 See https://www.karinsander.de/en/work/3d-bodyscan (accessed March 20, 2022).

The Other Nefertiti, 2015; *HOW AN AI IMAGINES A DINOSAUR*, 2017),[46] and Oliver Laric (e.g., *threedscans.com*, 2015, and *Photoplastik*, 2016),[47] to name but a few.[48]

And, of course, AUGMENTATION, drawing a bow from early VR (virtual reality) simulations to recent AR (augmented reality) projects, from Monika Fleischmann's and Wolfgang Strauss's *Home of the Brain* (1991–92) with its "philosophical sculptures"[49] over meanwhile likewise "classic" projects realized for Second Life (e.g., Eva and Franco Mattes's *Reenactments*, 2007–10, and *Synthetic Performances*, 2009–10),[50] up till the presentations of artists like Sabine Gross, Nasan Tur, or Neda Seedi in the framework of the *New Viewings* hosted by Barbara Thumm Gallery, Berlin;[51] from Jeffrey Shaw's *Golden Calf* (1994)[52] to the AR-sculpture projects by artists like Jeff Koons (*Augmented Reality Lenses for Balloon Dog (Yellow), Balloon Swan, Rabbit, Popeye & Play-Doh*, 2017)[53] or Brian Donnelly, aka KAWS (*Expanded Holiday* and *Holiday Space*, 2020).[54]

A section on MODELING would have offered to further explore not only the entanglements, common features, and differences of and between (the) sculptural, sculpture, and (the) plastic, but also the relations between body/embodiment and model/modeling, between becoming and abstraction, original and copy, prototype and depiction, idol and image, inviting us to find out if and how artists deal with classic categories under analogital conditions in new and unexpected ways. Or just to find out how differently 3D-printing can be used in contemporary art.

With a section on AUGMENTATION we might have returned to Lyotard as the most prominent philosopher of the "postmodern condition," and, together with Jean Baudrillard,

46 See https://www.nora-al-badri.de/works-index (accessed March 20, 2022).

47 See http://oliverlaric.com/, https://threedscans.com/, and http://oliverlaric.com/photoplastik.html (accessed March 20, 2022). For his exhibition of *Photoplastik*, Laric also conceived a book publication that encompasses the related perspectives of the media history laid out and discussed in more detail by Jens Schröter (Schröter, 2009); see *Oliver Laric: Photoplastik*, ed. Gudrun Ratzinger, exh. cat. Secession, Vienna (Berlin: Revolver, 2016).

48 For an in-depth discussion of digital (and post-digital) augmentations, see Mara Kölmel's dissertation, *Sculpture in the Augmented Sphere: Reflections at the Intersection of Corporeality, Plasticity and Monumentality* (Leuphana Universität, 2022), which I learned of only after having written this essay.

49 The VR simulation imagined four rooms dedicated to four prominent scholars in media theory: Vilém Flusser, Marvin Minsky, Paul Virilio, and Joseph Weizenbaum, each room furnished with virtual "sculptures" and floating quotes. See https://www.fleischmann-strauss.de/works-werke and http://www.medienkunstnetz.de/works/home-of-the-brain/ (accessed March 20, 2022).

50 See https://0100101110101101.org/reenactments/ and https://0100101110101101.org/synthetic-performances/ (accessed March 20, 2022).

51 See https://newviewings.de/ (accessed March 20, 2022).

52 See https://www.jeffreyshawcompendium.com/portfolio/golden-calf/; for a recent "remake," *Encompassing the Golden Calf* (2019), https://www.jeffreyshawcompendium.com/portfolio/encompassing-the-golden-calf/ (accessed March 20, 2022).

53 In cooperation with Snapchat; see http://www.jeffkoons.com/artwork/projects/snapchat-augmented-reality-world-lenses, and for Snapchat's AR project background, see https://ar.snap.com/ (accessed March 20, 2022).

54 In cooperation with Acute Art, a company specialized in AR projects by contemporary artists; see https://acuteart.com/ and https://acuteart.com/artist/kaws/ (accessed March 20, 2022).

probably one of the most prominent inspirations for media artists of the 1990s.[55] Perhaps we would have not only taken a closer look at the more recent developments, with whole exhibitions and even sculpture biennials based on AR technologies,[56] but also mused about whatever might have happened to Lyotard's distrust in meta-narratives in times like today with big companies creating these kinds of narratives with the help of digital technologies in order to furnish their versions of the metaverse—actually in ways considerably different from what critical writers like Neil Stephenson would have been thinking at that time. Finally, we would probably have returned to some of the "classics" of art history, finding that when it comes to the sculptural the most appropriate description of this perspective is to be found in Rosalind Krauss's "Sculpture in the Expanded Field."[57]

Moreover, in moving from the fringes of this expanded field to its very center, we probably would have been discussing two related, alternate (yet sometimes also combined) ways to and for work(ing) with(in) three dimensions: that of ASSEMBLAGE, in the very tradition of political collage and montage established in the decades of the late nineteenth to early twentieth centuries—as found in e.g., Addie Wagenknecht's *Liberator Vases* (2016) or in Matthew Plummer-Fernandez's *Every Mickey* (2017).[58] And of course, coming back to some of the musings of an earlier section of this essay, we could take a closer look at aspects, techniques, and technologies of the PLASTIC, leading to the sculptural without sculpting in a more narrow sense. Here, it could be especially fruitful to include, in allusion to and also in correlation to the *informe* (Rosalind Krauss after Georges Bataille),[59] an IN:FORME that by the way of its digital in-formation—of a digital fluidity, porosity, and malleability[60]—is opting for an analogital condition of the sculptural to be found not only in VR and AR projects, but also in material work and in the way(s) materials are being incorporated.

Last but not least, we should—also in a more general perspective—think about the aesthetics of today's *immatériaux*, the aesthetics of (IM)MATERIALS, (IM)MATERIALITIES, and (IM)MATERIALIZATIONS we find relevant for the analogital condition of the sculptural. These will probably inherit what we already know as digital aesthetics: morphing, torsions, glitches—and of course both give rise to surface aesthetics like glossiness, smoothness, shadings, and their diffractions; operations like copy, rotation, mirroring, shearing;

55   Jean-François Lyotard, *La Condition postmoderne: Rapport sur le savoir* (Paris: Ed. minuit, 1979), trans. Geoffrey Bennington and Brian Massumi, *The Postmodern Condition: A Report On Knowledge* (Minneapolis: University of Minnesota Press, 1984).

56   See, e.g., the AR Biennale, Düsseldorf, August 22, 2021–April 24, 2022, https://www.nrw-forum.de/ausstellungen/ar-biennale (accessed March 20, 2022).

57   See Rosalind Krauss, "Sculpture in the Expanded Field," *October*, no. 8 (1979): 30–44.

58   See https://www.placesiveneverbeen.com/works/liberator-vases and https://www.plummerfernandez.com/works/every-mickey/ (accessed March 20, 2022).

59   See Yves-Alain Bois and Rosalind Krauss, ed., *L'Informe: Mode d'emploi*, exh. cat. CNAC Centre Georges Pompidou (Paris, 1996); translated as *Formless: A User's Guide* (New York: Zone Books, 1997); and Rosalind Krauss, "*Informe* without Conclusion," *October*, no. 78 (1996): 89–105.

60   For an in-depth research on related aspects of digital information, see Mara Kölmel, *Sculpture in the Augmented Sphere* (forthcoming).

modularity and generative sequencing—all of the latter also already known to a (pre-)digital, mathematically informed art that can be easily traced back to earlier centuries and cultures. The former, however, can indeed not only point us back to the sensual qualities of the (pre-)digital *informe*, and thus (re-)connect more recent creations to the *longue durée* of what is probably one of the genuine qualities of the sculptural: the evocation of a desire to touch. It can also lead us to an important insight for understanding the contemporary: if, as Ursula Ströbele puts it, "in digital sculptures, the bipolar duality of the plastic-haptic and the optical-visual no longer applies,"[61] this is even more true for the analogital.

With regard to the ASSEMBLAGE, we may assume that together with the modeling the transformations and hybridizations of bodies and objects will play a major role. With regard to the PLASTIC and to the IN:FORME, it is probably not only the flowing and the fluid, the evanescent and volatile, but also the fluctuating versatility of IM:MATERIALS, (IM)MATERIALITIES and (IM)MATERIALIZATIONS that is important.[62]

In any case, however—and this is true for everything sculptural we find within the "expanded field," be it in its center or at its margins—it is within the tension of (IM)MATERIALS, (IM)MATERIALITIES, and (IM)MATERIALIZATIONS of the SCULPTURAL that the ANALOGITAL condition of our present becomes tangible and graspable here.

61 See Ursula Ströbele's essay in this volume.
62 See on the one hand, e.g., the work of artists like Pamela Rosenkranz, Karla Black, and Annika Yi for an analogital condition that is prone to an "immaterializing"/"immaterialization" (of) matter—and on the other, as already mentioned, for an analogital condition that is more inclined to materializing "immaterials," e.g., the work of artists like Ed Atkins and Ian Cheng.