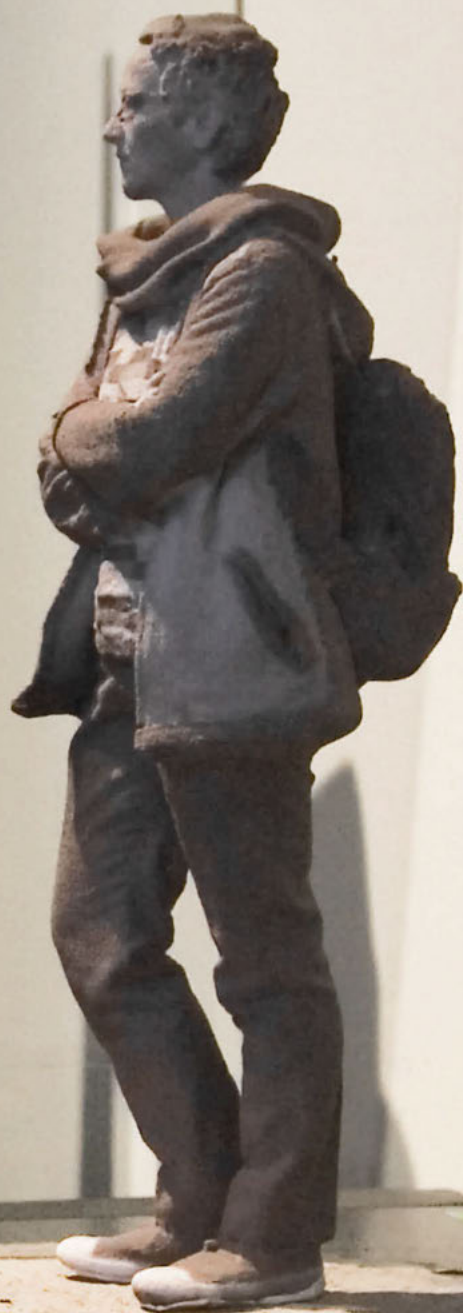


Art meets science and technology

Both in architecture and art, digital technologies and media have led to far-reaching changes in production methods, giving rise to a wide range of reciprocities. Art is thus increasingly abandoning its traditional craft-based form language and seeking inspiration from cutting-edge technical developments, while architecture and technology are creatively exploring the form language of art. Reversed perspectives? A new rubbing of shoulders? Mutual inspiration? Communalities, or diametrically opposed positions?

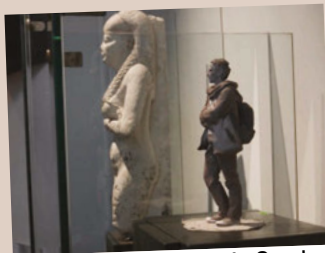
Digital media and their influence on material production processes open up new technical opportunities and work forms in art, architecture, and the sciences that extend far beyond traditional methodologies. On the one hand the latest technologies change the representational forms of art, and on the other, through new production processes, they allow us to create things possessing not only a wealth of innovative functions but also their own unique aesthetics. Algorithms, 3D scans, robotics, and so forth represent uncharted territory not only in technical but also in aesthetic terms.

Karin Sander (Translation: Stephen Richards)





01 Peter Frieze takes a Photo of „Peter Frieze 1:10“, 1999, 3D body scan of the living person, FDM (fused deposition modeling), ABS (acrylonitrile-butadiene-styrene), airbrush, Scale 1:10, Height ca. 18 cm, Collection Rebecca and Alexander Stewart, Seattle, Photo © Studio Karin Sander



02 Karin Sander: „Karin Sander 1:5“, 2008, 3D color scan of the living person, polychrome 3D printing, black and white, plaster material, Scale 1:5, Height ca. 32 cm / Installation view Alexandria National Museum, 2008, Photo © Karin Sander



03 Karin Sander: „Werner Meyer 1:10“, 1997, 3D body scan of the living person, FDM (fused deposition modeling), ABS (acrylonitrile-butadiene-styrene), airbrush, Scale 1:10, Height ca. 18 cm, Collection of Landesbank Baden Württemberg, Stuttgart / Installation view Kleinplastiktriennale Stuttgart, 1997, Photo © Studio Karin Sander



07 Karin Sander: „Messebesucher 1:7,7 ... Unlimited (Art-Fair Visitors scan lab (Scanliner): 3D body scans of the art-fair visitors, 3D printing, plaster material, pigment (chromium oxide hydrate green), Scale 1:7,7 ..., Height each ca. 20–23 cm, Photo © Studio Karin Sander



08 Karin Sander: „Katharina Grosse 1:7,7 ... Unlimited“, 2001, 3D body scan of the living person, 3D printing, plaster material, pigment (chromium oxide hydrate green), Scale 1:7,7 ..., Height ca. 23 cm, Private collection, Photo © Studio Karin Sander



09 Karin Sander: „Michaela Finkbeiner 1:9“, 2002, 3D body scan of the living person, 3D printing, plaster material, Scale 1:9, Height ca. 19 cm, Private collection, Photo © Studio Karin Sander



14 Karin Sander: „Museumsbesucher 1:8, Labor K20 / Museum Visitors 1:8, Labor K20“, 2010, 3D body scans of the living persons in the color of their choice: rapid prototyping, 3D inkjet printing, plaster material, RGB colors, monochrome, Scale 1:8, 23 × 12 × 8 cm / Installation view Museum Lehmbruck, Duisburg, 2013, Photo © Achim Kukulies



15 3D Prototype: Combining form and color, Photo © Chair of Architecture and Art, Karin Sander, ETH Zurich



04 Werner Meyer,
Photo © Studio Karin
Sander



05 Karin Sander: „Karl
Lagerfeld 1:10“, 2003, 3D body
scan of the living person, FDM
(fused deposition modeling),
ABS (acrylonitrile-butadiene-
styrene), airbrush, Scale 1:10,
Height ca. 18 cm, Collection
of Kunstmuseum St. Gallen,
Photo © Martin Steiner



06 Karin Sander: „Valeria
Liebermann, Rosemarie
Schwarzwälder, Thomas Ruff
1:10“, 2000, 3D body scans
of the living persons, FDM
(fused deposition modeling),
ABS (acrylonitrile-butadiene-
styrene), airbrush, Scale 1:10,
Height ca. 18 cm, Private
collections, Photo © Studio
Karin Sander



10, 11 3D Printing work station
in the Staatsgalerie Stuttgart,
2002, Photos © Studio Karin
Sander



12 Karin Sander: „Flusskiesel
1:1 / River Pebble 1:1“, 2003, 3D
scan of the original stone, paper
lamine and cutting process
PLT A3, 3×10,5×9,5 cm,
Photo © Studio Karin Sander



13 Karin Sander:
„Museumsbesucher 1:8, Labor
K20 / Museum Visitors 1:8,
Labor K20“, 2010, 3D body
scans of the living persons
in the color of their choice,
monochrome 3D printing,
plaster material, Scale 1:8,
Height each ca. 10–22 cm,
Shelf 240×1200×30 cm, North
Rhine-Westphalia Art Collection,
Düsseldorf, permanent loan
from private collection,
Photo © Achim Kukulies



16 Karin Sander: „Barbara
Hofkamp 1:5“, 2013, 3D
color scan of the living
person, polychrome 3D
printing, black and white,
plaster material, Scale 1:5,
Height ca. 35 cm, Private
collection, Photo © Studio
Karin Sander



17 Karin Sander: „Familie
Körner 1:5“, 2013, 3D color
scans of the living persons,
polychrome 3D printing, black
and white, plaster material,
Scale 1:5, Height ca. 35 cm /
Exhibition view Lens-Based
Sculpture. Die Veränderung der
Skulptur durch die Fotografie
at Akademie der Künste,
Berlin, Private collection,
Photo © Studio Karin Sander



18 Karin Sander: „Reeve 1:5“, 2012, 3D color scan of the living person, polychrome 3D printing, plaster material, color pigment ink, Scale 1:5, Height ca. 27 cm, Private collection, Photo © Studio Karin Sander



19 Karin Sander: „Maximilian Joseph Graf von Montgelas“, 2003–2005, 3D scans of historical representations of Count Montgelas, digitally generated and CNC-milled by a 5-axis milling machine, seawater-resistant aluminum, Height 620 cm, corresponding to the height of nearby sculptures on the Promenadeplatz, Photo © Martin Lauffer



20 Karin Sander: „Smaragd 9:1, verdoppelt / Emerald 9:1, Doubled“, 2000–2003, 3D scan of the original stone, enlarged and milled in aluminum by a 5-axis CNC milling machine, each 50 × 80 × 40 cm, Photo © Studio Karin Sander



26, 27 Scan of „Tongewölbe 1:30“, Ingolstadt, 2015, Photos © Chair of Architecture and Art, Karin Sander, ETH Zurich



24, 25 Scanning and mapping workshop results, Photos © Chair of Architecture and Art, Karin Sander, ETH Zurich



31 Rendering of additive point data, outward orientation. Photo © Chair of Architecture and Art, Karin Sander, ETH Zurich



32, 33 Scanning and mapping workshop results, underpass with graffiti in Zurich. Photos © Chair of Architecture and Art, Karin Sander, ETH Zurich

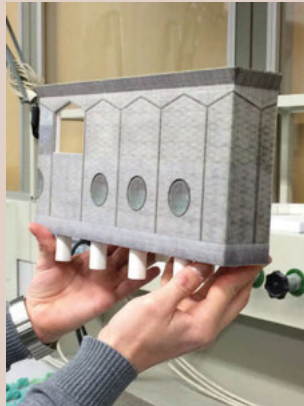


34, 35 Scanning the air space of a courtyard with the positive forms of the negative space. Photos © Chair of Architecture and Art, Karin Sander, ETH Zurich





21 Karin Sander: „Stein, gespiegelt 1:1 / Stone 1:1, mirrored“, 2018, 3D scan of a limestone, mirrored, two 3D inkjet prints, plaster material, each 19,5 x 32 x 18 cm, Photo © Studio Karin Sander



22 In architectural model construction the 3D technique is used: facades are scanned, mapped or modeled onto the buildings and the body of the building is 3D printed, Photo © Chair of Architecture and Art, Karin Sander, ETH Zurich



23 Karin Sander: „Office 1:24“, 2020, 3D scan of the interior, polychrome 3D printing, plaster material, inkjet printing, 15 x 30 x 21 cm, Scale: 1:24, in collaboration with Nicolas Rolle, Photo © Chair of Architecture and Art, Karin Sander, ETH Zurich



28 „Tongewölbe 1:30“, Ingolstadt, 2015, 3D color scan of the internal space, polychrome 3D printing, plaster material, color pigment ink Scale 1:30, 16 x 16 x 12 cm, Photo © Chair of Architecture and Art, Karin Sander, ETH Zurich



29 Detail, „Tongewölbe 1:30“, 2015: The window with the outside is taken through the glass and becomes the image. Photo © Chair of Architecture and Art, Karin Sander, ETH Zurich



36, 37, 38 Scanning the space of a gallery. Photos © Chair of Architecture and Art, Karin Sander, ETH Zurich



30 Scanning and mapping workshop results, Elevator, 2015, in collaboration with Jonathan Banz and Nikolai von Rosen, Photo © Chair of Architecture and Art, Karin Sander, ETH Zurich



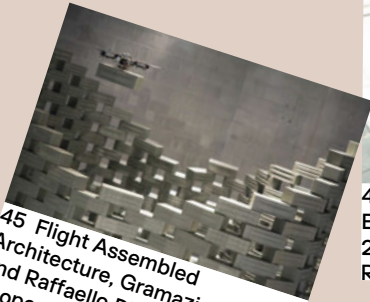
39 Rachel Whiteread, „House, at 193 Grove Road, London E3“, 1993. © Rachel Whiteread, Photo © Sue Omerod



40 Karin Sander: „XML-SVG Code / Source code of the exhibition wall, Laboral – Centro de Arte y Creación Industrial, 2014 Laboral – Centro de Arte y Creación Industrial“, Gijón, E Oracal 638, plotter foil matte, tricolor 4700 × 620 cm, Photo © Sergio Redruello



41 Karin Sander: „XML-SVG Code / Source Code of the New Applied Informatics Building, University of Bayreuth“, 2008, Oracal 638, plotter foil matte, tricolor, 620 × 4700 cm, Photo © Karin Sander



45 Flight Assembled Architecture, Gramazio & Kohler and Raffaello D'Andrea in cooperation with ETH Zurich, FRAC Centre Orléans, 2011 © François Laugnie



46 The Endless Wall, Scientifica ETH Zurich / Universität Zürich, 2011 © Gramazio Kohler Research, ETH Zurich



47 Richard Serra: „The Matter of Time“, 1994–2005, Weathering Steel, Dimensions variable, Photo © Guggenheim Bilbao Museo



50 Karin Sander: „Drei Zinnen, Google-Earth-Daten, 12.02.2020 / Three Peaks, Google Earth Data, 12.02.2020“, 2020, Polychrome 3D print of Google Earth data, plaster material, color pigment ink, 12 × 25 × 26 cm, Photo © Studio Karin Sander



51 Karin Sander: „Haus am Waldsee, Google-Earth-Daten, 07.12.2018 / Haus am Waldsee, Google Earth Data, 07.12.2018“, 2018, Polychrome 3D print of Google Earth data, plaster material, color pigment ink, 11 × 60 × 19,4 cm, Photo © Studio Karin Sander



52 Erwin Wurm: „Fat Car“, 2001, Mixed Media, 130 × 265 × 480 cm, © Erwin Wurm



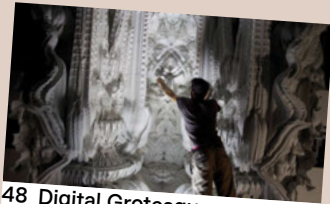
42 Christian Kerez: „Incidental Space“ (Interior view), Swiss Pavilion, Venice Architecture Biennale, 2016, Photo © Oliver Dubuis



43 Christian Kerez: „Incidental Space“, Swiss Pavilion, Venice Architecture Biennale, 2016, Photo © Oliver Dubuis



44 Structural Oscillations, Installation at the 11th Venice Architectural Biennale, Gramazio Kohler Research, ETH Zurich, 2007–2008, Photo © Alessandra Bello



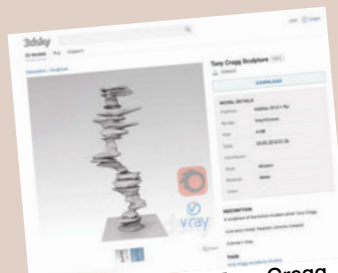
48 Digital Grotesque, Grotto Interior, Hansmeyer/Dillenburger



49 Dynamic Grammar, Dillenburger



53 Urs Fischer: „Untitled“, 2011 © Urs Fischer. Courtesy of the artist and Galerie Eva Presenhuber, Zurich. Photographer: Stefan Altenburger



54 A sculpture by Tony Cragg as a download file at 3dskey.org



55, 56 Karin Sander: „Museumsbesuch Kunst Museum Winterthur / Museum Visit Kunst Museum Winterthur“, 2018, Virtual reality technic, 3D visualization, Dimension variable, Photos © Studio Karin Sander

