
A MANIFESTO FOR DESIGN-THINKING
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"No more drawings, only images. No more orthography, only telematics. No more points, only addresses. No more lines, only associations. No more geometry, only statistics. No more syntax, only source code. No more tectonics, only commands. No more machines, only apparatuses. No more subjects, only users. No more stasis, only animation. No more research, only search. No more contemplation, only transmission. No more representation, only presentation. No more perception, only sensation. No more aesthetics, only physiology. No more history, only archiving. No more future, only probabilities. No more signification, only signalization."

May, John. *Signal. Image. Architecture.: (Everything Is Already an Image).* New York, NY: Columbia Books on Architecture and the City, 2019.

A world designed for machine vision

Penetrative aerial gazes destabilize our notions of orientation, stability, and certainty altogether.

TERMS AND CONDITIONS

TERMS

LATENCY_
present but not visible, apparent, or actualized; existing as potential

TERRITORY_
a field or sphere of action, thought, etc.; domain or province of something

CONDITIONS

1. technique vs. ***ETHOS***
2. avant-garde vs. ***UBIQUITY***
3. output vs. ***PROCESS***
4. finality vs. ***FEEDBACK***
5. singularity vs. ***MULTIPLICITY***
6. stasis vs. ***ANIMATION***
7. reductionism vs. ***FRAGMENTATION***
8. precision vs. ***MISALIGNMENT***
9. authorship vs. ***APPROPRIATION***
10. control vs. ***DESTABILIZATION***

The universal shift from mechanization to automation and machine learning reflects the change in technology from production tools to thinking devices. Imaging technologies alongside fabrication technologies construct and inform our built environments. The act of viewing and making have never been so intertwined before. Architecture must begin to critically engage with imaging as a design methodology in order to contend with the cultural dynamics and digital environments we engage with today.

This manifesto situates architectural thinking within the realm of contemporary mundane technologies to posit the design-making as an evolutionary feedback process. It challenges the notions of technique and output that promise completion and control. By developing an understanding of machine modes of vision and coded language, we can exploit the unexpected and unpredictable effects that reinvent design time and again.

To remove any presuppositions of innovation, this thesis coins new terms to describe the platforms of speculation and cultural production. We propose *latency*, an idea that is not fully actualized[1], and *territory*, a domain of thought[2]. Therefore, a latent territory, by this definition, can be attributed to a maturing idea, a neglected iteration, or if we dare claim: the most unadulterated form of architecture.

To operate within the space of a latent territory, this manifesto makes certain rules of engagement for architecture, as listed. These conditions are premised on dismantling both the false perception of control and the fear of the uncertain.

Besler & Sons. *Along the Resolution Frontier*, 2014-2017.

Bridle, James. *Autonomous Trap 001*, 2017.

[1] Random House Kernerman Webster's College Dictionary. S.v. "latencies."

[2] Random House Unabridged Dictionary. S.v. "territory." Random House, Inc. 2021.

Welcome to *Latent Territories*. This project is an experiment and archive in a state of transformation. It is a thesis that seeks to represent the invisible phenomena we experience in our daily lives. It is a provocation to reexamine our built environment through new lenses of defamiliarization.

Dirty 'cloud' with decaying data

Despite living in a world with the appearance of total informational awareness, we are instead surrounded by errors and mistranslations.

THE DESIGNER'S PARADIGM

Beatriz Colomina and Mark Wigley outline cultural artifacts as possibilities of something new in the human way of thinking and designing.[3] Beyond representation and aesthetics, art and architecture are speculative mediums of innovation and production, sharing new potentials for their use or behavior through unexpected interactions. This suggests that design is an act of constant innovation.

Serra, Richard. *Verblist: Actions to Relate to Oneself*, 1967-68. MoMA, NYC.

Innovative design, today, seems to prioritize and reward efficiency, optimization, and profitability. There is a universal aspiration to attain the vague definition of 'better'. Our technologies are being insipidly used for tasks such as precision and replication. We are constantly gathering data for speed and accuracy to produce systems for increased predictability. The drive for innovation and perfection has become an obsession.

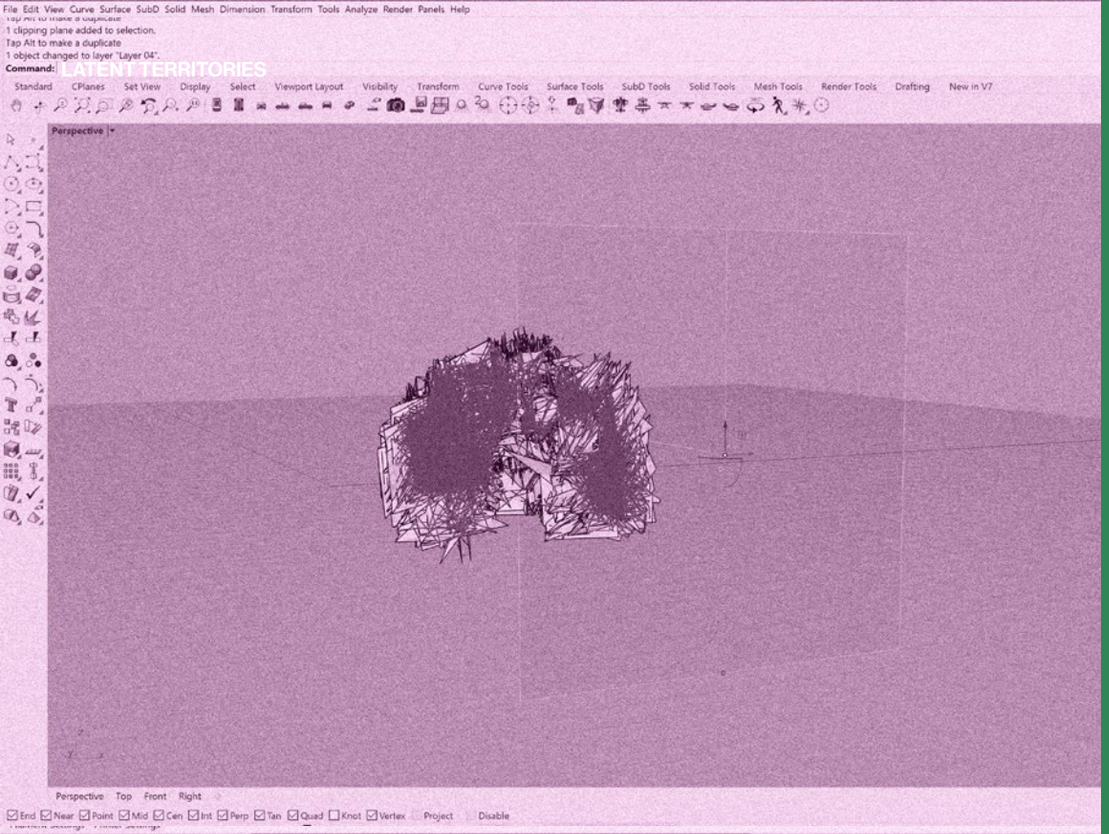
Computation in design is an affirmation of optimization and form-finding (as opposed to form-making) through simulation modeling. These empirical methods use preset inputs to generate a series of predictable outputs that offer parametric forms and confirm structural viability. Such computational forecasting, in its premise, assumes that the future will always mimic the past, eliminating the notion of unpredictability entirely. Design generated in this way has become so mundane that we have reached the flat marginal point at which digital mass customization costs the same as mass production.[4]

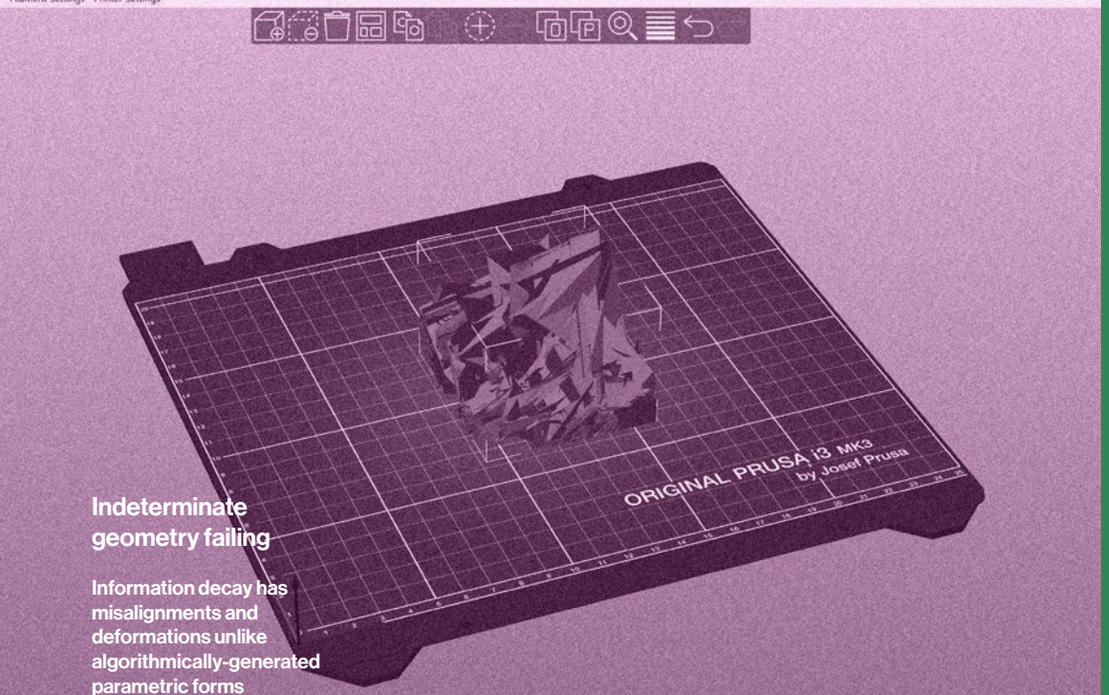
In creating architecture, Henri Lefebvre states that its modes of representation and modes of construction that influence and inform its spatial and material possibilities.[5] If Latent Territories are the sites of

[3] Colomina, Beatriz and Mark Wigley. *Are We Human? Notes on an Archaeology of Design.* Ennetbaden: Lars Mueller Publishers, 2017, p. 24.

[4] Carpo, Mario. *The Digital Turn in Architecture: 1992-2012.* John Wiley & Sons Ltd., 2013.

[5] Lefebvre, Henri. *The Production of Space.* Oxford, UK: Blackwell Publishing, 1991.





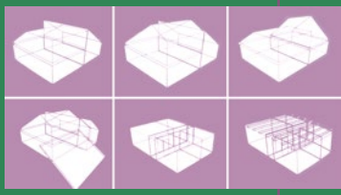
Indeterminate geometry failing

Information decay has misalignments and deformations unlike algorithmically-generated parametric forms

10

design thinking, then we must also examine our modes of representation and construction that inform the making process. Modes of representation are the ways of viewing and communicating aesthetics (art) and semiotics (signs). Modes of construction, conversely, are the processes or methods through which we make and construct things. Together, these impact and inform the: (1) formal (relating to the form, structure, arrangement of elements), (2) spatial (relating to the space occupied or objects within), (3) and material (relating to the matter, elements, and constituents of which something is composed of) qualities of architecture.

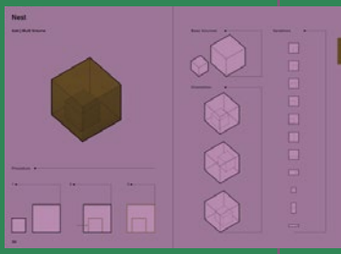
With digital technologies and new media, the limits of what can be formally, spatially, and materially possible are much broader. We must examine the lessons of the first digital turn.[6] We must redefine the "actions to relate to oneself, material, place, and process"[7], and develop a new set of languages and systems. This investigation is an exploration of the eccentricities of errors and sensations experienced by everyone in their daily lives.



Eastman, Charles. "The Use of Computers Instead of Drawings In Building Design", 1975.

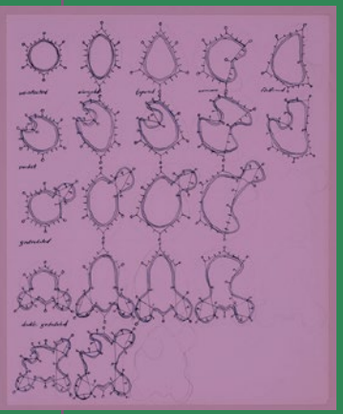
[6] Carpo, Mario. The Digital Turn in Architecture: 1992-2012. John Wiley & Sons Ltd., 2013.

[7] Serra, Richard. Verblist: Actions to Relate to Oneself, 1967-68. MoMA, NYC.



Di Mari, Anthony and Nora Yoo. *Operative Design: A Catalogue of Spatial Verbs.* Amsterdam: BIS Publishers, 2015.

PLAYGROUNDS AND SUPERPOWERS



Lynn, Greg. *Embryological House*, 1997-2002.

The impact of technology has always been evident in the thinking and making process. With the prevalence of computer-aided design, the mid-2000s witnessed a desire for increasing complexity in form that could be translatable into built products. Our digital modeling platforms granted us the superpowers we dreamed of as children. Teleportation as we move across screens and platforms; x-ray vision as we render our designs in skeletal or shaded or arctic modes; omnipresence as we critically eye our models in top, bottom, left, right, perspective views; size changing as we zoom microscopically small and infinitely large, floating in mid-air through zero gravity environments of gumball rotation. As Donna Haraway claims, we are already cyborgs and superhumans.[9]

To understand the impact of digital fabrication technologies, architect and theorist Lisa Iwamoto in, *Digital Fabrications: Architectural and Material Techniques*, documented a catalog of aesthetics and tectonics that were becoming increasingly popularized at the time[10]. She outlines sectioning, tessellating, folding, contouring, and forming as primary techniques followed by examples of built installation and exhibition work by her contemporaries. Laser-cutters enabled thin layers of material to be stacked additively, while CNC-machines allowed thick material to be carved and sculpted. Smooth geometry could be converted into NURBS and meshes to form panelized surfaces, while commands such as unrolling could allow flat surfaces to form three-dimensional models. As epitomized by Greg Lynn's *Embryological House*, studies of form resulted in serial catalogs of taxonomies.[11] Though these techniques enabled quick prototyping categorized as "design intelligence"[12],

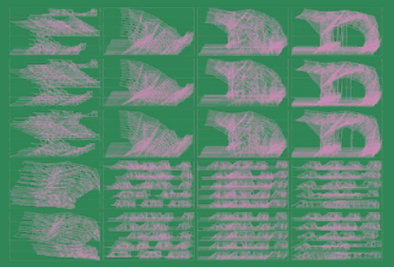
[9] Haraway, Donna J. "A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century". *Simians, Cyborgs and Women: The Reinvention of Nature.* Routledge, 1991.

[10] Iwamoto, Lisa. *Digital Fabrications: Architectural and Material Techniques.* New York: Princeton Architectural Press, 2009.

[11] Lynn, Greg. *Animate Form.* Princeton Architectural Press, 1999.

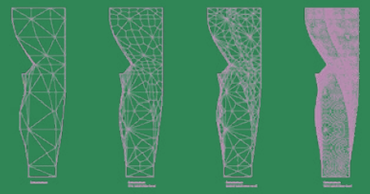
[12] Speaks, Michael. "Design Intelligence and the New Economy," *Architectural Record*, 2001.

SECTIONING



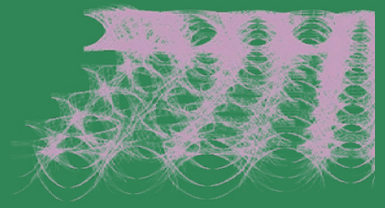
SHoP Architects. *Dunescape.* MoMA PS1, New York, 2000.

TESSELLATING



Brennan Buck, *Technicolor Bloom*, Vienna, Austria, 2008.

CONTOURING

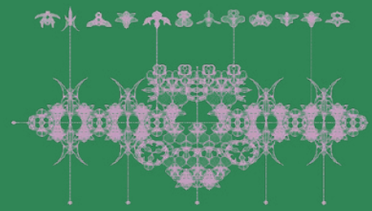


Urban A&O, *The Bone Wall.* Storefront for Art and Architecture, New York, 2006.

FOLDING

Tom Wiscombe, *Dragonfly*, SCI-Arc, Los Angeles, 2007.

FORMING



Florencia Pita mod, Alice, LAXART, Culver City, California, 2007.

they have become conventional as mere optimization exercises for various configurations.

Each of these examples highlight intricacy and prioritize precision. The techniques stem from a desire to create complexity and to scale up processes that would be otherwise too laborious, expensive, or unfeasible through artisanship and manual craft. However, the more we eliminate the error, the more we fear it. Francesca Hughes, in *The Architecture of Error*, discusses the inherent significance of misadventures in material investigations.[13] Exploring materials involves pushing them to their limits, finding their failures, and exploiting their inefficiencies. Parametric and algorithmic form-finding processes remove the concept of failure and error altogether by simulating careful conditions beforehand.

In the translation from models and drawings in digital space to digital data for code-based machines to interpret, Iwamoto asserts that design intent must be compatible with machine capability.[14] However, as with any form of communication, there are always inherent gross mistranslations. The sequence from digital to physical highlights a loss and gain of information as it transcends various matter and materials. To make visible these misalignments and mistranslations, we can exploit machine disabilities and represent information decay.

If imaging technologies alongside fabrication technologies have become primary stakeholders in constructing and influencing the built environment, the matter and materiality of information must be interrogated.

[13] Hughes, Francesca. *The Architecture of Error: Matter, Measure, and the Misadventures of Precision.* Cambridge, Massachusetts: The MIT Press, 2014.

[14] Iwamoto, Lisa. *Digital Fabrications: Architectural and Material Techniques.* New York: Princeton Architectural Press, 2009.

SHoP Architects. *Dunescape.* MoMA PS1, New York, 2000.

Physical translations of decay timelapse

Total failure and hybrid failure, as stages of decay

THE SCAN BANK

We live in a culture wherein images are actively influencing our behaviors and our actions. Images, or rather image-data, anticipate our gestures.[14] However, machine recognition and predictive modeling can also create erroneous predictions and mistranslate information.

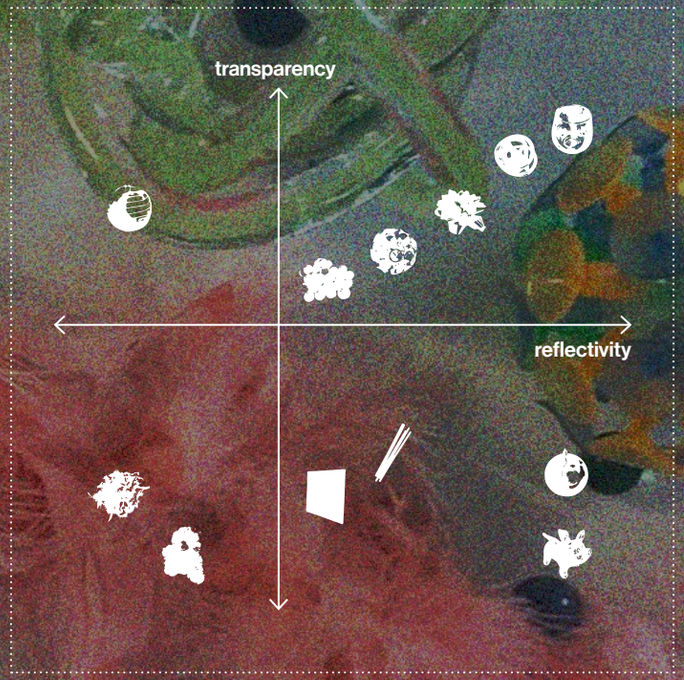
[14] Paglen, Trevor. "Invisible Images (Your Pictures Are Looking at You)." The New Inquiry, 8 Dec. 2016.

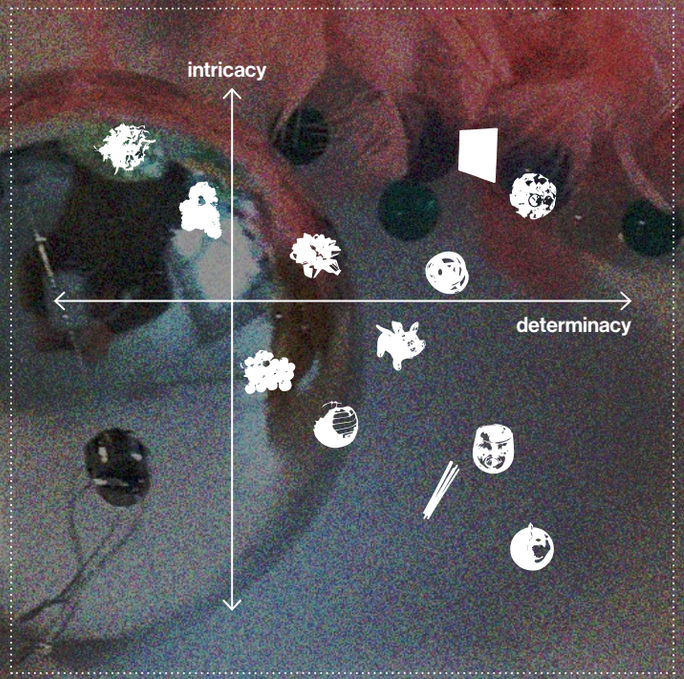
Images undergo decay through compression, manipulation, and transmission using different tools and platforms.[15] Through a series of transformations, they no longer retain their high-fidelity qualities, and have undergone dissolution, i.e. decay. This decay is an inefficiency that is undesirable as it causes us to lose qualities of the image.

[15] Caplan, Paul. "What is a JPEG? The Invisible Object You See Every Day." *The Atlantic*, 2013.

Looking at imaging in three-dimensional and spatial way, a cyclical process of scanning and 3D-printing enabled us to visualize this decay. We specifically picked items that were difficult for the machine to scan based on form and texture. Furriness, transparency, reflectivity, luminescence, intricacy, and flatness were difficult for the machine to capture.

The material shift goes from the original matter to light to pixel to code to plastic to light to pixel once again. Though things were losing resolution, they were gaining material complexity of different syntaxes and layers of material like a patina that grows on top of the form.



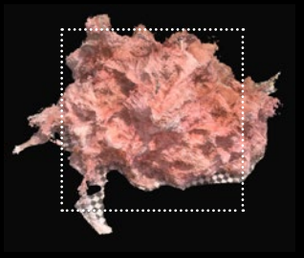


Beginnings of a material catalog

Machine modes of vision are unable to scan certain textural and formal qualities, resulting in erroneous artifacts

furry
pink
moving

rough
disappearing
unrecognizable
faceted



rough
fluff
rigid
dull

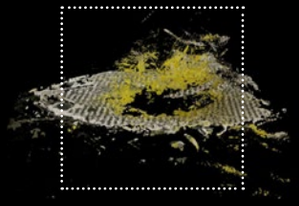
furry
soft
moving
beige

smoothened
sharp
rigid
deep color

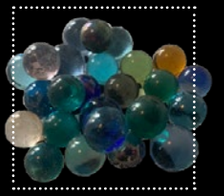
fragmented
beige

reflective
yellow
translucent
thin
crevices

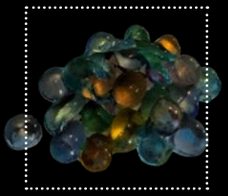
yellow
aggregated
shiny



yellow
dispersed

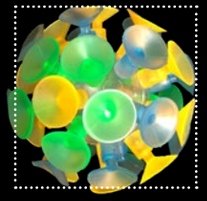


shiny
smooth
round

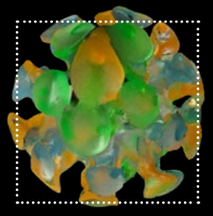


matte
stretched
rough
reflected

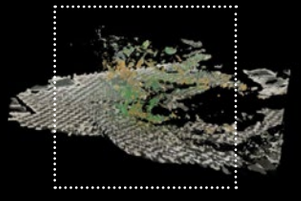
reflective
translucent
colorful
round
aggregated



multicolored
translucent
crevices
round



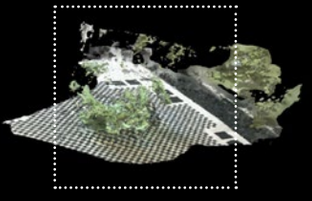
multicolored
dull
disfigured



fragmented

reflective
transparent
translucent
tubular
bright

dull
reflected
aggregated



projected
displaced

MATTER

LiDAR

PHOTOGRAMMETRY

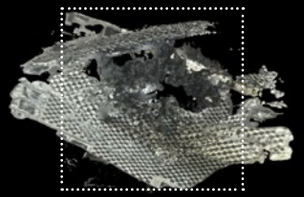
MATTER

LiDAR

PHOTOGRAMMETRY

shiny
black

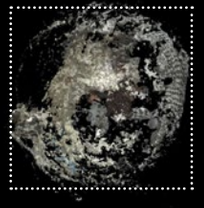
green-black
rough
reflected



misaligned

shiny
smooth
round

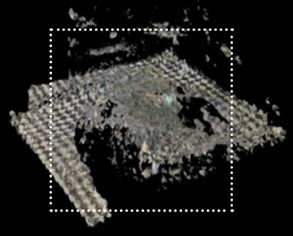
matte
stretched
rough
reflected



rough
scattered
undefined

reflective
transparent
holographic
hollow

rough
disappearing
unrecognizable

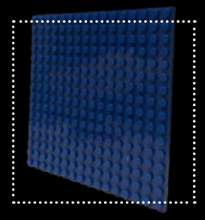


fragmented
inconclusive

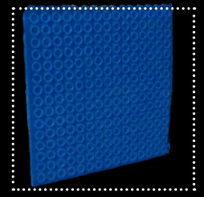
MATTER

LiDAR

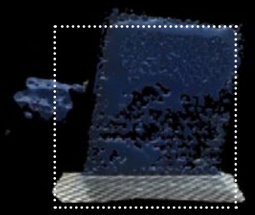
PHOTOGRAMMETRY



blue
glossy
flat
bumpy



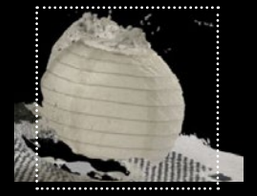
blue
flat
smooth
rounded



blue
flat
disintegrating

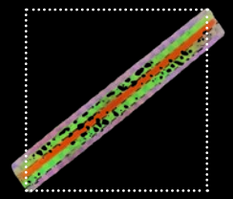
matte
white
round
translucent

matte
spotty
blurry
stretched

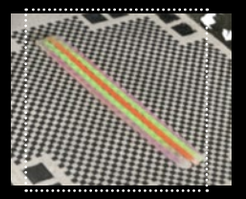


matte
white
opaque
wrinkled

luminescent
colorful
thin



bright
colorful
flat



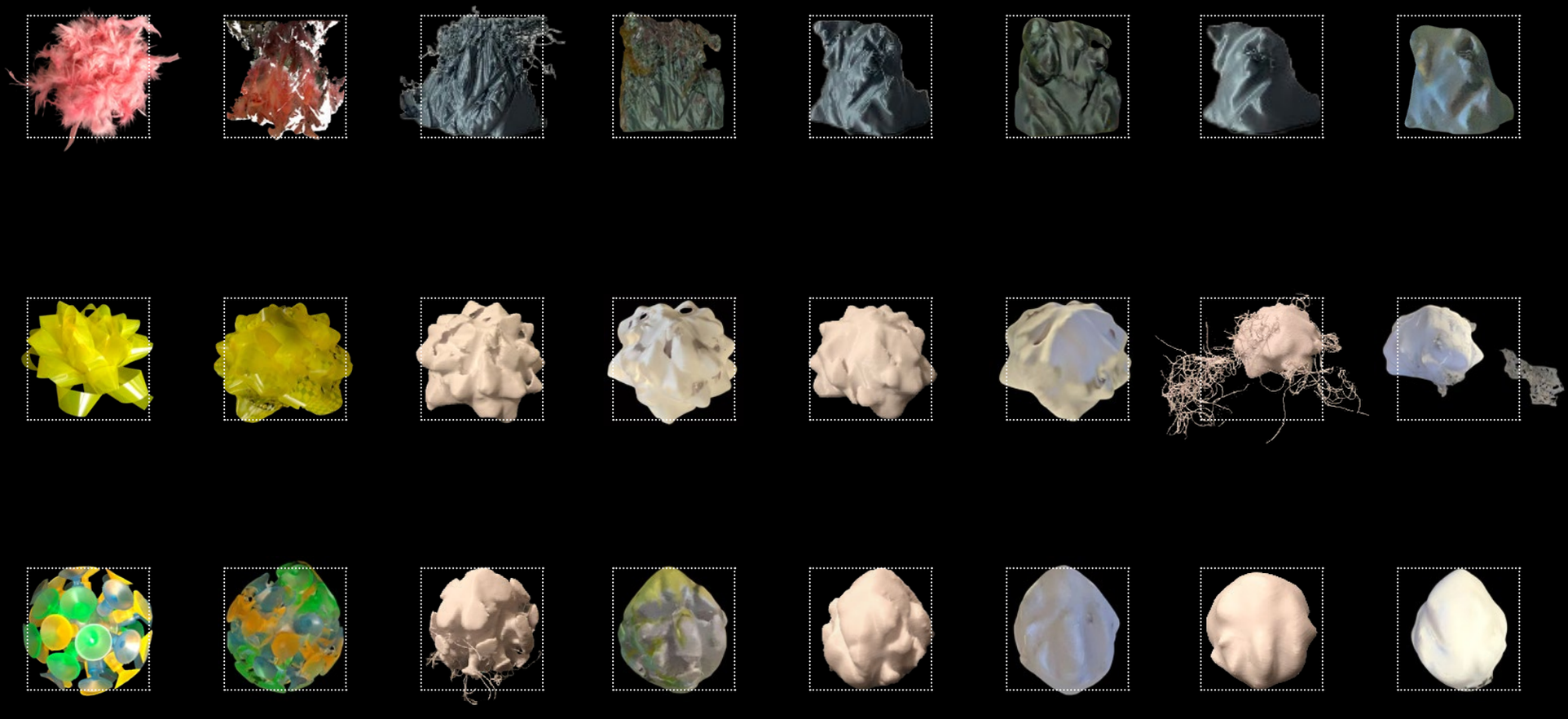
glowing
colorful
flat

MATTER

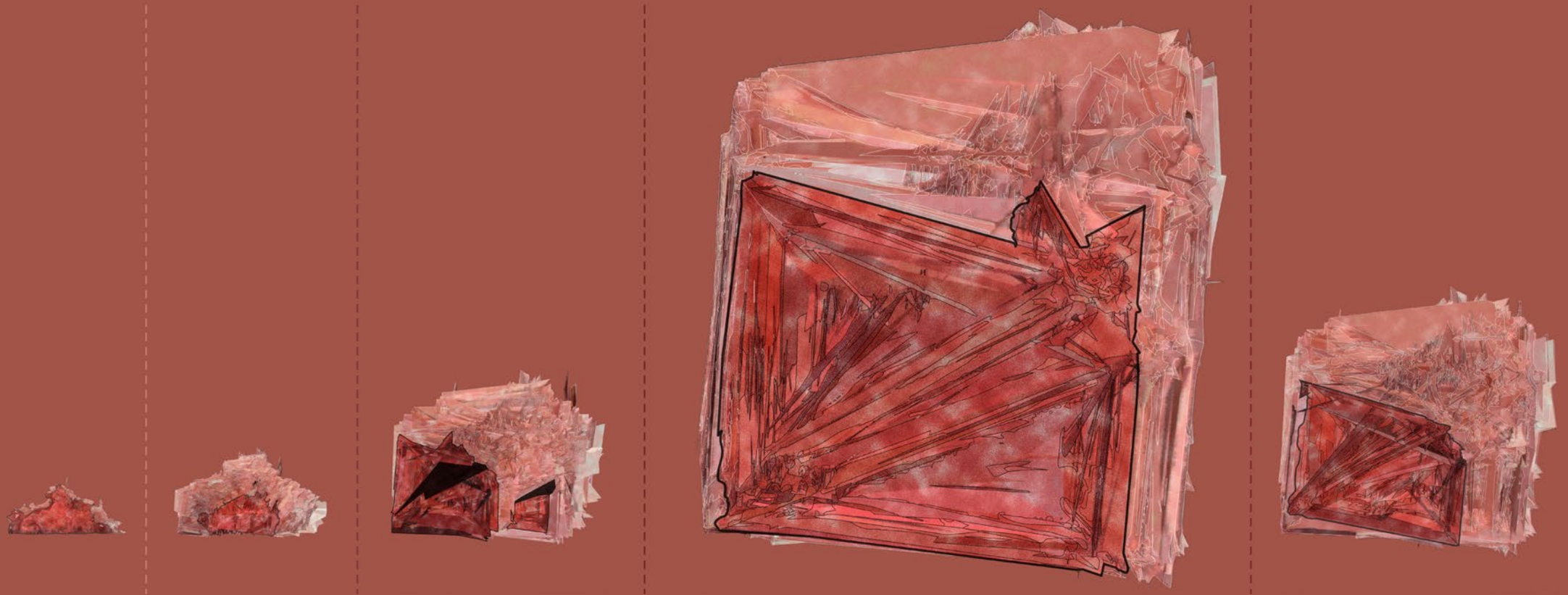
LiDAR

PHOTOGRAMMETRY

original matter → light → pixel → code → plastic → light → pixel → code → plastic → light



ORIGINAL MATTER | SCAN 1 | PRINT 1 | SCAN 2 | PRINT 2 | SCAN 3 | PRINT 3 | SCAN 4

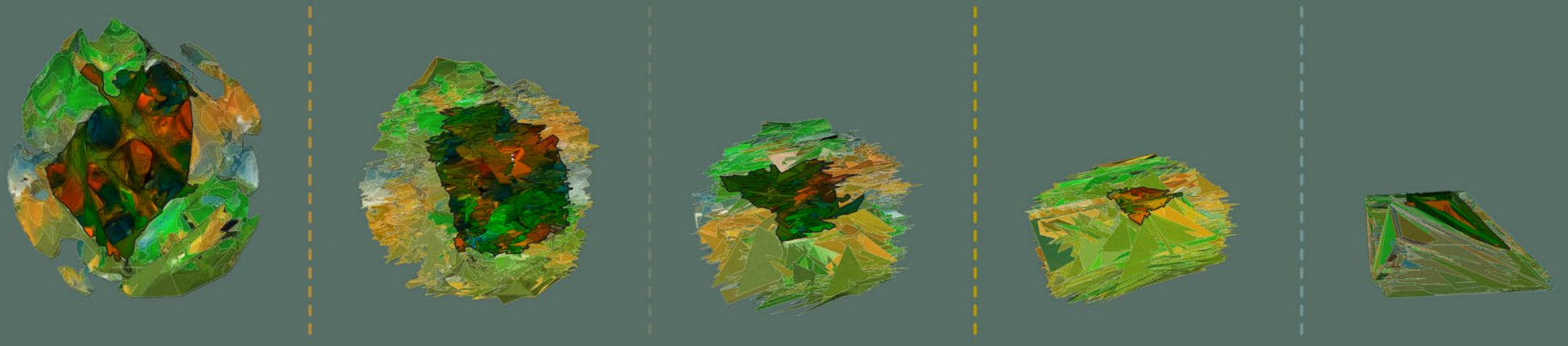


Sections from deformed models

Decay can manifest itself as total dissolution, but also an intersecting structure of its own, as seen through the mesh scaffold.

Sections from deformed models

Decay can manifest itself as total dissolution, but also an intersecting structure of its own, as seen through the mesh scaffold.



Sections from deformed models

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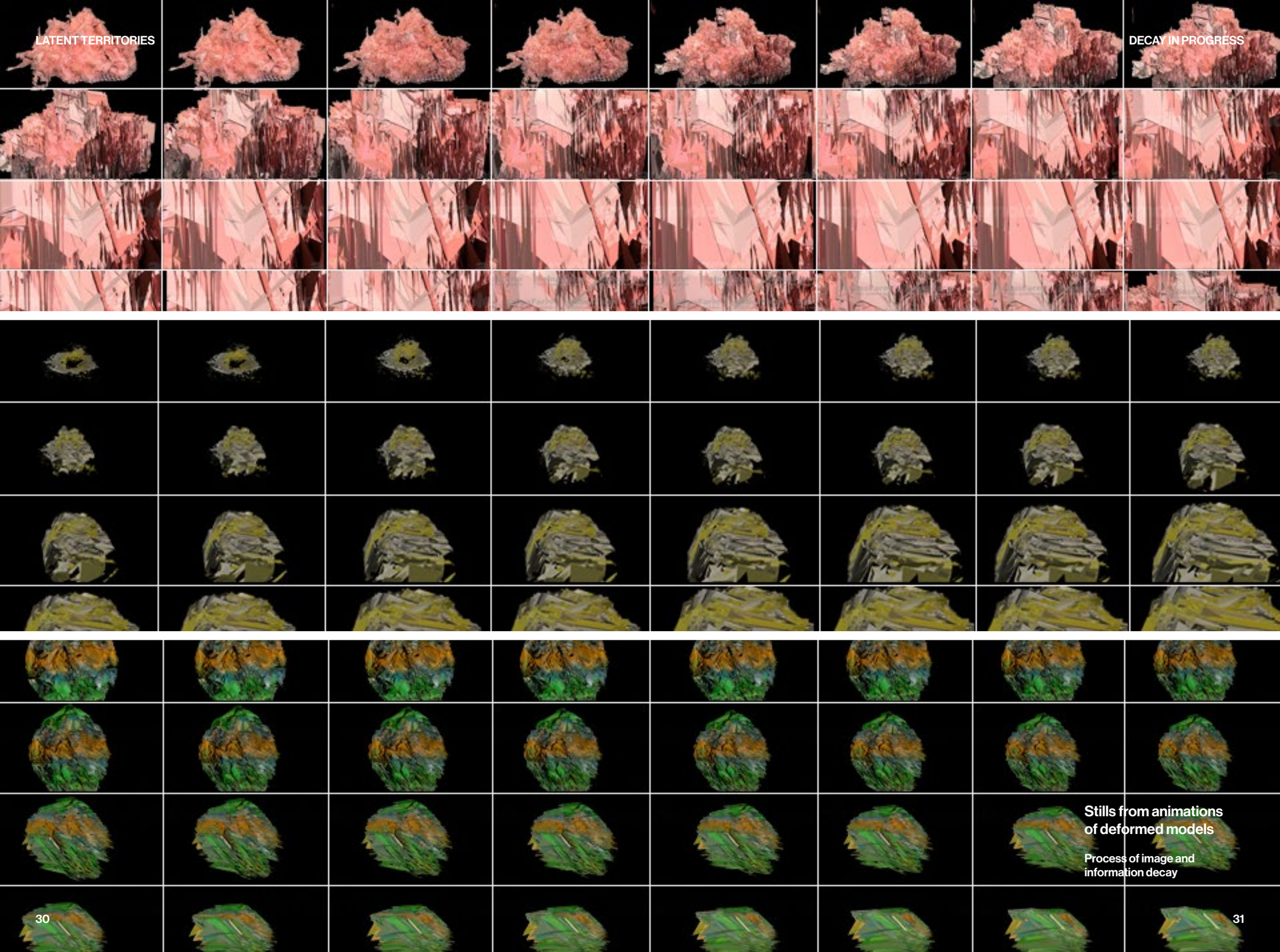

Stills from animations of deformed models

Process of image and information decay

Architecture must contend with the *HABITUAL* and *DERIVATIVE* activities of digital space experienced by the everyday user as an *ETHOS* rather than as a tool for formal experiments.

Architecture must prioritize the *EVOLUTIONARY* processes of *TRANSFORMATION* and *DECAY* over operative techniques as systematic approaches for creating outputs of configurations.

Projection of UV map textures onto 3D-printed models

Architecture must reject stasis, singularity, precision, and reductionism to incorporate continual FEEDBACK into the making process.

Architecture must embrace viral APPROPRIATION over authorship to understand that DERESOLUTION does not signify low fidelity, but rather high material COMPLEXITY.

Projection of UV map textures onto 3D-printed models

Architecture must give up the pretense of control to reflect actual DISSOLUTION and DESTABILIZATION.

Projection of UV map textures onto 3D-printed models

LATENT TERRITORIES

Latent Territories is a manifesto questioning our modes of representation and construction. *Latent Territories* is an interface for an experiment in flux and in decay. *Latent Territories* is the nascent site of architectural innovation with machinic misbehaviors, delirious inefficiencies, and spectacular blunders.

A MANIFESTO FOR DESIGN-THINKING

Vasundhra Aggarwal Jaclyn Doyle