

“I encounter millions of bodies in my life; of these millions, I may desire some hundreds; but of these hundreds, I love only one.”

Roland Barthes:
**A Lover's Discourse:
Fragments**
*New York: Hill and Wang,
1978.*

Section A:

**AREA FOR
INQUIRY**

3D printing technologies have the potential to destroy the constraints, both formal and economic, of Fordist mass-manufacturing logic. This latent means for cultural production will open a path toward post-industrial product semantics.

**Emergent forms;
emergent technologies**

The evolution of product semantics is near to a point of stasis. Formal differences between consumer products, regardless of function, are minimal. In the field of industrial design, there *is* discourse regarding formal experimentation, but such experiments are most often aimed at one-off pieces intended for luxury markets. Until recently, the technological and economical constraints for fabricating affordable objects have suffocated opportunities for formal experimentation.

In our hyper-efficient network for global trade, one may buy many things in most urban places. Yet with such minimal semantic difference between products, and even product types, most of the designed objects that fill our spaces are formally baseless and banal. Our contemporary culture is marked by a sublime accumulation of emotionally inert objects.

So, how to design a new way forward? Emergent technologies for the fabrication of designed

objects point toward new possibilities for the development of post-industrial product semantics. As depositional printing has shattered the constraints of assembly-line mass-manufacture, process-based form-giving is becoming a viable option for generating singular objects. This new 3D printing technology not only allows for the material manufacture of nearly any solid form that may be digitally modeled— it will soon also allow for the production of singular objects on a massive scale, in a myriad of useful materials, including steel, ceramic, plastic, concrete, and wood. Furthermore, design softwares communicate with each other almost seamlessly, so that the same data sets may be used to generate 2D, 3D, and 4D design work. With this formally flexible toolkit, paired with a rapidly growing archive of digital 3D artifacts, designers may now engage exploratory appropriation and collage as a means to generate resonant and unlikely formal vocabularies.



Various Containers:
Google Image Search: "Favela".
Brazil, 2014



Orson Welles:
Citizen Kane, 1941
Still from warehouse scene at the conclusion to Citizen Kane



MSC Fabiola
**Mediterranean Shipping
Company**

Gross Tonnage:
140259

Length x Breadth:
366M x 48M

Flag:
Liberia

A SURVEY OF CONTEXTUAL CONDITIONS

Section B:

Questions; framework for the thesis inquiry

As a way of making sense out of our cacophonous global material culture, why not disassemble, recombine, and rebuild the things that already surround us? Global consumptive desire is no longer sustainable. We consume objects and create refuse with such an alarming rate that the only question a designer may ask is, how to temper, or even to understand, this voracious demand? First, we must understand the nature of individual consumptive needs—and perhaps more importantly, how those needs relate to the late-capitalist cultural condition. Culture critic and philosopher Jean Baudrillard writes that

Needs— such as they are— can no longer be defined adequately... as innate, instinctive, spontaneous cravings, anthropological potentiality. Rather, they are better defined as *functions* induced (in the individual) by the internal logic of the system: more precisely, *not as a consummative force liberated* by the affluent society, *but as productive for* required by the functioning of the system itself, by its process of reproduction and survival. In other words, there are only needs because the system needs them.

Jean Baudrillard:

**For a Critique of the
Political Economy of
the Sign.**

St. Louis, MO.: Telos Press,
1981.



With such a logic in mind, 3D printing may offer both designers and consumers a route for escape from the absurd condition of this neoliberal world order. Again, depositional printing machines offer the new possibility to not only prototype, but to actually fabricate products with the speed and precision of Fordist manufacturing techniques— but without immense capital investment. This means fabrication on-demand, and in decentralized, local contexts. In a system that is no longer predicated on generating demand, designers may begin to collaborate with individuals, organizations, and other entities in order to realize contextually specific, semantically rich, and thereby discursive objects of design.

To see how the constraints of replaceable-parts logic seize formal variation for mass-produced products, let us take for instance an archetype: the container. This might include kitchen containers, home decor containers, storage containers, and electronics containers, amongst others. These objects are essentially vessels. They are simply required to hold stuff: solids, liquids, gases. Yet due to the enormous capital investment required to manufacture a large run of serial objects, formal variation between such mass-produced objects is stunted.

The ideology of late-modernist design conspires with these rules of capitalism to generate objects that usually directly relate to either squares or circles, and with a minimum of semantic intrigue.

For furniture objects, we see a similar deterrence to the evolution of form. The functional program for a chair, table, or shelf is usually simple. Yet, again, the constraints of assembly line manufacture, and the efficiencies of flat-pack and containerized shipping schemes hinder variation in form.

As we are confronted with and consume such mountains of homogeneous forms, we have depleted an alarming, perhaps even catastrophic amount of our resources. Yet we cannot escape our insatiable material appetite. How quickly we discard our anonymous little boxes and containers, hulking couches and rickety end-tables. And worse— the subdivision of labor has disenfranchised workers from the skills necessary to build their own things, and to create objects of emergent meaning for themselves.

Various containers:

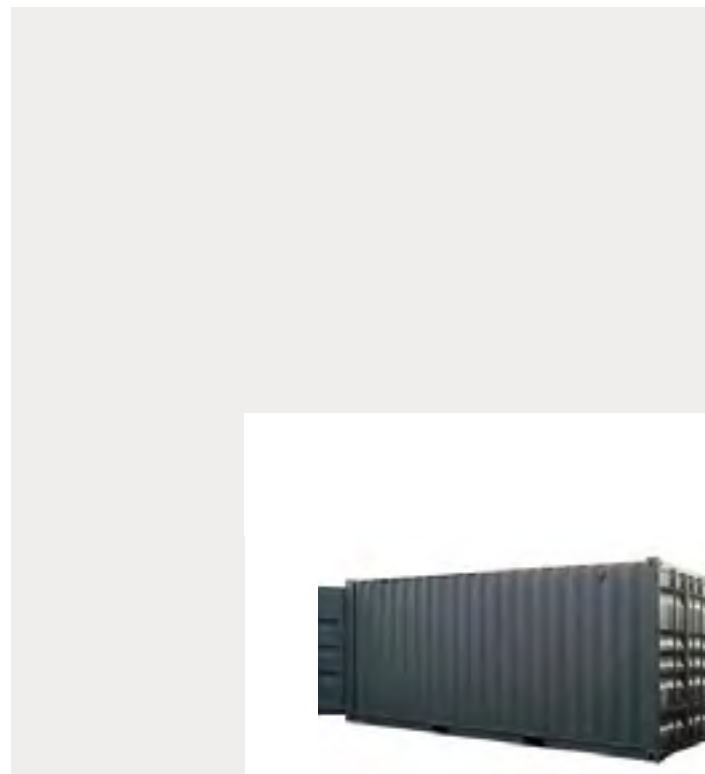
Google Image Search:
“Cell phones all looks the same”.

It is no wonder we are so willing to discard consumer objects. The homogeneity of form between these contemporary smart phones illustrates just how timid contemporary industrial design has been in its approach to formal design.



For capitalists, this is no problem. As Baudrillard has explained, late-capitalism's predominate design strategies lean on novelty, and reflect the ideology of fashion. And as demonstrated by the industrial design innovations the post-war period, form follows the market, or trends in consumption. This is what Raymond Loewy described as the "MAYA principle"—the Most Advance Yet Acceptable. Consequently, such design philosophies collude with capitalists, using planned obsolescence as a way to float our economy of demand and desire. Novelty generates an unending cycle of opportunities to sell more items. This year, a new color for the iPhone is Apple's way of enticing consumers to buy the same product; Samsung boasts mobile phone industry dominance by offering software that allows users to run two applications at once.

Large and often times corporate companies with the infrastructure necessary to manufacture thousands of units in a run require that their machines are constantly in motion. Without the assurance of future sales, profits and share prices plummet, and the means for mass-manufacture falls apart. Until now, industrial design has existed in the service of business, following in the wake of culture trends, and fomenting demand where there naturally is none. While Charles and Ray



Modern stasis:
Google Image Search:
"IKEA furniture".

"Our world, like a charnel-house, lies strewn with the detritus of dead epochs."

Le Corbusier:
Urbanisme, 1925

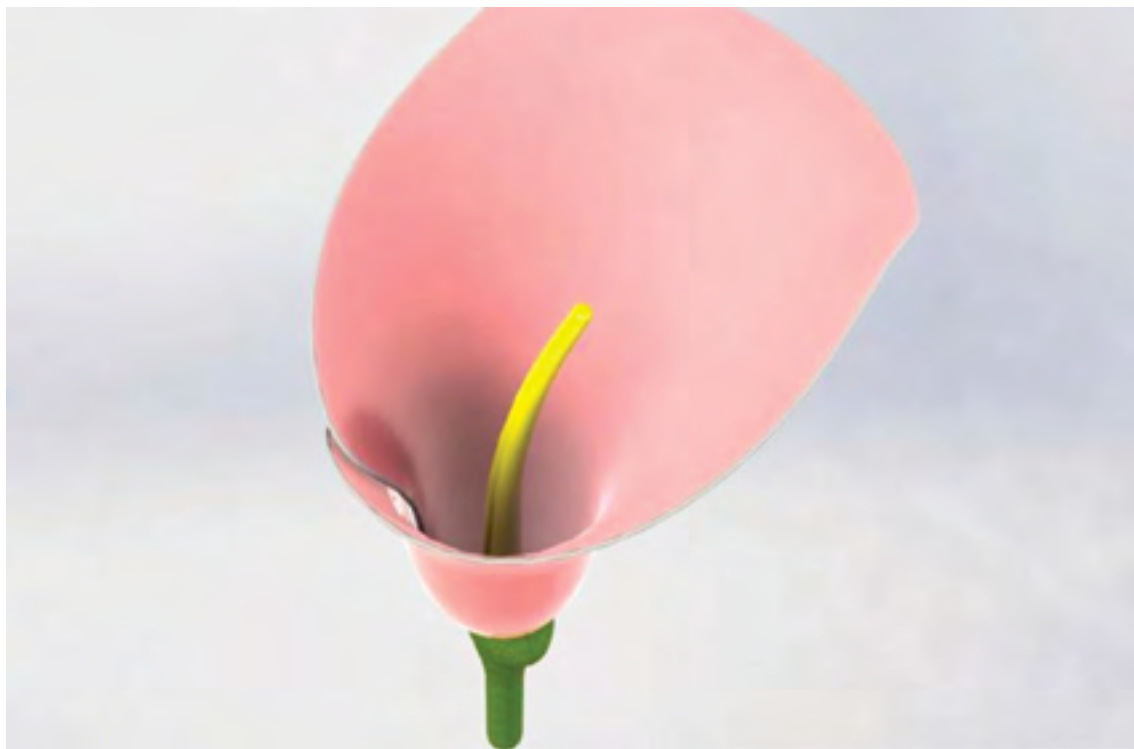
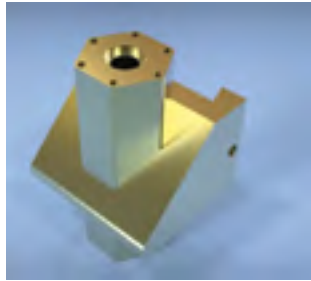
Eames may have thought they could genuinely offer "the best for the most for the least", the market could only ever ensure "the newest for the most for the least", and nothing more.

For all these reasons, the differences in the formal ways in which most contemporary designed objects "present" themselves is minimal. This is not to say that objects do not develop meaning, within their own specific contexts, as they develop their own specific histories and relationships. But it is possible that an object's potential to come into meaning begins with the emotional utility encoded in its form. If an object is mysterious, if it begs a person to be with it— if it presents itself in a semantically compelling way— then that object stands a better chance to develop a history apart from the landfill. Late-capitalist consumer goods are not contemplated, cared for, or nurtured, because they demand to be replaced by the next novel color, or meaningless adjustment to form or interface styling.

As designers, we might agree that the meaning of consumer objects is written on the users of those objects, not the objects themselves. In this sense, design authorship becomes problematic. We can never design forms, especially in a mode

Stuart Kendall:
UC Berkeley Extension lecture on Art and Design.
 "State of the Object" UC Berkeley Extension, SF Campus; August 13, 2014.
http://fora.tv/2013/08/14/How_Art_Interacts_with_Technology_Society_and_Life

Digital Archives:
**Samples from
grabCAD.com.**



of late-capitalist mass-production, that will resonate in the same way for two different people, let alone thousands.

If we know that designers cannot intimate the meaning of objects, how can we rather focus our attention to designing objects that rather ask the question? What is a process that leads designers to generate forms that make us wonder, and are latent with emotional utility?

Digital forms, digital archives

New tools, which enable designers to archive, appropriate, and transform digital artifacts, are opening new possibilities for the design of objects. With software that can build three dimensional forms according to geometric meshes, and even smooth curving surfaces, designers can play fast and loose with design artifacts in the digital space. We can pull them apart, erase them away, combine them, or use them as cutting tools, according to the rules of Boolean geometry. Softwares like Google SketchUp and Autodesk 123D Catch are free, and available to everyone with a computer and an internet connection. More complex applications like MacNeil Rhinoceros and SolidWorks allow designers to create 3D forms according the logic of smooth bezier curves-- mathematically precise vectors in three dimensional space.

Complimentary to this toolbox of digital form creation softwares is the expanding capacity to share digital artifacts across networks: internet-based digital archives are replicating and growing. Websites like GrabCAD, the SketchUp 3D Warehouse, AutoDesk's 123D Catch forum, allow designers and amateurs alike to appropriate, collage, and transform fragments of material culture in a fluid digital space. 123D Catch goes so far as to allow users to generate geometric mesh constructions of surprisingly high fidelity, simply by taking 10 to 70 photographs of an object. "Scanned" objects are then directly editable online.

Most importantly, all of these digital artifacts and archives have come into a new sort of utility, as 3D printing becomes a viable option for fully-customized, one-off manufacture— and on a large scale. In combination, digital design and manufacture are calling into question the Taylorist model for serial production, and the severely constrained semantics of serially manufactured objects. In our current period of "late" culture, as we begin to see the fabric of global capital fray, our new digital 3D design tools offer an expanding set of possibilities for making sense of past and future objects of design.

Roland Barthes.

Theodor Adorno
**Essays on Music; Late Style
in Beethoven**
Berkeley, Calif.: University of
California Press, 2002.



shapeways.com
makerbot.com
cplmakerlab.wordpress.com
core77.com/blog/business/
oak_ridge_national_lab_
working_on_huge_super-
fast_3d_printers_26542.asp)

From printing services like Shapeways, to affordable MakerBot desktop machines, to the 3D printing services at the Chicago Public Library, and the Oakridge Labs 3D printer that fabricates up to a cubic meter of material; the current flexibility in the scales and costs of 3D printing seem only to indicate that a revolution in the nature of mass-manufacture is on the horizon. Now, product designers can muddle about in a space of expanded constraints for digital design, with no particular aim, other than discovery of new forms. If an object of design is modeled to watertight accuracy in the digital space, most likely it is possible to print the form.

Unlike never before, designers have the ability to materially realize collage-based processes, as a way to address the buried formal languages of "dead epochs". As a way of finding formal resonance for our objects of design, the forms of seasons, decades, or even centuries past may now be cut, spliced, inverted, and otherwise de-familiarized; in an unending tumble of iterative formal operations, designers can reveal the mysterious latency in all of our accumulated material decay, or "detritus".

Designing a process for discovery: Toward post-industrial product semantics

With an eye toward the refinement of these new technology enabled manufacturing freedoms, modeling softwares must be utilized to their fullest potential. By using the modeling space as a sandbox for process-based play, there is an as yet unfulfilled potential to create new kinds of product semantics.

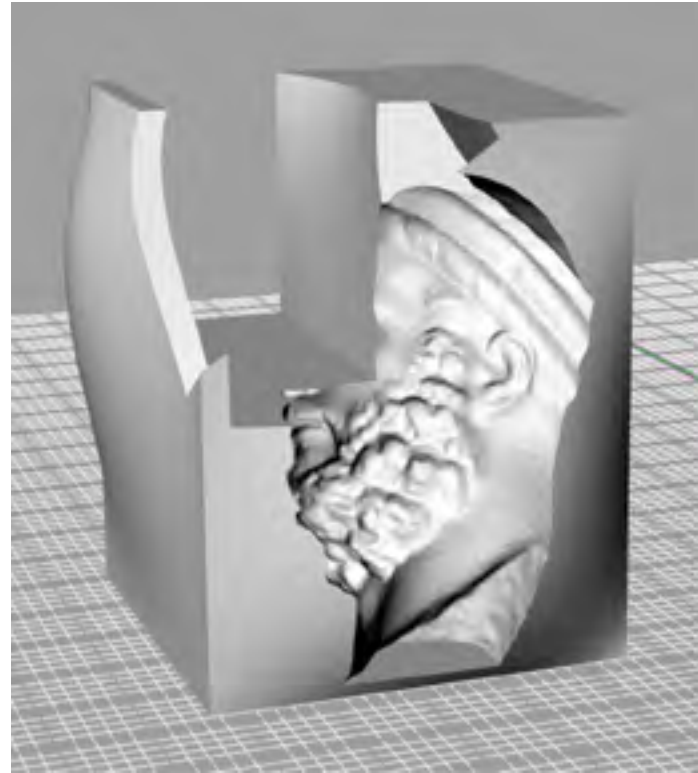
The traditional process for formal exploration in industrial design uses 3D modeling only as a tool for refinement. Typically, a designer might respond to a short brief, including a synthesis of design research activities, make 20-50 "freehand" thumbnail sketches with pencils and markers. The "good" sketches are then selected, and hand-modeled in foam or another sculpt-able material. Finally, prototype models are built and refined in the digital space. The problem is that without a process for observation and abstraction (even if this takes the form of a still life drawing, or simple photography), it is impossible to invent forms by freehand sketching, beyond those that one already knows. In this traditional form-giving process, digital modeling software is not used as a formal generator, but rather to precisely standardize already repetitious imaginings.



Super 3D printer:
**From Core77.com
and Cincinnati:**

*Depositional printer,
developed by Oakridge Labs,
capable of printing up to
1M cubed, at speeds 250-
500x faster than current
technologies allow.*

Digital appropriation:
Mesh geometry of a classical bust, excavated from grabcad.com, and subtracted from another solid.



Now, designers are able to import and exchange infinitely plastic digital artifacts. With these digital packets of formal information, it is possible to extract and reanimate geometries that are invisible or inaccessible in the artifact's material double. Yet for many designers, to develop forms without an idea of what the results might signify can feel dangerous, or at the very least unproductive. To help understand why such undirected formal play might be useful, let us return to Adorno. As Edward Said has noted in his essay "Thoughts on Late Style", for Adorno, the notions of mature style and "late style" are distinctly different.

"Each of us can supply evidence of late works which crown a lifetime of aesthetic endeavor... But what of artistic lateness not as harmony and resolution, but as intransigence, difficulty and contradiction? ... It is this ... type of lateness that I find deeply interesting: it is a sort of deliberately unproductive productiveness, a going against."

Said goes on to explicate Adorno's idea of "going against", by using Beethoven's seminal 9th Symphony as exemplary of cultural "lateness":

"For Adorno, Beethoven's last works – those that belong to what is known as the third period...– constitute an event in the history of modern culture: a moment when the artist who is fully in command of his medium nevertheless abandons communication with the established social order of which he is a part and achieves a contradictory, alienated relationship with it. His late works are a form of exile from his milieu."

This spirit of lateness, groping toward the unknown, "unproductive productiveness", and "going against", must be a design imperative if 3D printing is to change the nature of consumptive desire and consumer demand. In particular, software enabled, iterative, and transformational actions performed on digital artifacts allow designers to create new and captivating forms. In such exploratory processes or experiments, every and any type of transformation or action performed on a digital artifact reveals new and different semantic potentials. As transformation after transformation erases the semantic differential of any particular artifact, moving toward complete formal chaos, or noise, the designer will approach a threshold, where there is a harmony and tension between entropy and resonance; this is the moment at which a form may become the most powerfully uncanny. In this mode of working, the designer must be responsible for understanding the predominant semantics of the objects she/he appropriates, and must be elegant, direct, and clear in his/her approach to designing iterative experiments for those appropriated objects. This is the design process which will lead to post-industrial product semantics.

Edward Said:
Thoughts on Late Style.
London Review of Books,
Vol. 26 No. 15 · 5 August
2004



Various containers:
Google Image Search:
“Shipping containers”.
The modernist dream for universally understandable and international forms has been co opted by the machinations of global trade.

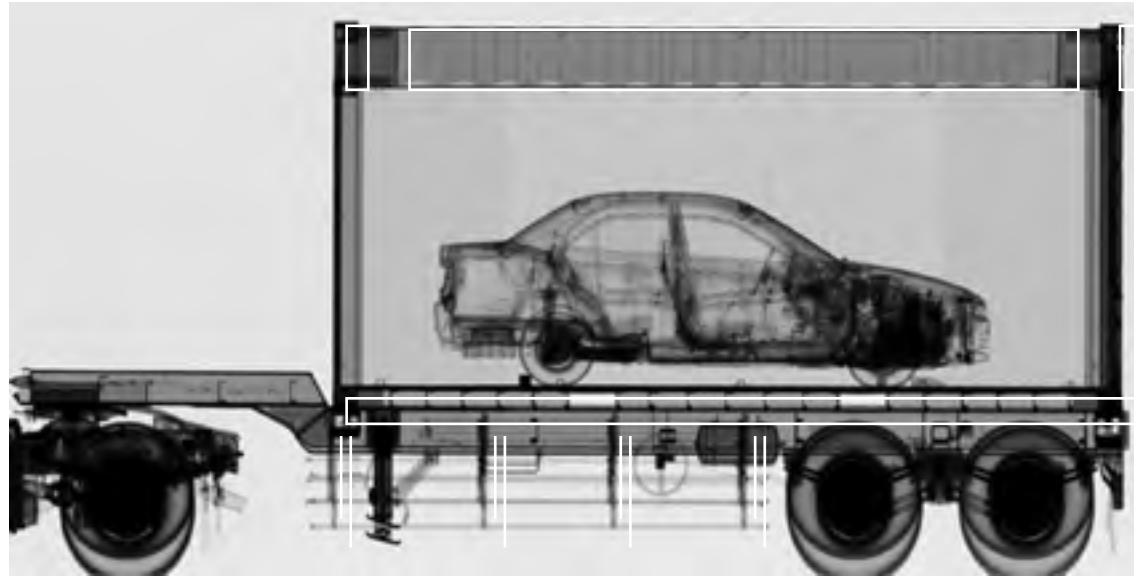
Port of Oakland: Ghost Ships

As a way of guiding my design experiments, I began to imagine the Port of Oakland as a simultaneously physical and conceptual site for the exchange of material culture. More specifically, the stacks of shipping containers at the port signified to me an idealized armature for the development of new forms. These massive, modern volumes of modular shipping containers have a concrete dimensionality that reinforce their use-value. The units contain specific objects; yet at the same time, the opacity of the containers set the condition to imagine that they could be guarding any and every object on earth, all at once. This is a logic scaled to global commerce: the shipping container segregates, orders, and obscures nearly all of the material culture that we produce.

Everyday 1000's commuters, crammed in cars and trains bound for San Francisco, pass by these brightly painted monuments to capital, filled to the brim, maybe, with only-God-knows what. The uniformity of this three dimensional grid, and its overwhelming scale in the urban landscape, reinforces the mystery of its contents. The threat from the container grid is that it spills its tonnage everyday into the city like a storm surge, and that somehow this disruption goes unnoticed. I have no direct contact with the Port; its operations

Section C:

**FORMAL
EXPERIMENTATION**



Various containers:
Google image search,
“container x-ray”.

“Restricting oneself to a personal arrangement of words is mere convention. The mutual interference of two worlds of feeling, or the juxtaposition of two independent expressions, supersedes the original elements and produces a synthetic organization of greater efficacy. Anything can be used.”

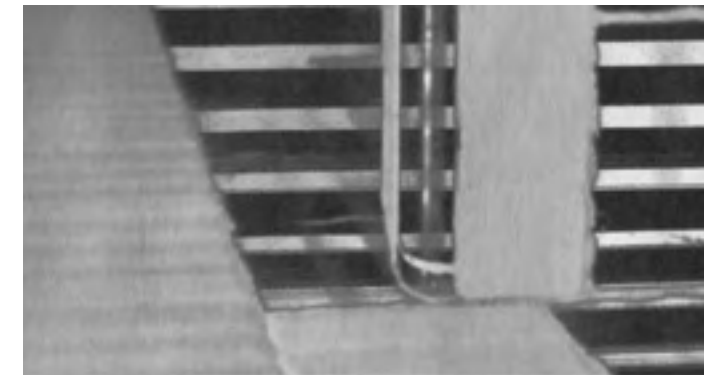
Guy Debord:
**A User's Guide to
Detournement.**

1956. Published online
by The Bureau of Public
Secrets: <http://www.bopsecrets.org/SL/detourn.htm>.

are silent and unobtrusive. Goods move in and out, all day every day, and we are never impeded in our own movements.

From these observations and (and maybe even hallucinations), emerged an idea of resistance: to re-imagine the super-container ship; its organizational structure, the containers themselves, and most importantly the things inside them. How could I model a ghost ship, capable of growing or shrinking, plus-or-minus x-times the size of our largest ocean vessels? How could I fill the ghost ship with formal ideas, and broadcast its cargo by way of globally networked archives? In my wildest dreams, designer after designer would unleash new digital forms, everyday, across the urban landscapes of the entire planet. The goal for the thesis project became to fill each and every container on every ship, with a singular idea/object. What would happen to these singularities as they shifted and collided with each other on trans-global journeys?

Quickly, I imagined our existing global shipping infrastructure as a way to project conceptual ideas into real spaces. For the duration of the semester, I designed experiments to produce forms that maximize the potential of the standardized TEU cargo unit, while bracing against its uniformity. Most importantly, I would try to understand a set of fundamental strategies for designing *processes* that could generate new forms.



Various containers:
Scanned fragment of a printing error.





Various containers:
The Port of Oakland



View of the decommissioned
East span of the Bay Bridge:
The Port of Oakland



Various Containers:

Google image search:
“container ship accident”.

<http://safewaters.wordpress.com/tag/salvage/>

Experiment 1

To begin making objects, I wondered, how can we understand the buried, lost, or latent semantics of the things we already have? My strategy moved first toward molding, cutting, and juxtaposition of archetypal kitchen products that I purchased at a variety store in Oakland's Chinatown.

Sequence for iterative form-making, by way of molding with plaster:

Build a mold box, with dimensions similar to standard shipping containers, that closely adheres to the scale of objects selected for analysis. Prior to building the mold box, my collection of objects included identical pairs of rice bowls, shot glasses, and quail egg cups.



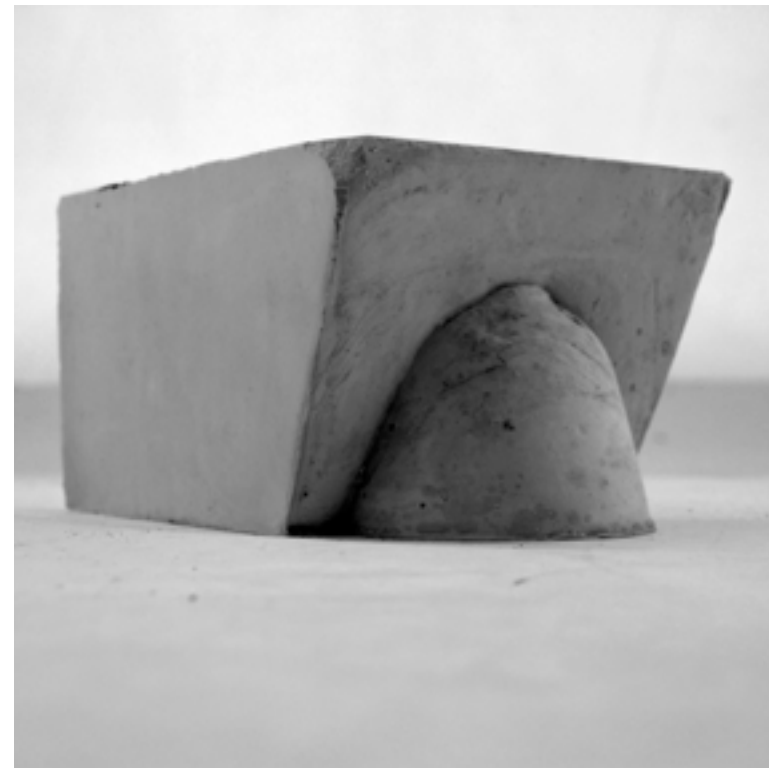
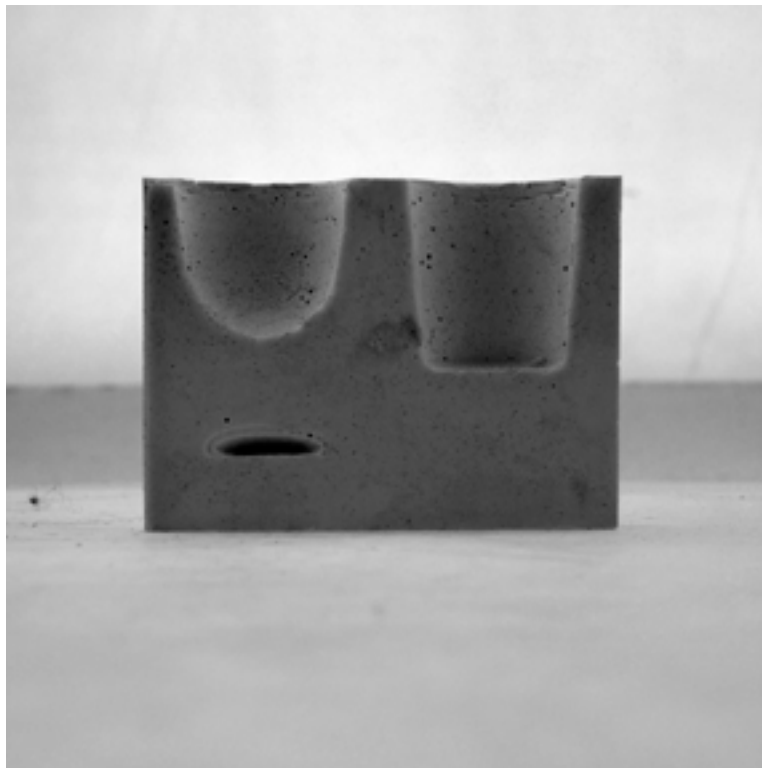
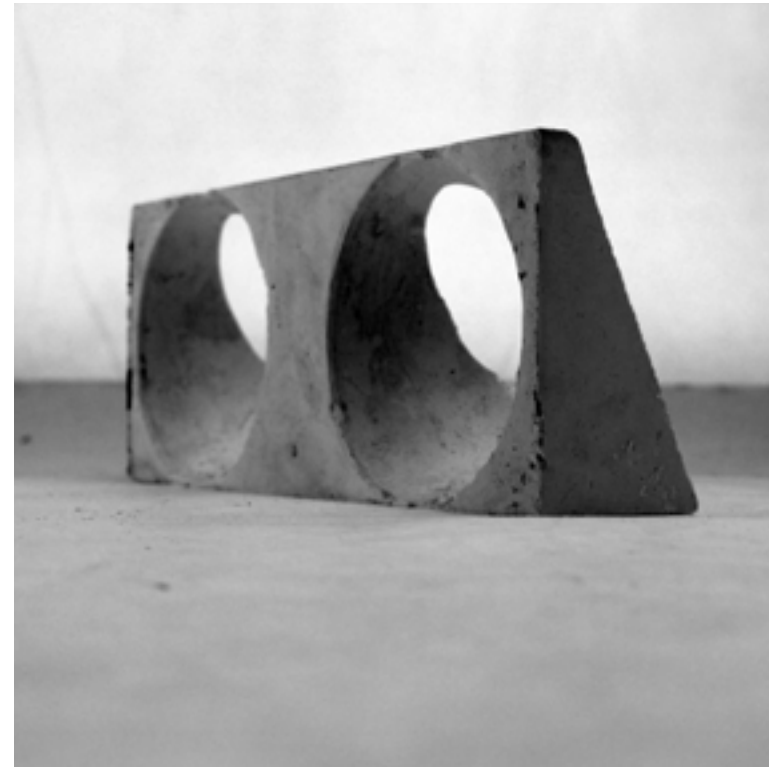
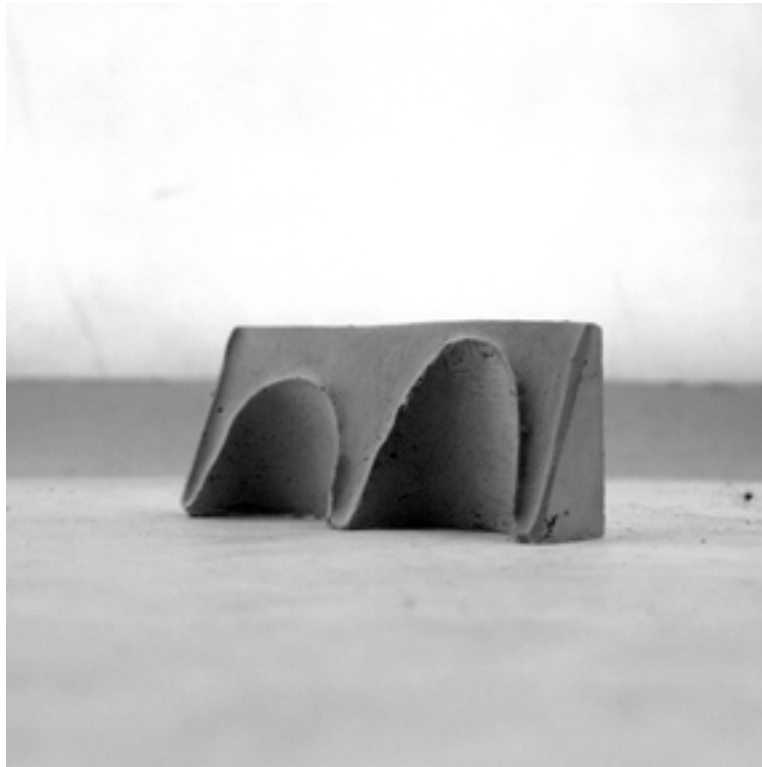
1. Secure each pair of objects into the mold box such that they will release. Pour plaster into the
2. Do not pour complete molds of
3. De-mold the master objects, and place the partial plaster mold back into the mold box. This is the new master. Pour a plaster "mold" of the new master. At this point, there is no differentiation between object and mold. Every item that enters or exits the container space may be considered to be an object of design.
4. On each iteration, shim the mold box to simulate rolling ocean conditions. With the box positioned at various angles relative to the table, pours should reveal strange sections and fragments of the "master" objects.
5. Continue iterations until previously unimaginable forms emerge, or until solids are too fragile or complex to release from one another.



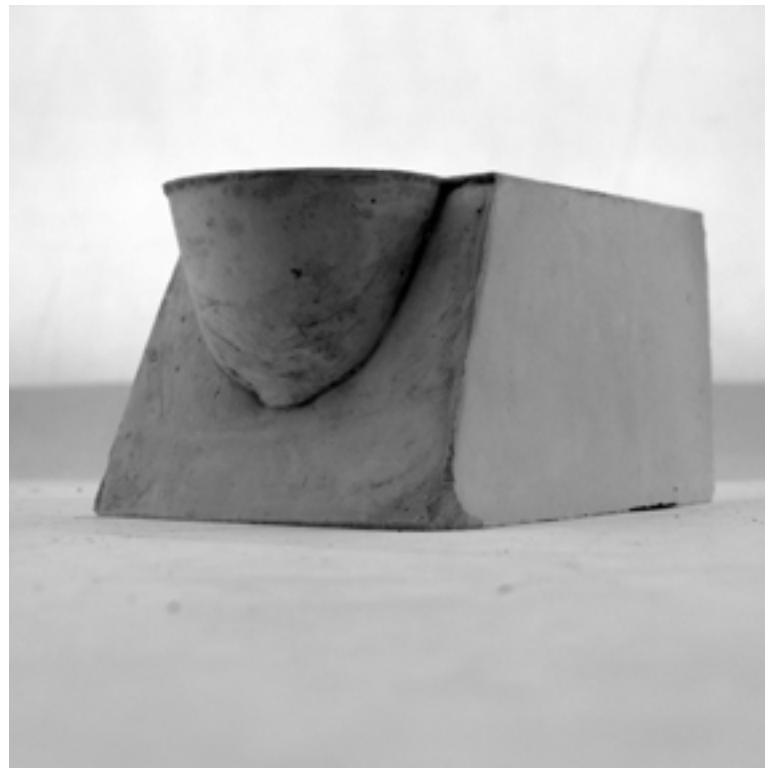
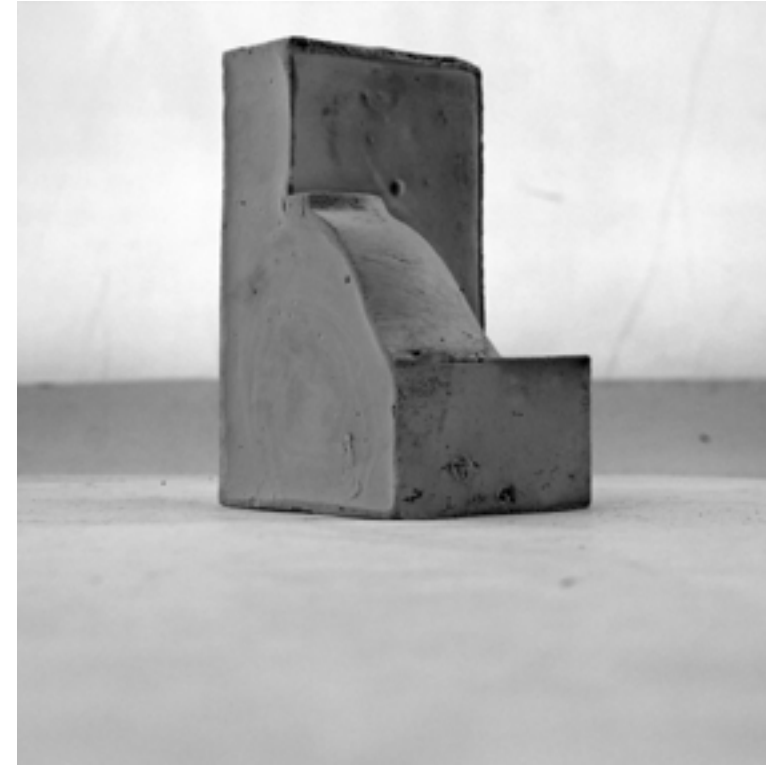
ITERATIVE FORMAL EXPERIMENT 1; INSTANCES:

Set of plaster objects generated by appropriation and molding of found consumer products.

INSTANCES:

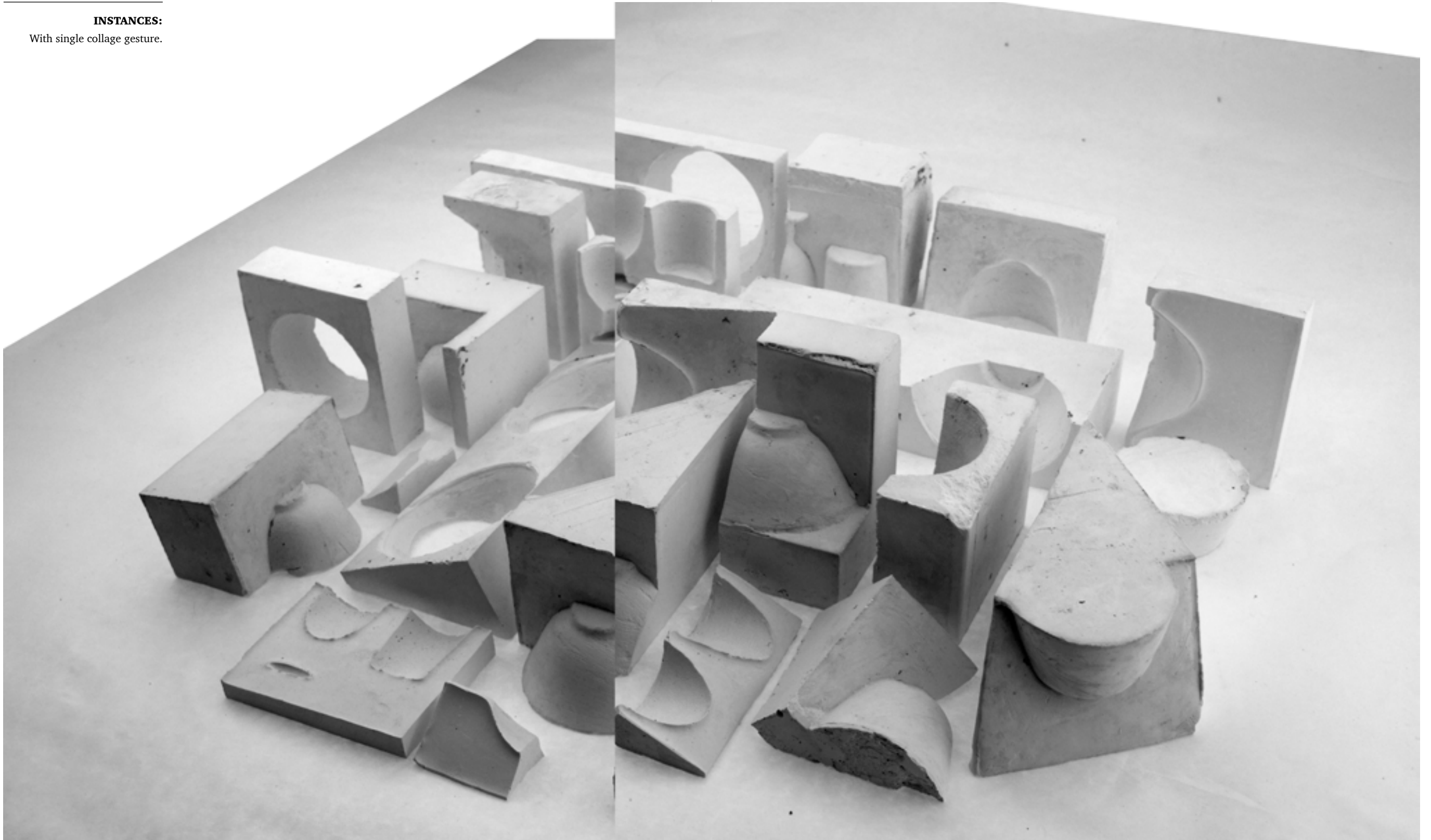


INSTANCES:



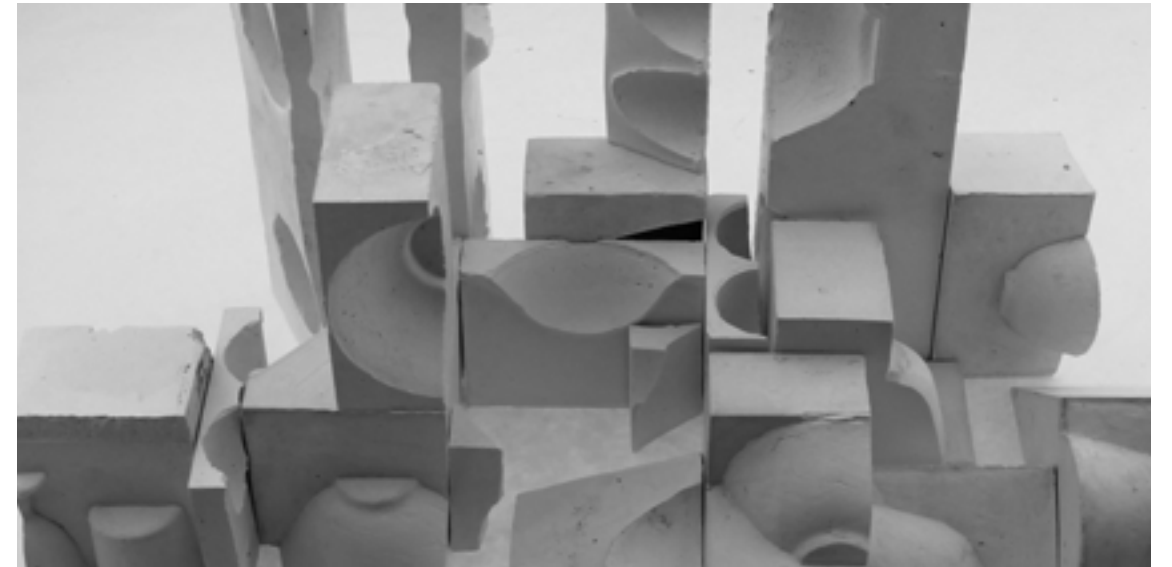
INSTANCES:

With single collage gesture.



INSTANCES:

With single collage gesture.



INSTANCES:

Detail of massing.

The resulting set of objects mediate the relationship between the space of the shipping container, and the forms of the objects chosen to fill them. The exercise revealed hidden geometries within forms that are easily taken for granted. Moments occur, by way of chance-based and iterative operations, when the semantic of the original artifact nearly disappears. As casting iterations de-familiarized the original forms, new semantics for the plaster cast objects emerged; these semantics were dramatically different than those of the original objects, and were distinctive from one iteration to the next. The experiment generated waves of progeny; each generation echoes the vocabulary of its parent in an individualistic way.

With the results of the first experiment in mind, I entered the digital space. The plaster casting experiments suggested strategies for formal experiments that could become even more radical. By removing the constraint of de-moldability, I anticipated even stranger and more mysterious results than the physical casting/molding process.

**DIGITAL ARTIFACTS:
STOP-JIG AND
BANISTER FINIAL.**

Downloaded digital artifact. Selection of artifacts depends on nature of geometry.

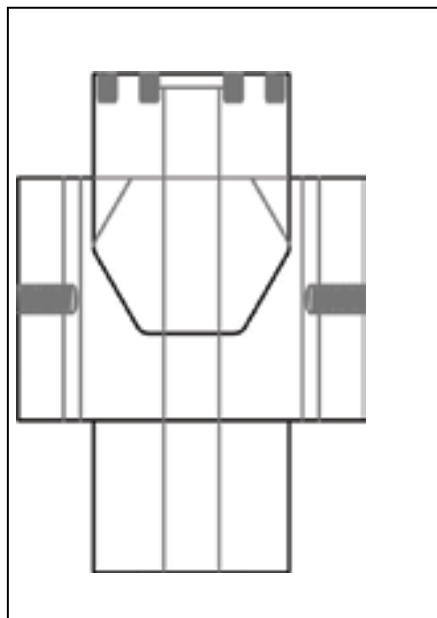


FIG. 1

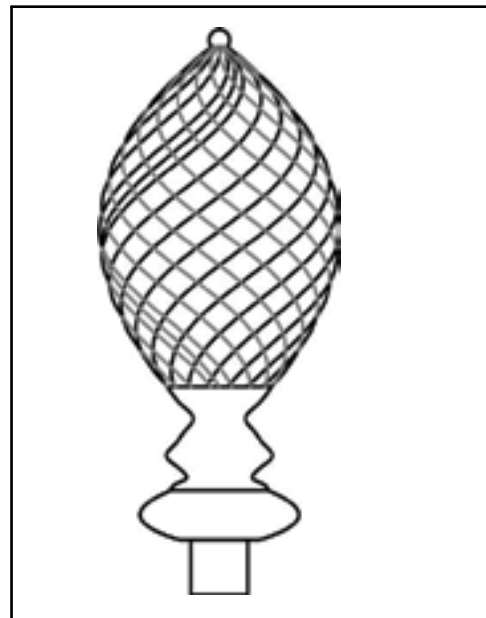


FIG. 2

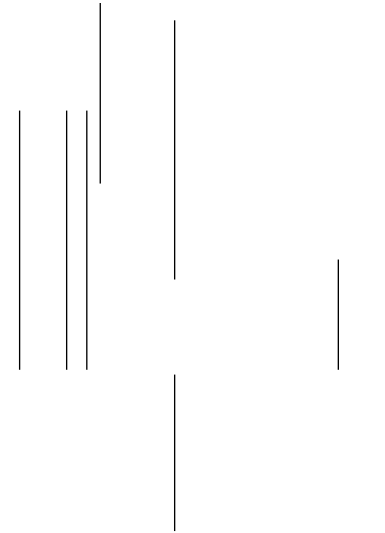
The first digital experiments were designed almost identically to experiment 1. To start, I selected and downloaded esoteric two digital artifacts for their semantic specificity: a milling machine stop-jig with a dovetail slider, and an ornamental banister finial (*fig. 1, 2*).

I unearthed these two objects at grabCAD.com by filtering for Rhinoceros .3dm files, and chose them for their opposing forms and functions. Who built them, and for what original purpose, was of no concern to me. All that mattered was that something about their shape, surface, order, or rhythm, appealed to my senses, and that they were well designed and easy to edit. Unlike the archetypal IKEA objects from experiment 1, these digital artifacts simultaneously elicited specific semantics, but remained mysterious. I did not know exactly why, and this made the attraction to the artifacts greater.

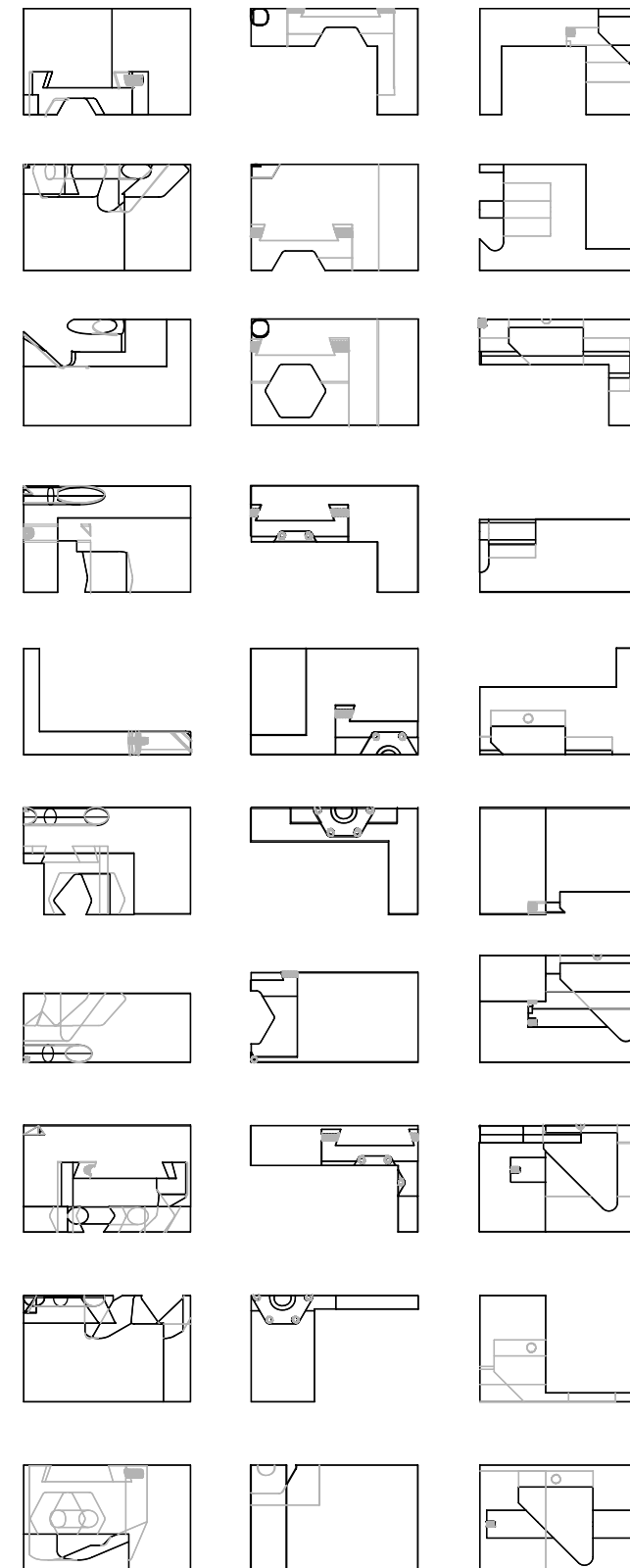
Perhaps most importantly, I selected the first pair of digital artifacts for their stark semantic differences. The stop jig speaks to precision-- but precision driven toward a functional end. This is evident in the dovetail geometry of the jig's slide-plate geometry; it speaks to the precision of milled steel. By contrast, the ideal formal logic presented by the banister finial's spiraling and organic geometry is purely ornamental, and presents itself as an idealized, curvaceous, and ultimately luxurious object of design.

Experiment 2

Once the digital artifacts were selected, I built a digital container to hold them. Again, it is geometrically similar in scale to a shipping container unit. I then began colliding and collaging the artifacts into the container space, which behaved alternatively as solid and void.

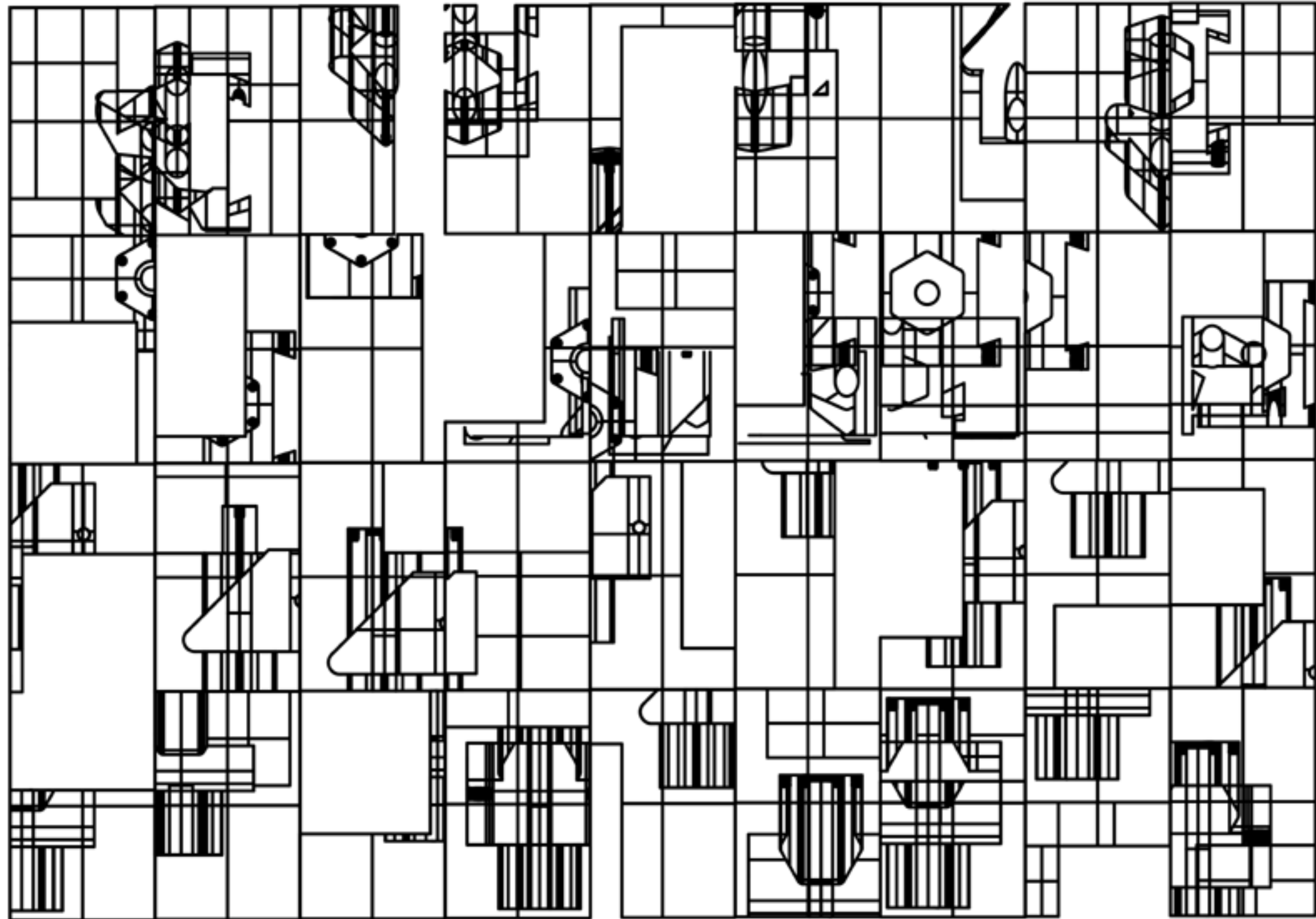


1. Place a digital artifact in the center of a digital container (imagined as a solid volume).
2. Rotate the artifact on all axes, and move it from the center of the container so that it pierces two of the container walls.
3. (Boolean) Subtract the artifact from its container solid.
4. Repeat steps 1-3 5 times to make a row of objects.
5. Copy and paste the row of objects.
6. In the second row, cut each object with an off-axis wire cut—do not erase more than half the object with any cut.
7. Copy and paste row again, and repeat wire-cut operations. Repeat steps 5-7 until any echo of originally subtracted artifact is gone.

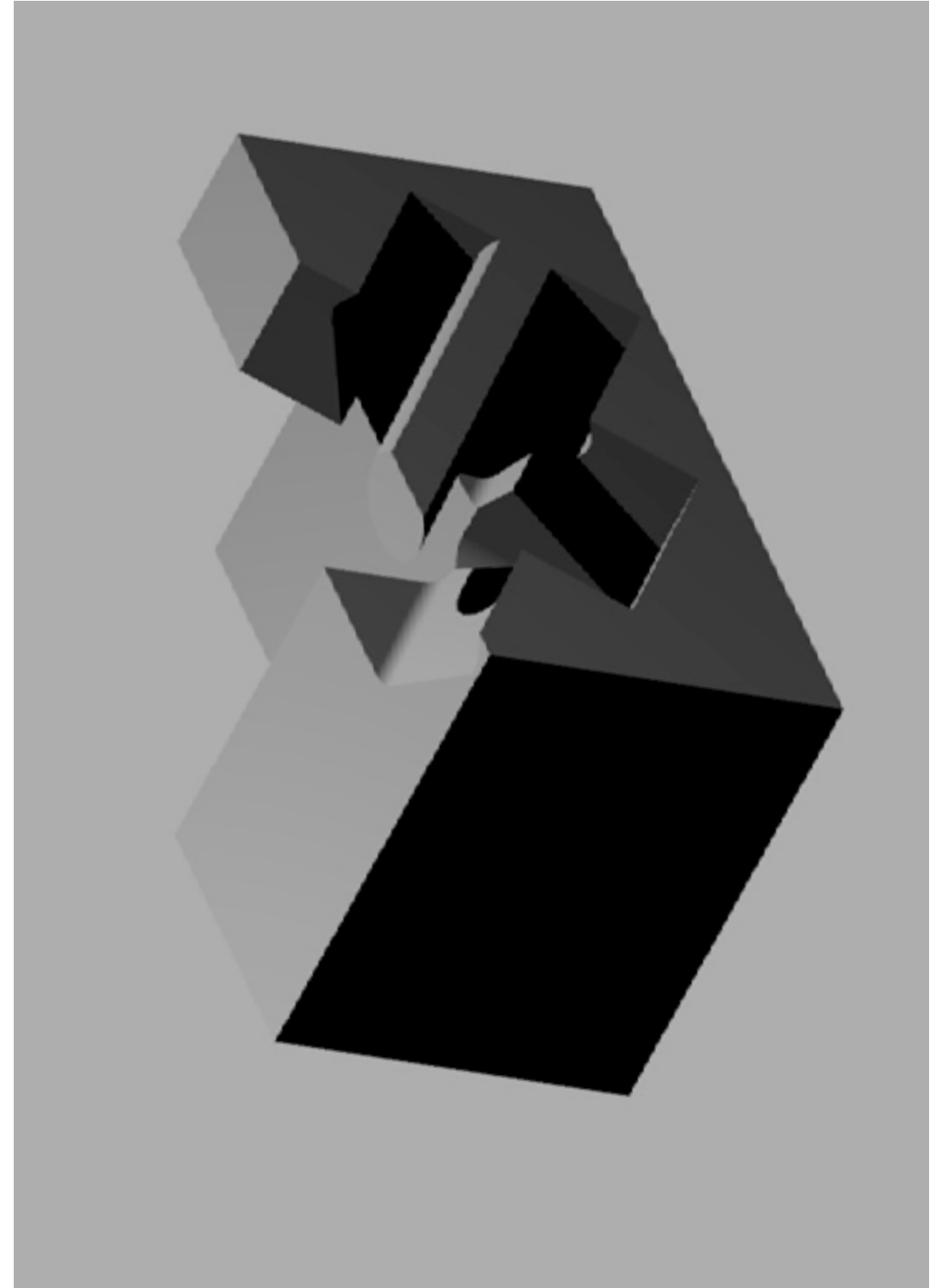
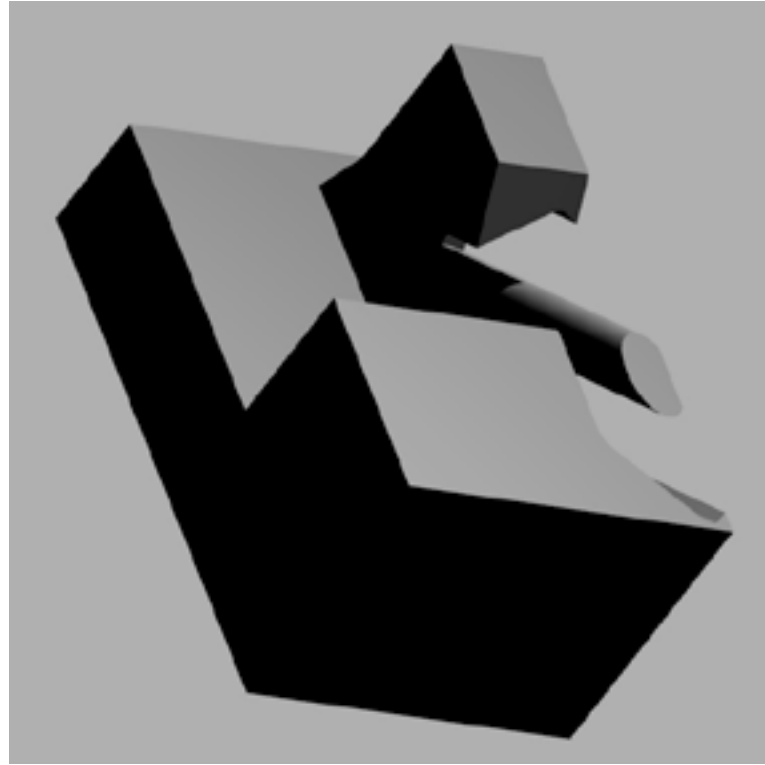


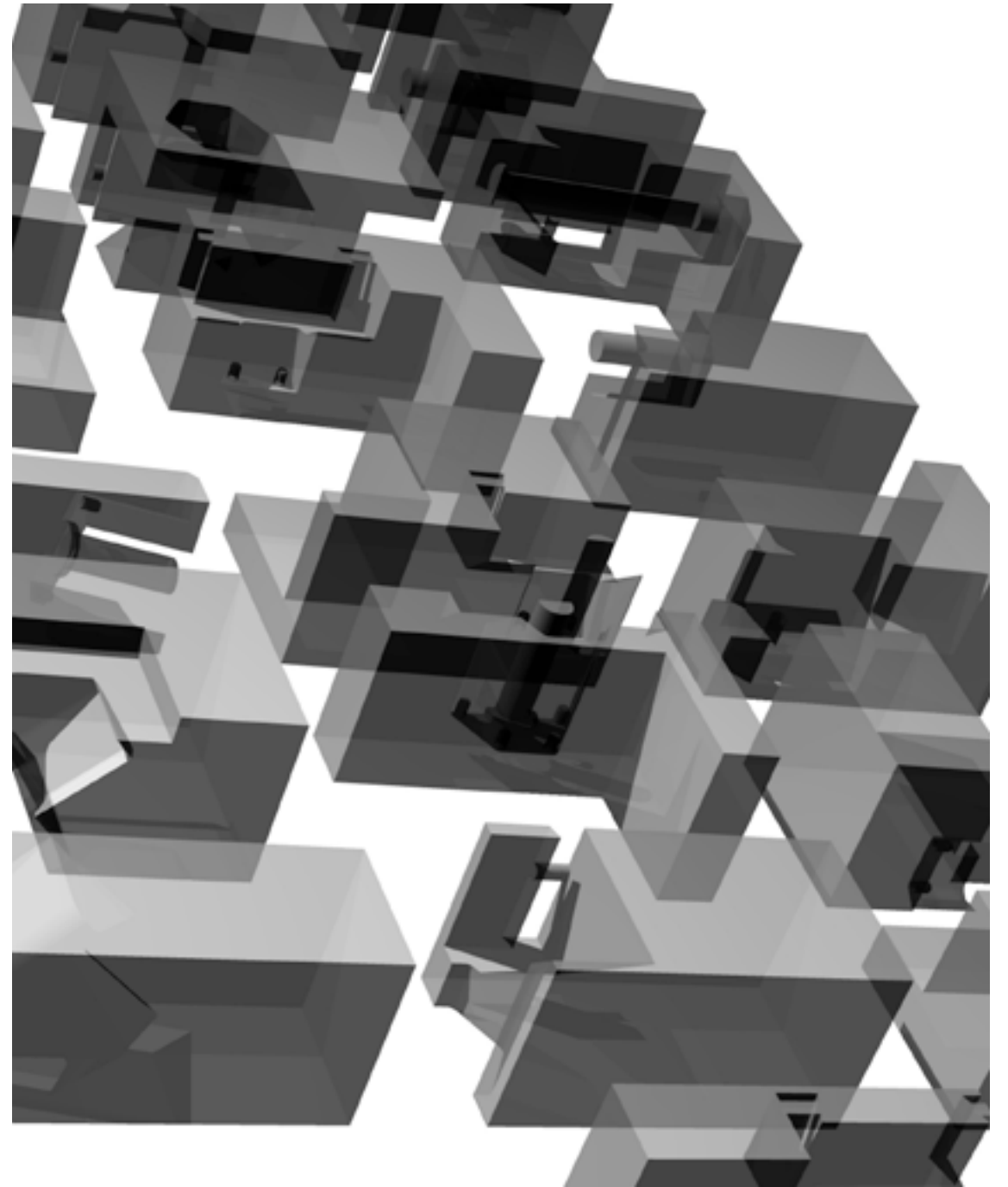
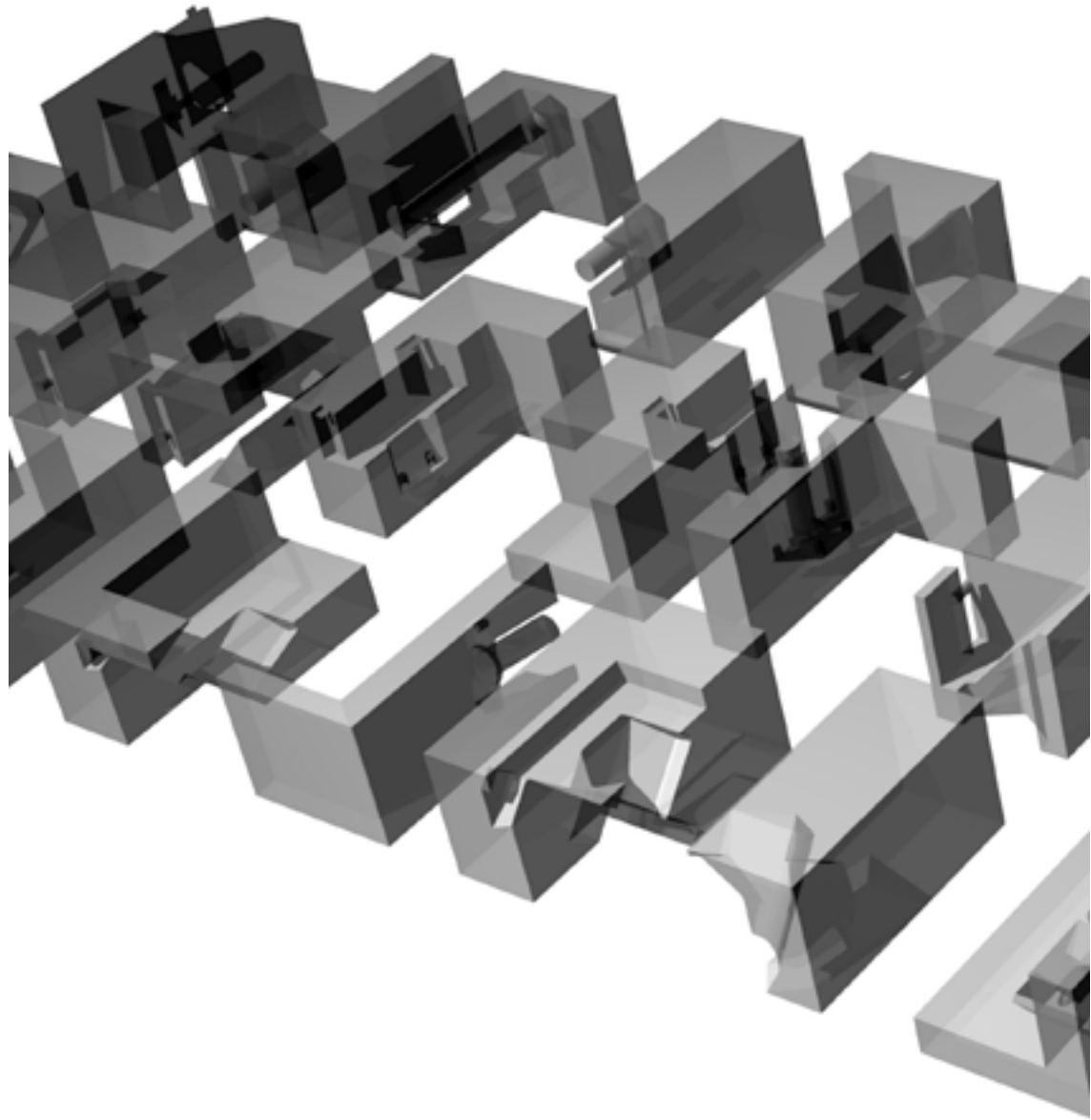
ITERATIVE FORMAL EXPERIMENT 2; NEW FORMS

Finding geometries and new forms embedded in the Stop-Jig.



NEW FORM

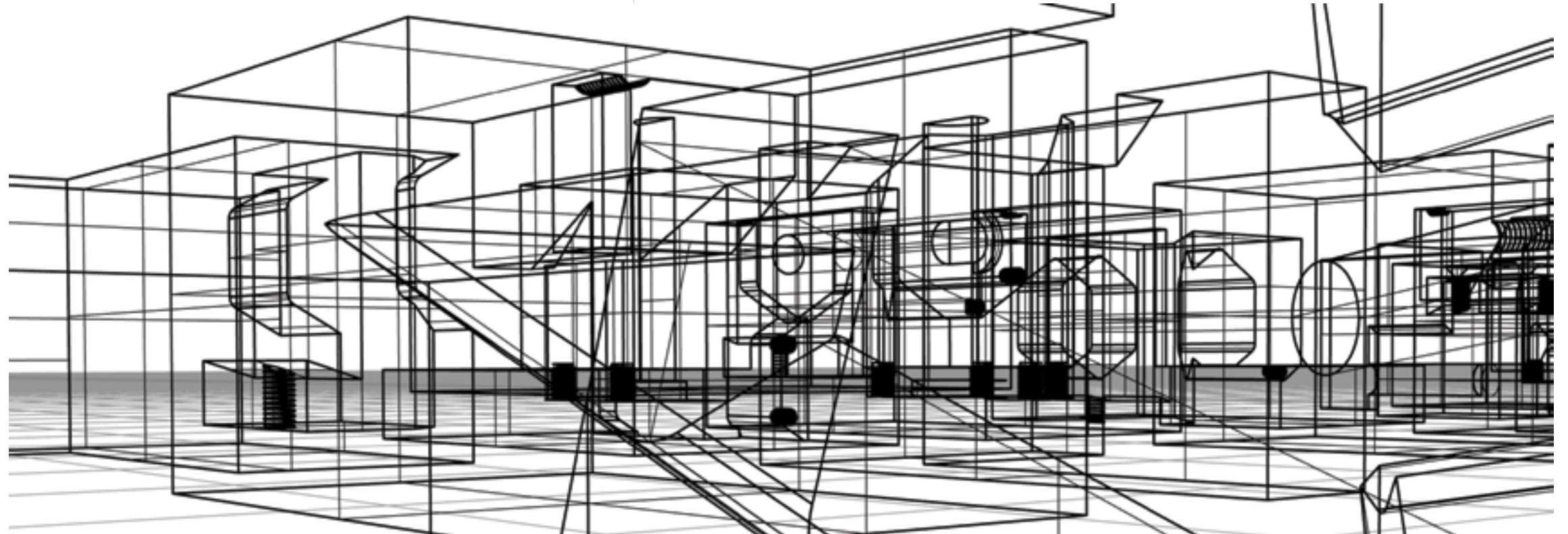




As one might imagine, the speed of generative iterations rapidly increased in the digital space, and it became possible to create a large array of objects, ready for 3D printing, within a relatively short amount of time. Inversion and subtraction, in combination with the fluid composition of artifacts in space, led to fantastical formal vocabularies, excavated from familiar forms.

I limited my palette to the artifacts themselves, the container solids, and cutting planes, which worked as a limited set of tools. After five or six rounds of these simple operations, the vocabularies of both the finial and the stop jig had fallen dangerously close to complete annihilation: this is when I would stop operating. At the edge of complete formal chaos, this collage-based process for formal design revealed its potential to radically open new possibilities for the design of consumer objects.

NEW FORMS



Experiment 3

The third experiment introduced platonic solids into the digital collage process, as another way of leveling, or idealizing, the vocabularies of my finial and stop-jig.

Additionally, in experiment 3, I carefully balanced, at each transformational iteration, a chance operation against a biased operation. Whereas in the first experiment I allowed myself to control positioning of objects in space at each step, in round two, the introduction of numerical chance as a guiding principle further catalyzed semantic entropy.

— **1.** Build “seed” geometries.

CHANCE: Randomly rotate one platonic solid and the artifact on all three axes.

BIAS: Collide the artifact and the solid such that they overlap. Artifact and solid, in combination, must break at least 4 walls of the container. Join artifact and platonic solid to make one form. Insert into idealized, solid shipping container form.

— **2.** Subtract new hybrid solid from and idealized container solid.

Export.

Repeat, using each platonic solid:

Tetrahedron, Cube, Octahedron, Dodecahedron, Icosahedron.

— **3.** Build array of erasures. Place all 5 exports from steps 1-2 onto a row.

Cut solids with a rectangular wire.

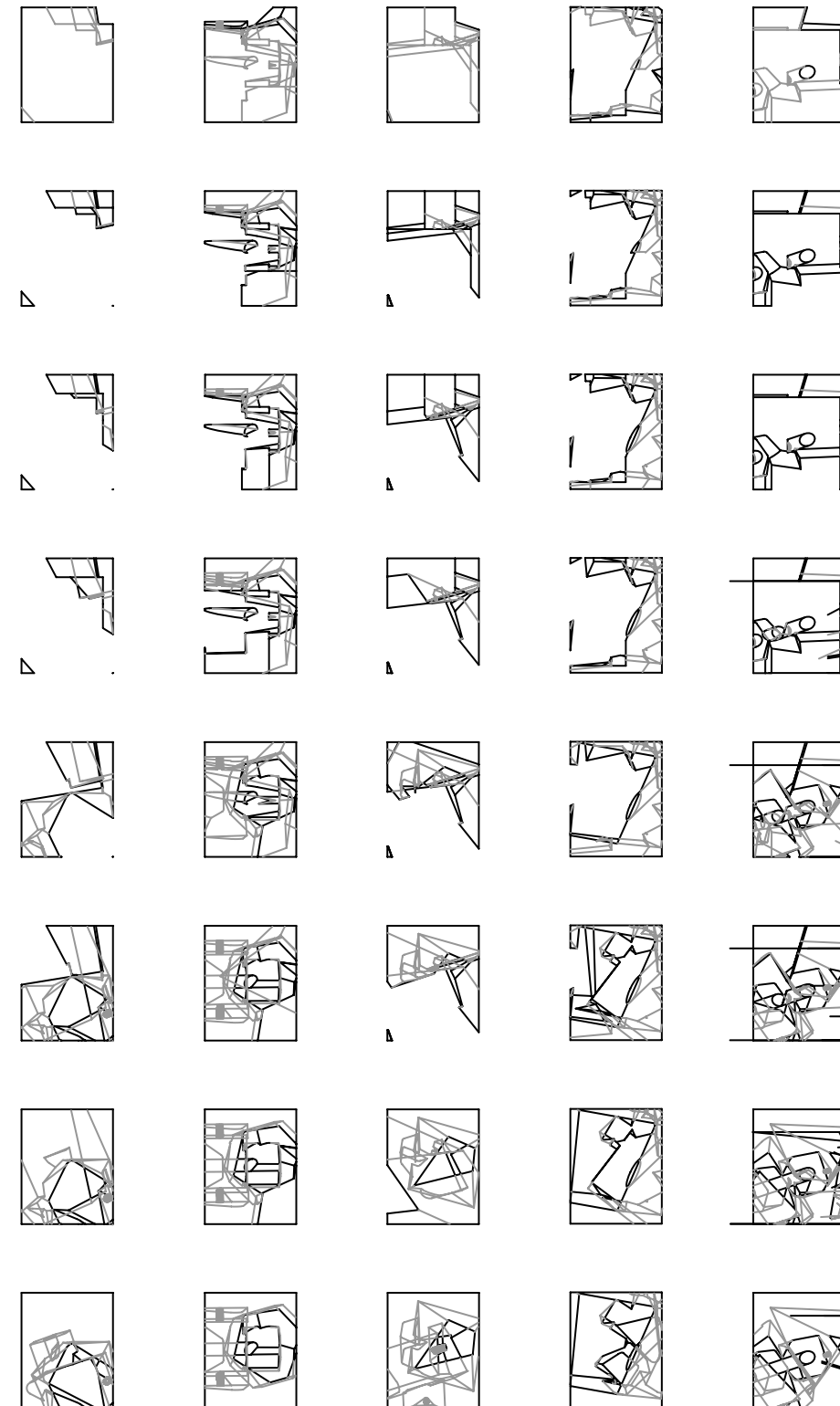
CHANCE: Use random number generator to either move or rotate wire cutting rectangle. Before the wire is repositioned, it is orthogonally aligned to its generative face.

BIAS: Cut through at least three exterior faces, into the solid, without passing completely through.

Repeat for each solid.

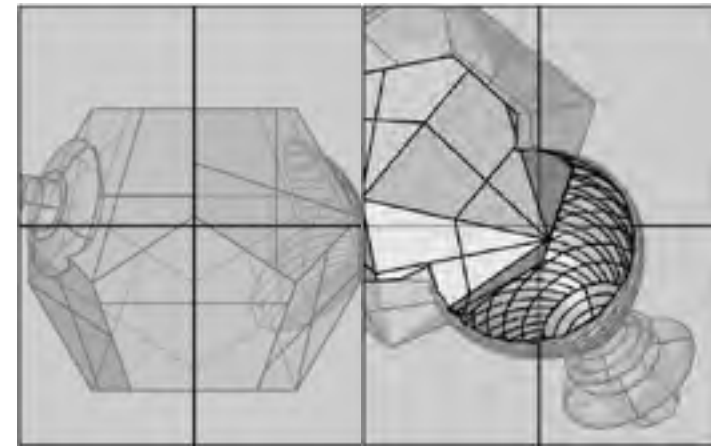
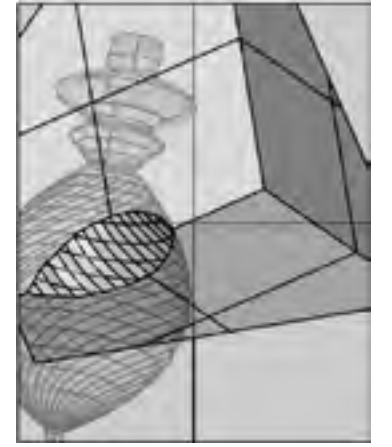
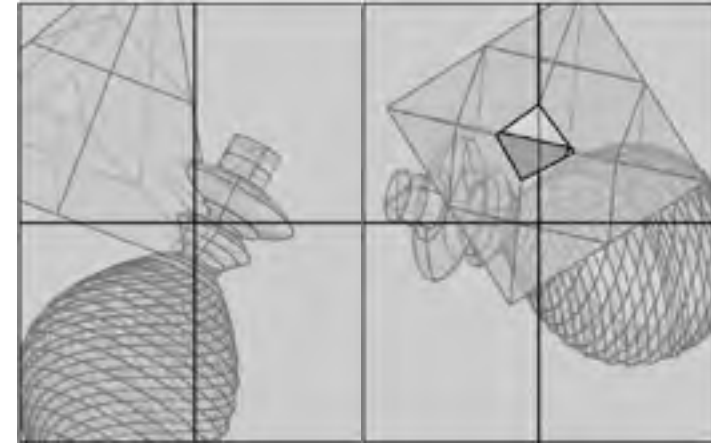
Copy row. Paste below row 1.

— **4.** Repeat step 3, 5 more times. 5 erasure operations will be performed on each of the 5 original solids.



**ITERATIVE FORMAL
EXPERIMENT 3;
NEW FORMS**

Finding geometries and
new forms embedded in
the Stop-Jig.



**STEPS 1 AND 2,
USING FINIAL ARTIFACT:**
Finding geometries and new
forms embedded in the language
of the Ornamental Banister
Finial, with the inclusion of
platonic solids.

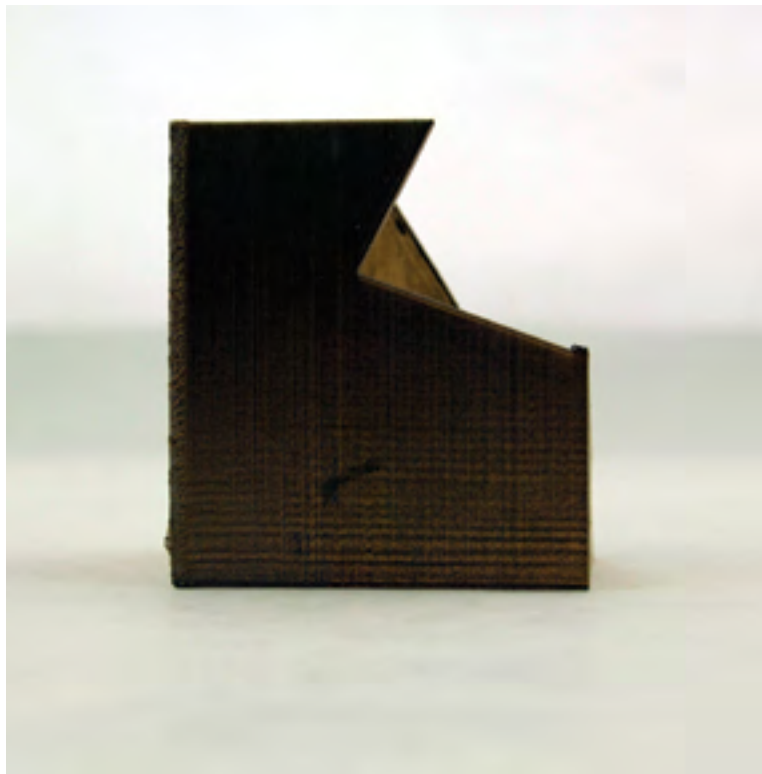


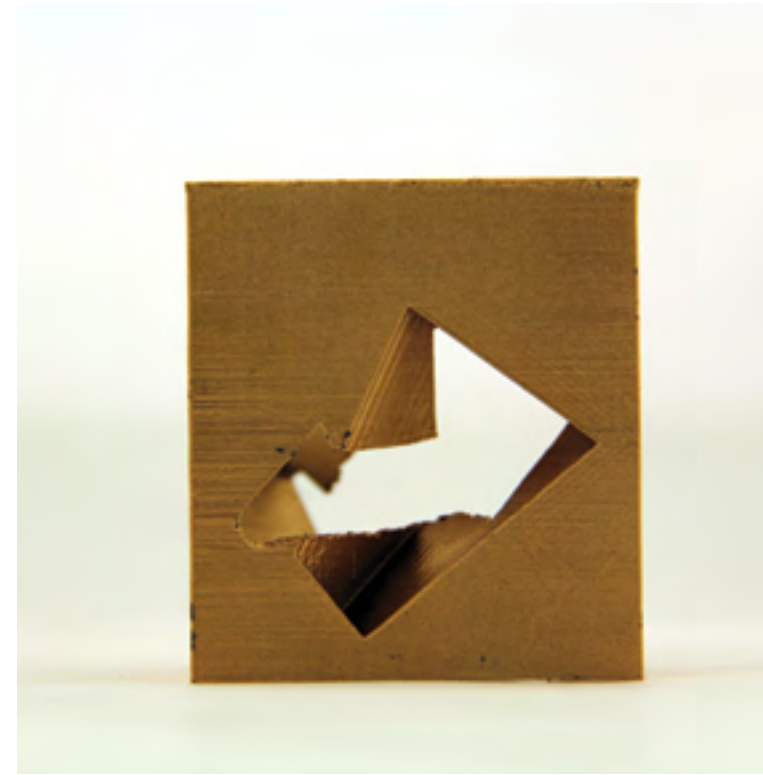
**ITERATIVE FORMAL
EXPERIMENT 3;
DIGITAL MANUFACTURE:**

Finding geometries and new forms embedded in the Stop-jig, and Ornamental Banister Finial, with the inclusion of platonic solids.

PRINT 1







PRINT 2



PRINT 2





PRINT 2



PRINT 3



PRINT 3

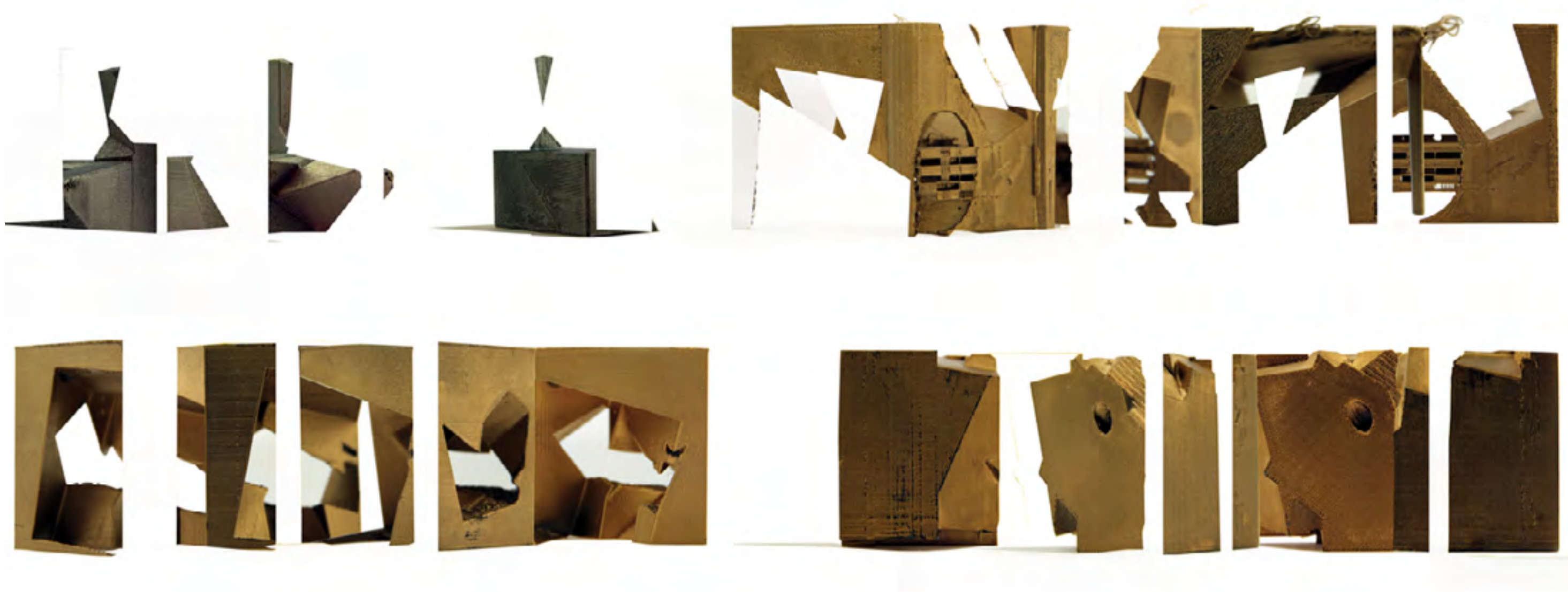


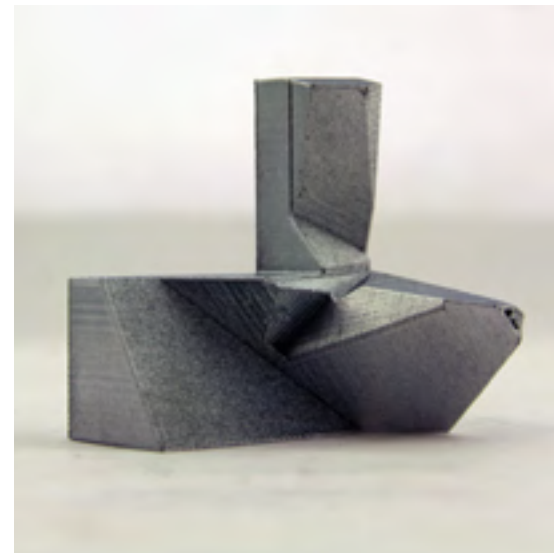
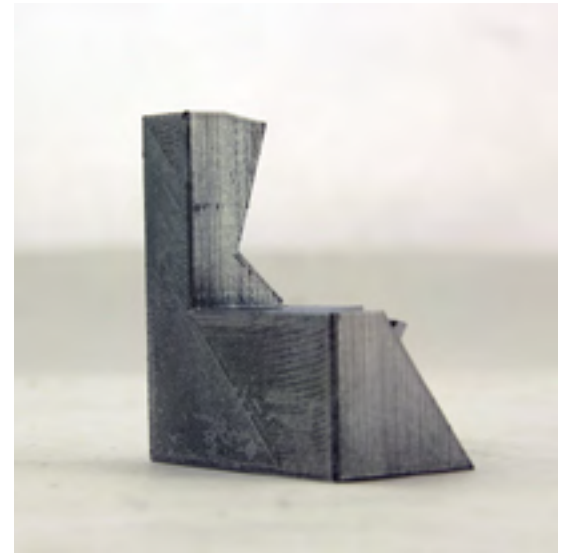
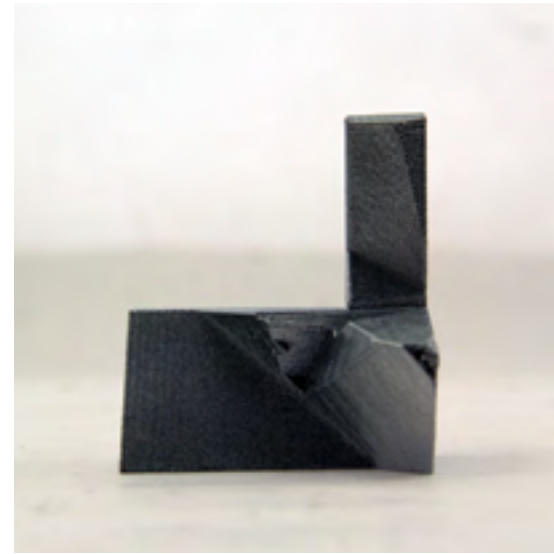
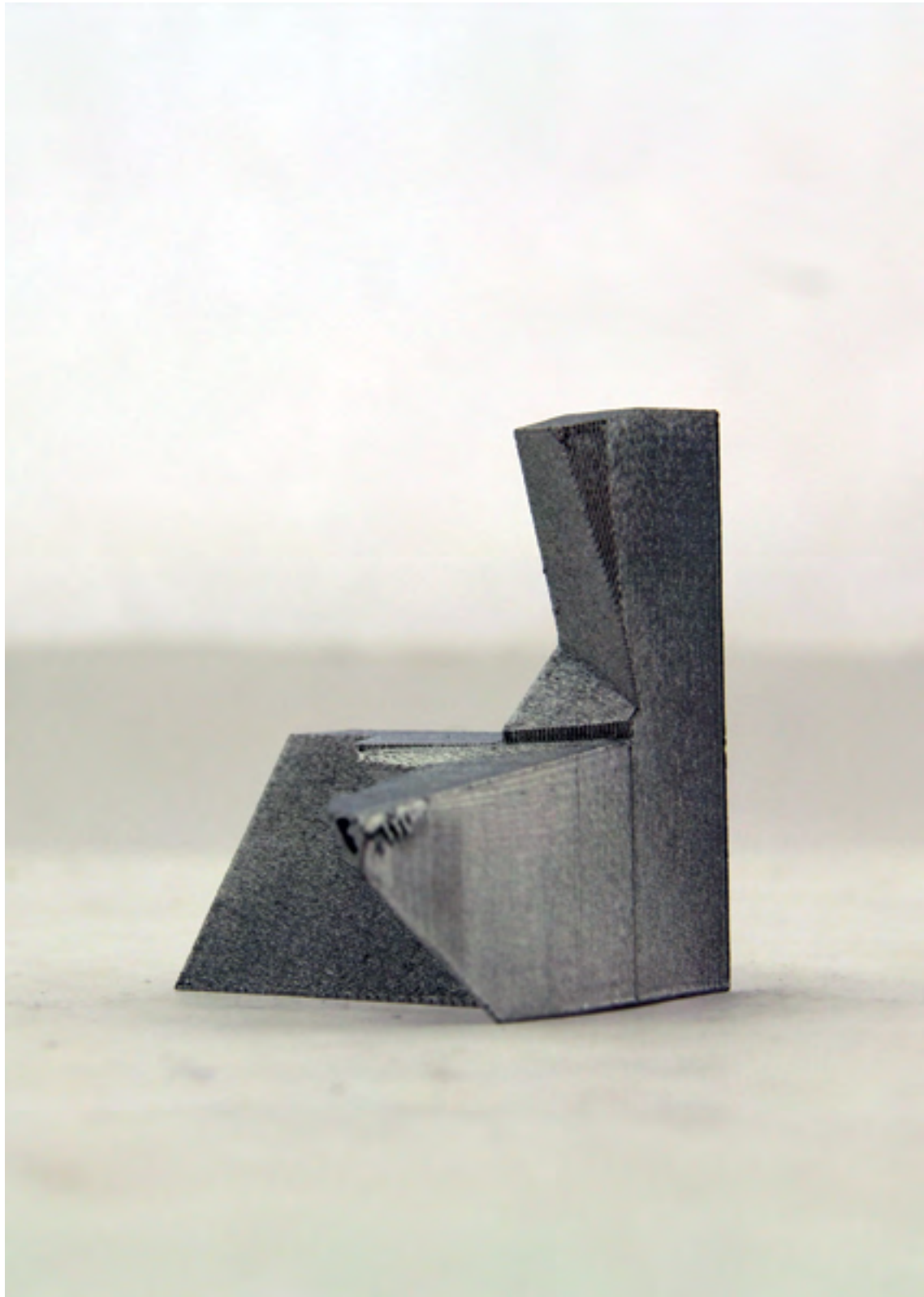
PRINT 4



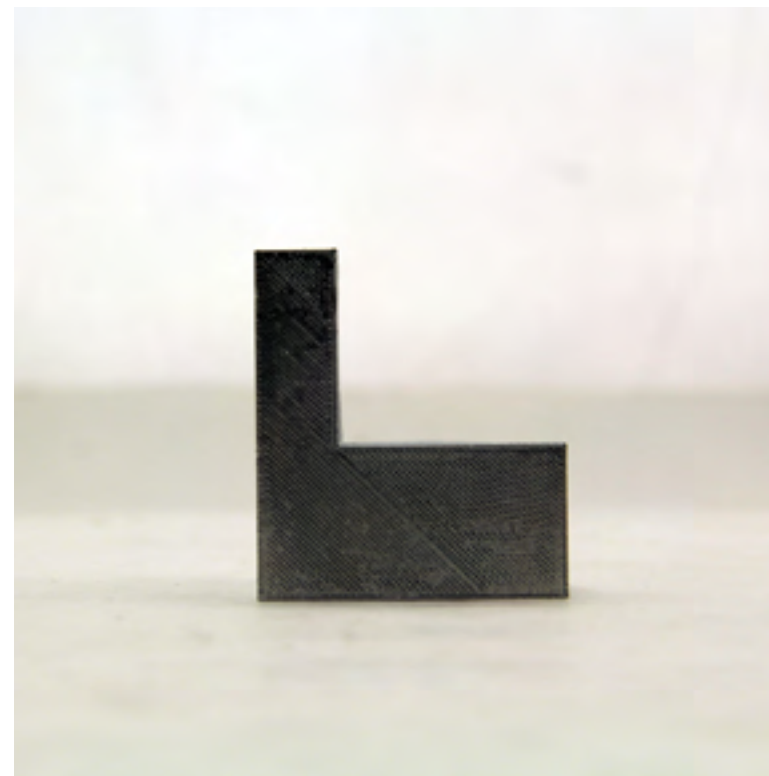
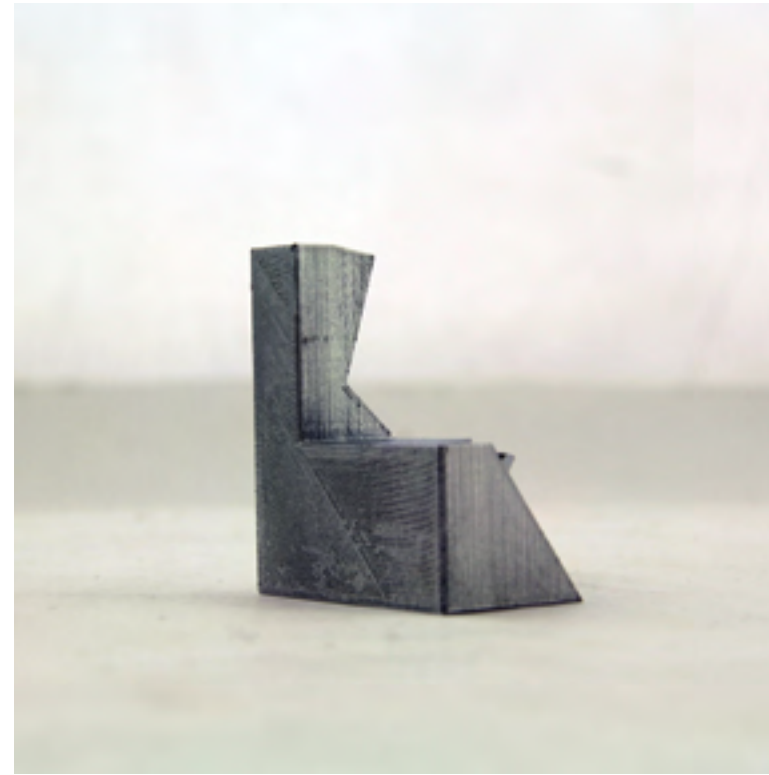
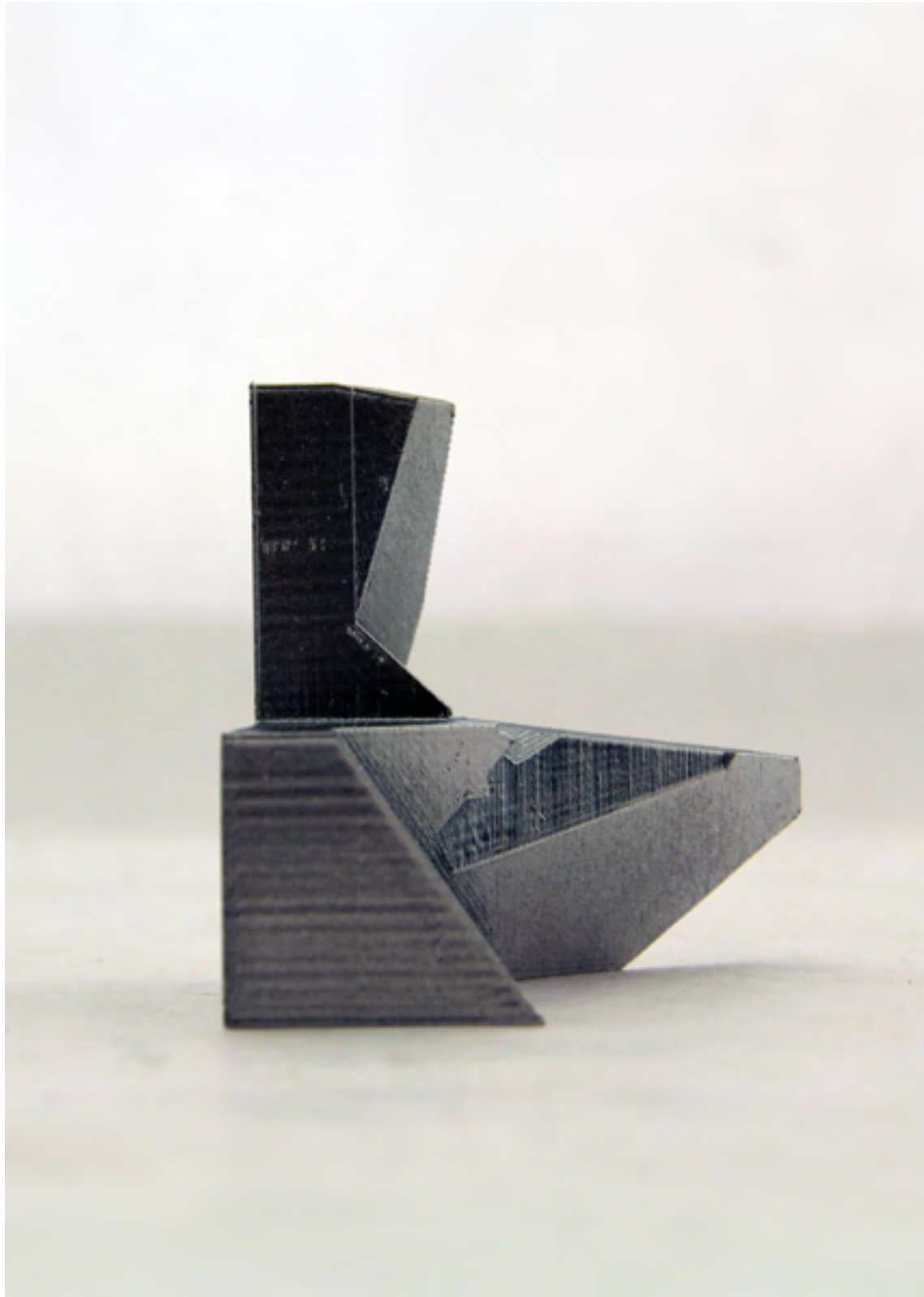


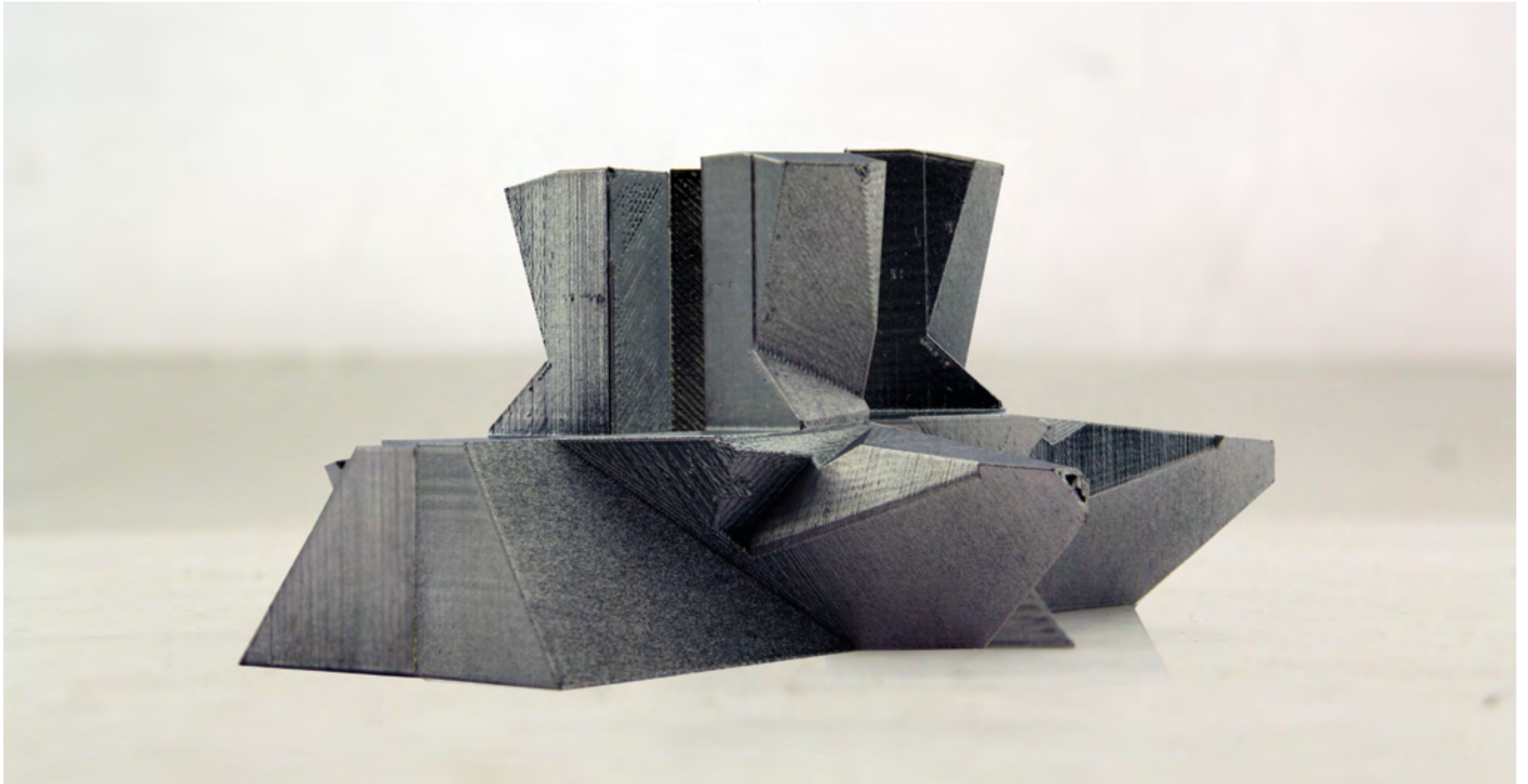
DIGITAL COLLAGE OF PRINTS



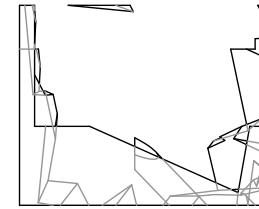
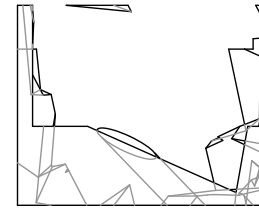
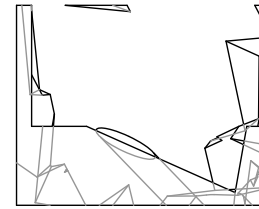
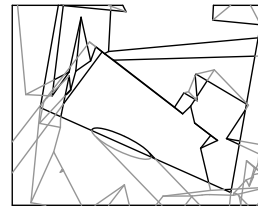
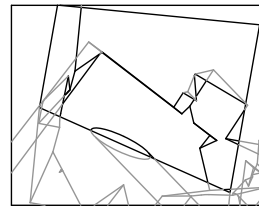
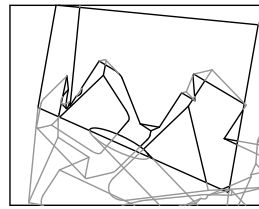
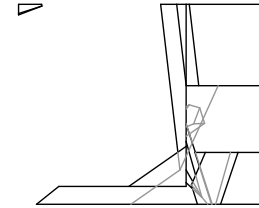
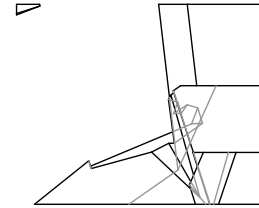
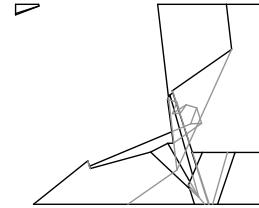
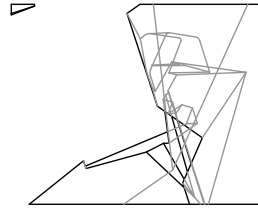
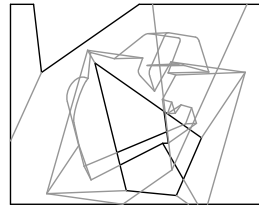
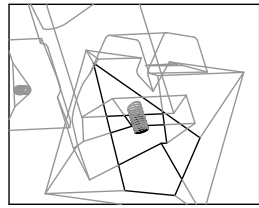
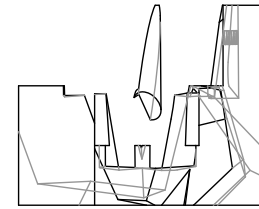
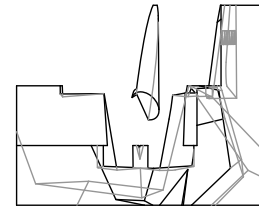
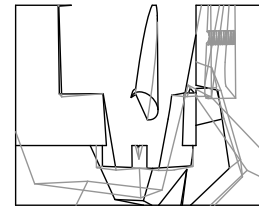
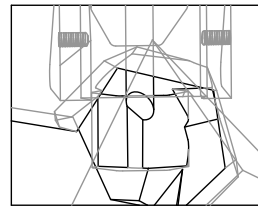
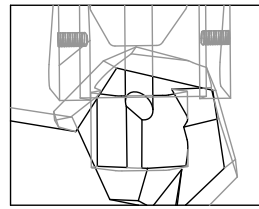
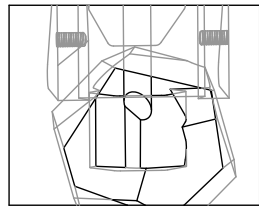
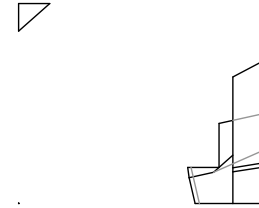
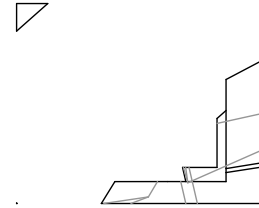
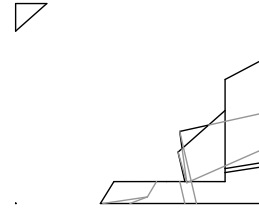
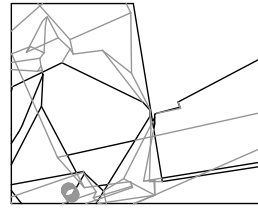
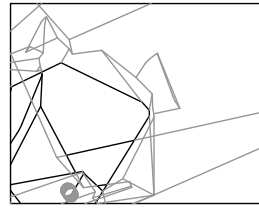
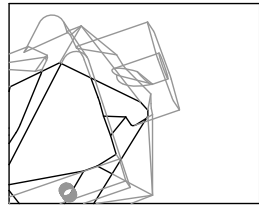


PRINT 5

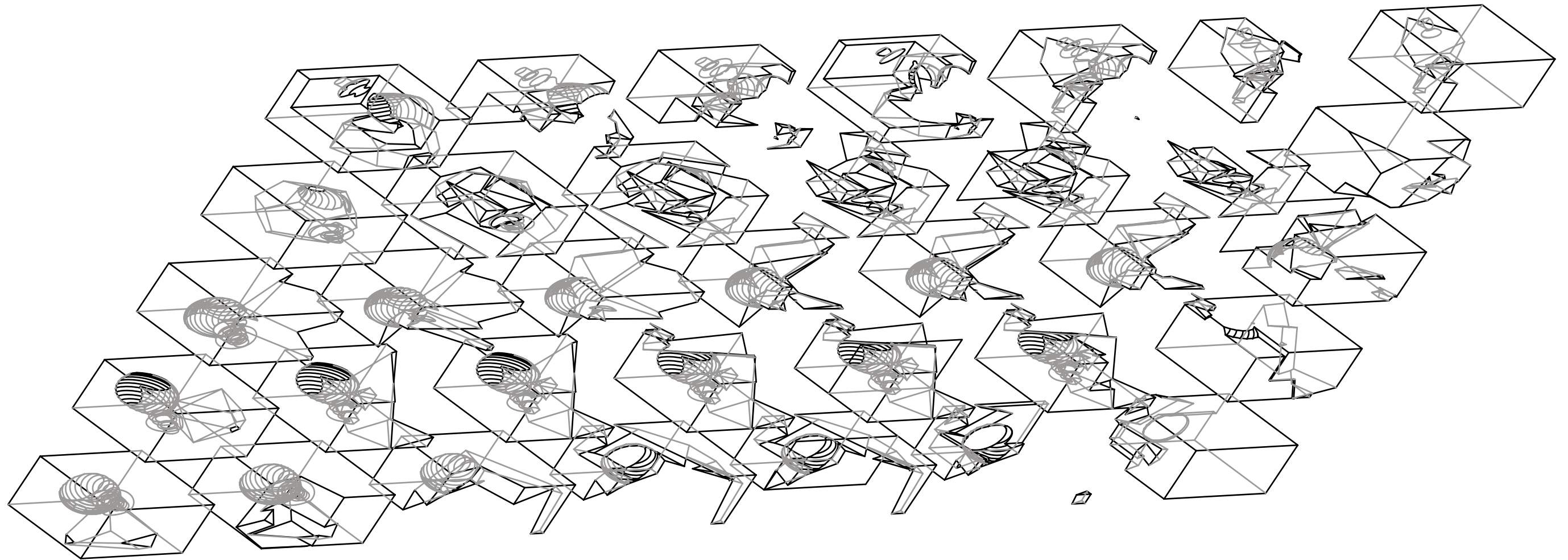




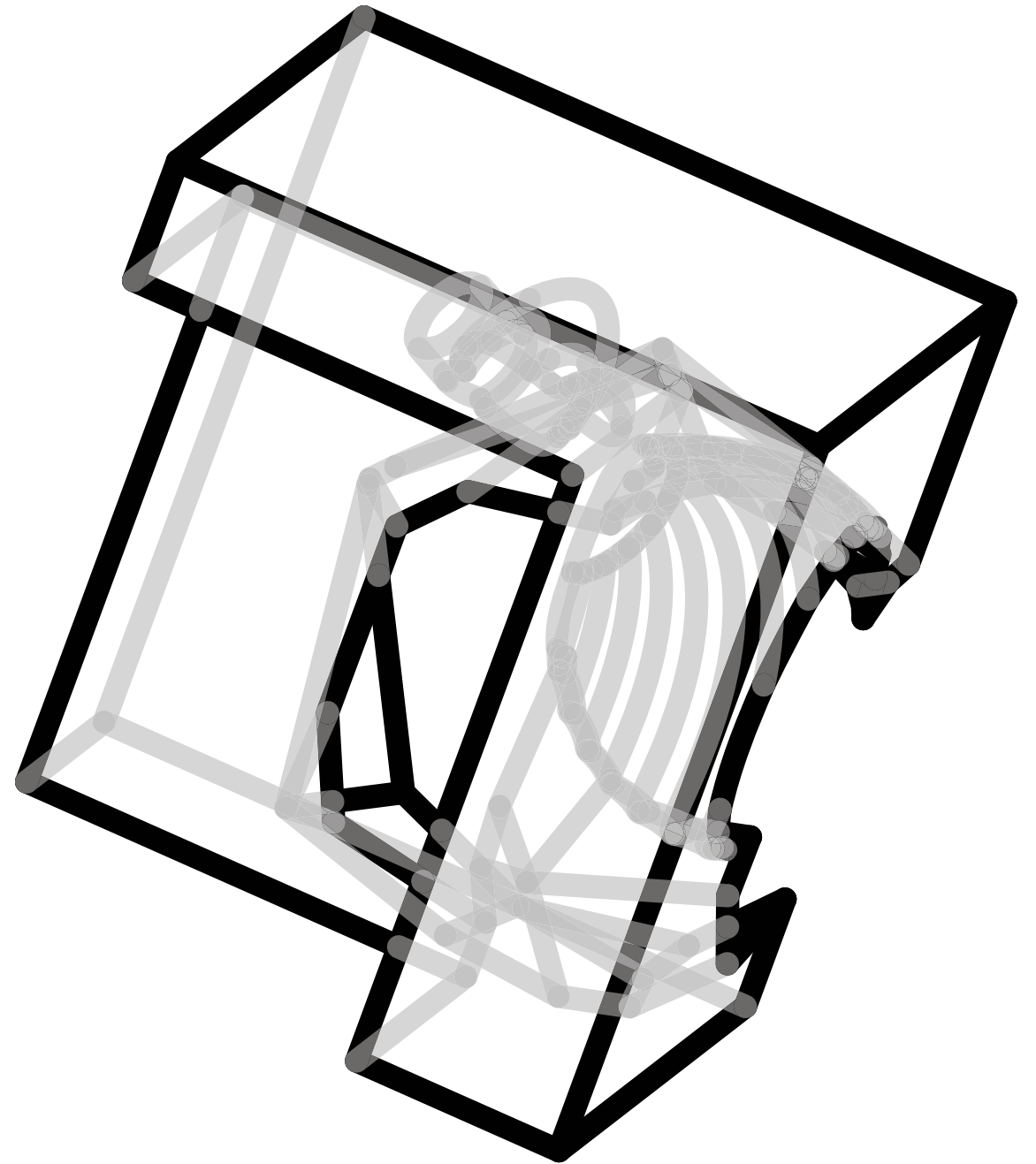
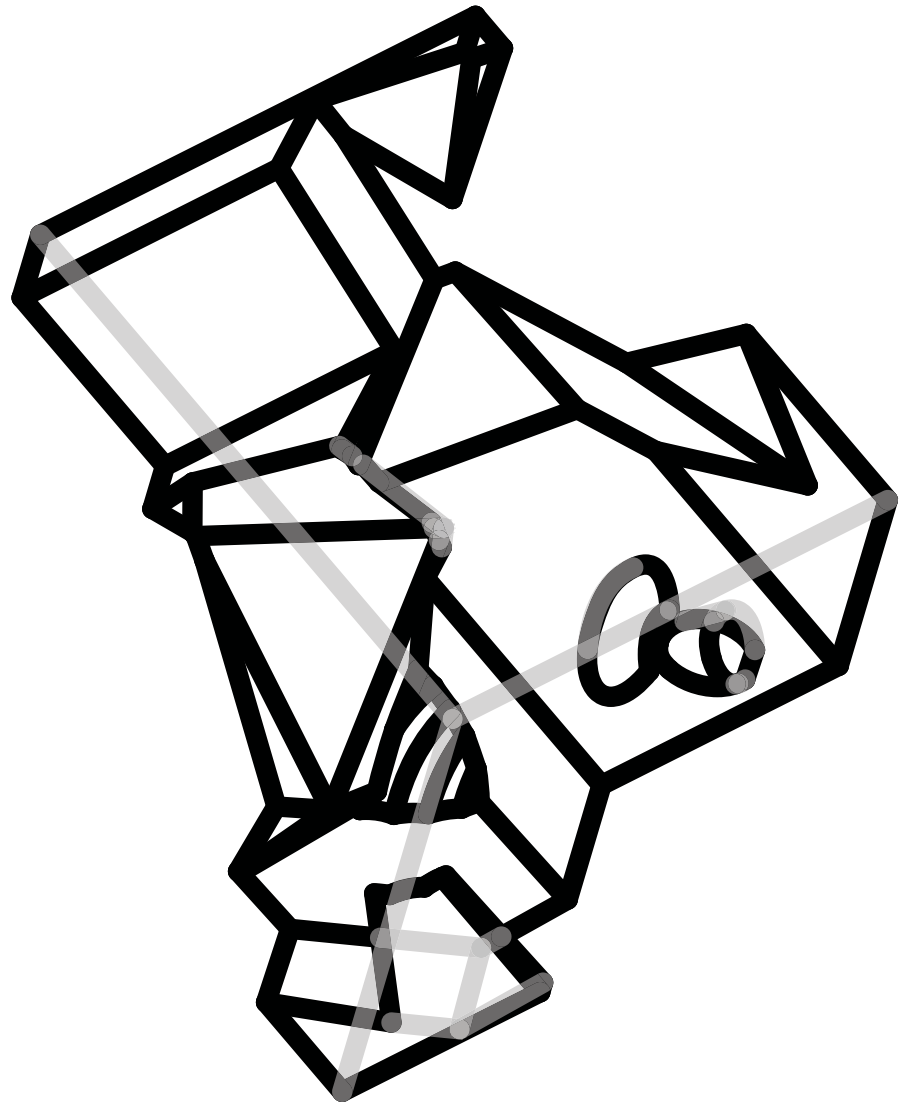
DIGITAL COLLEGE OF
PRINTS



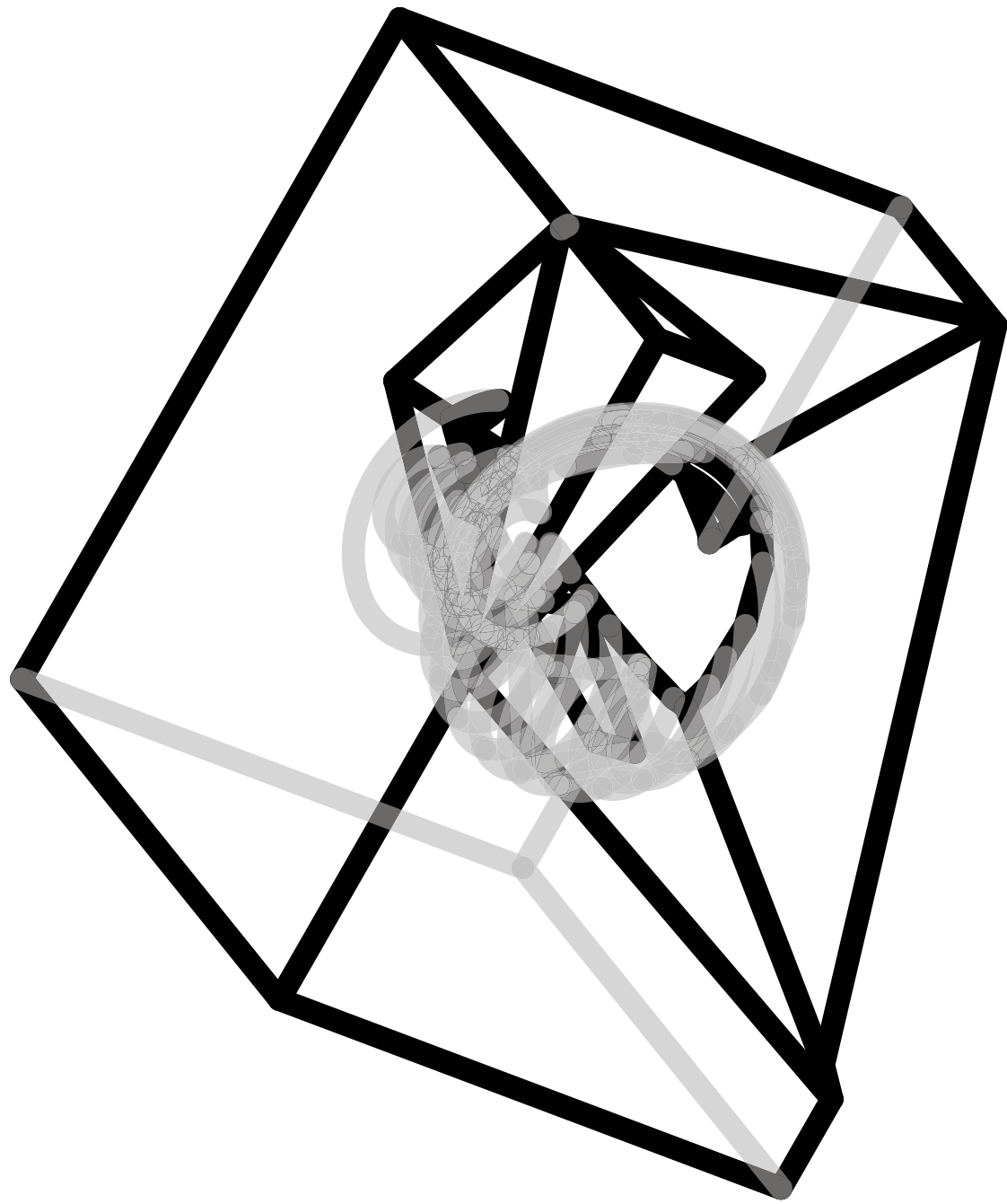
EXPORTS



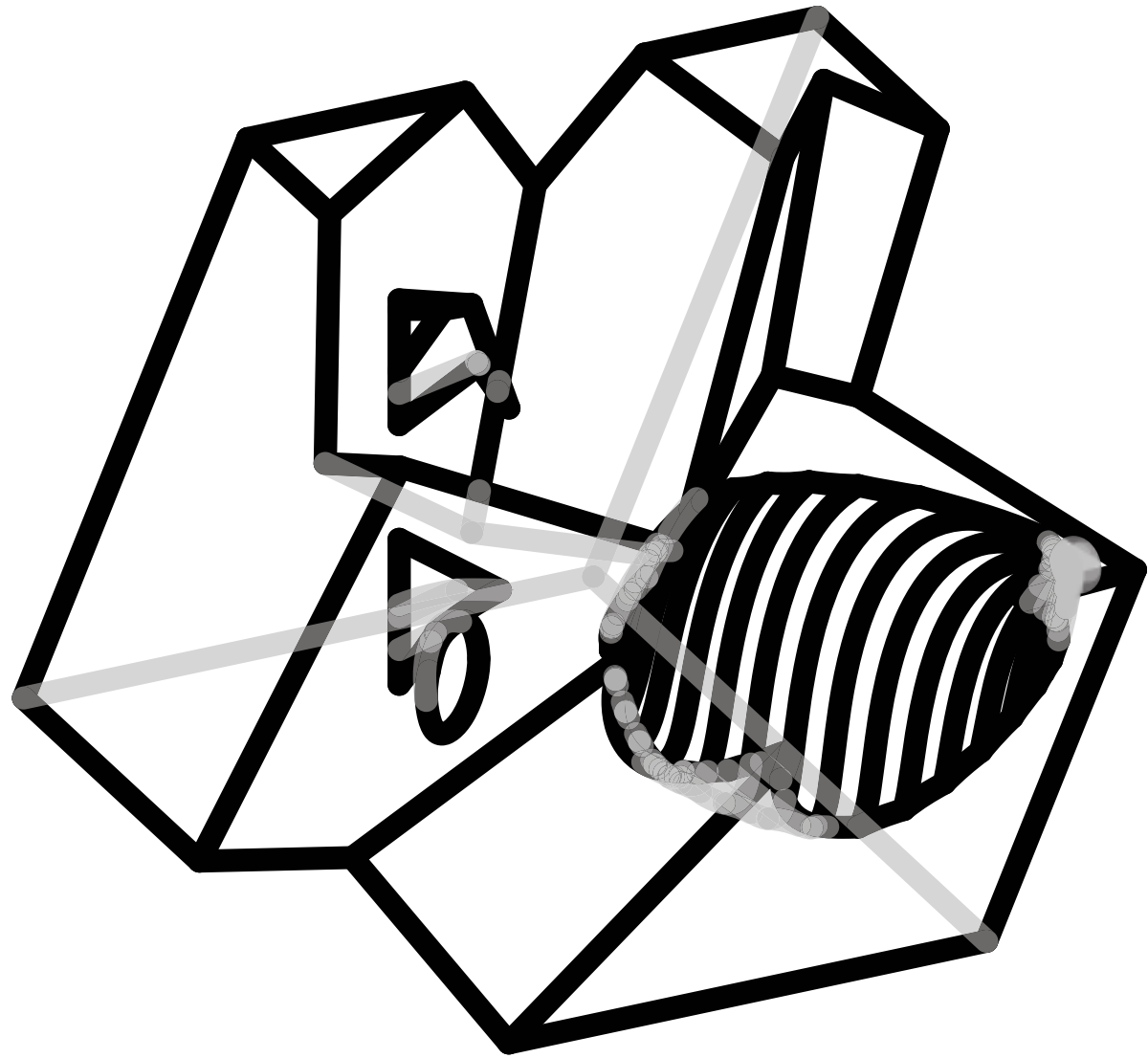
EXPORTS



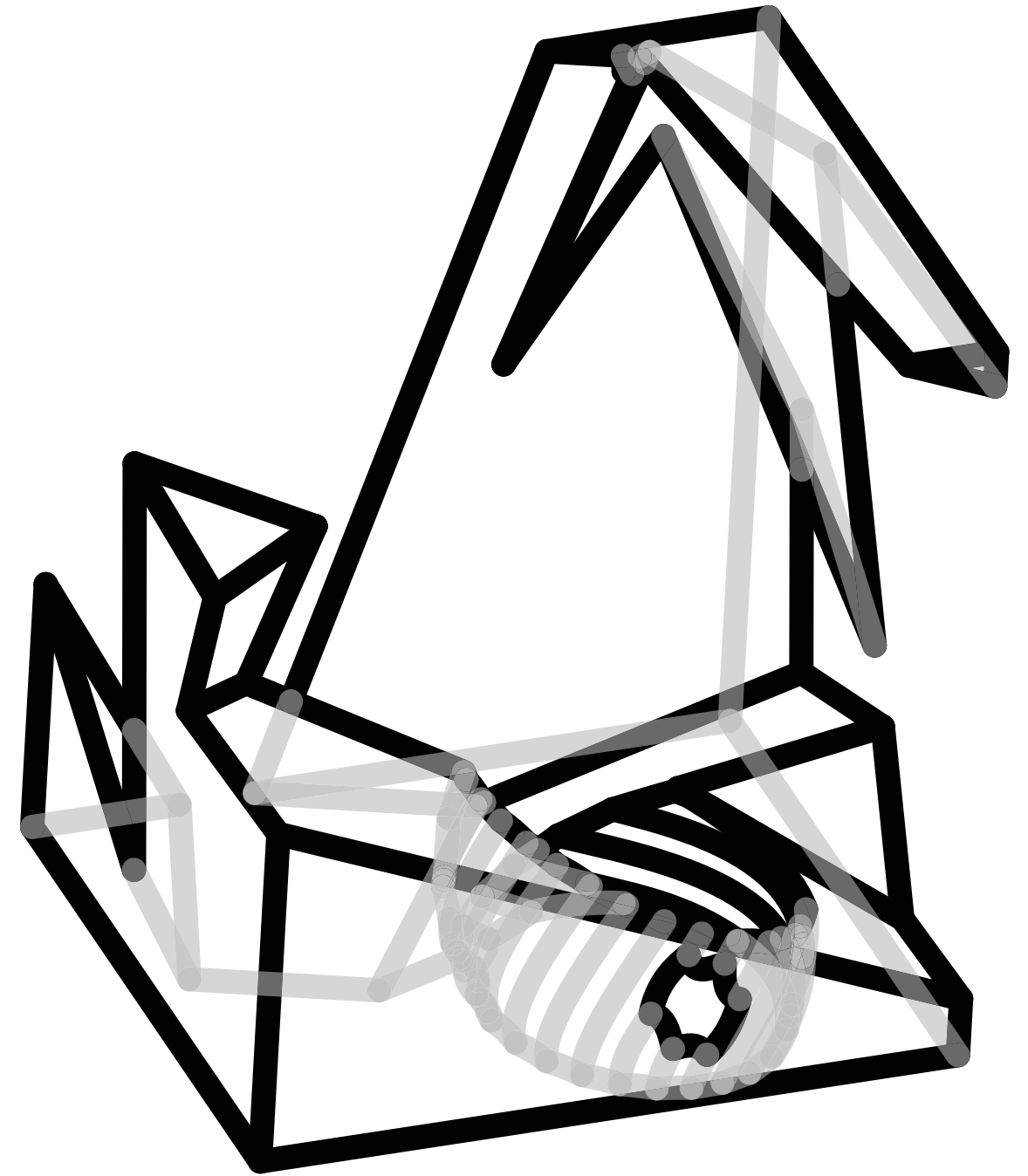
EXPORTS

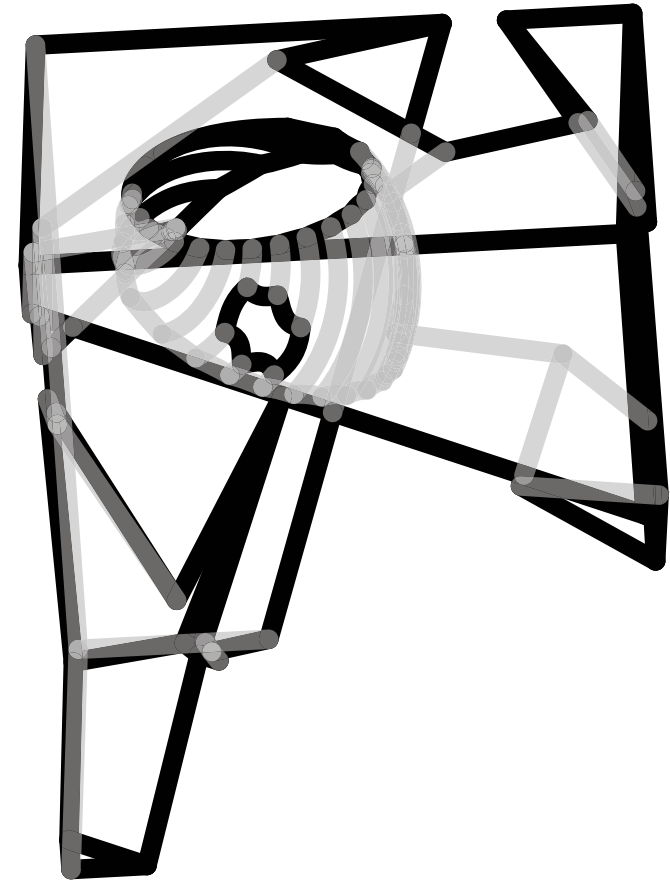
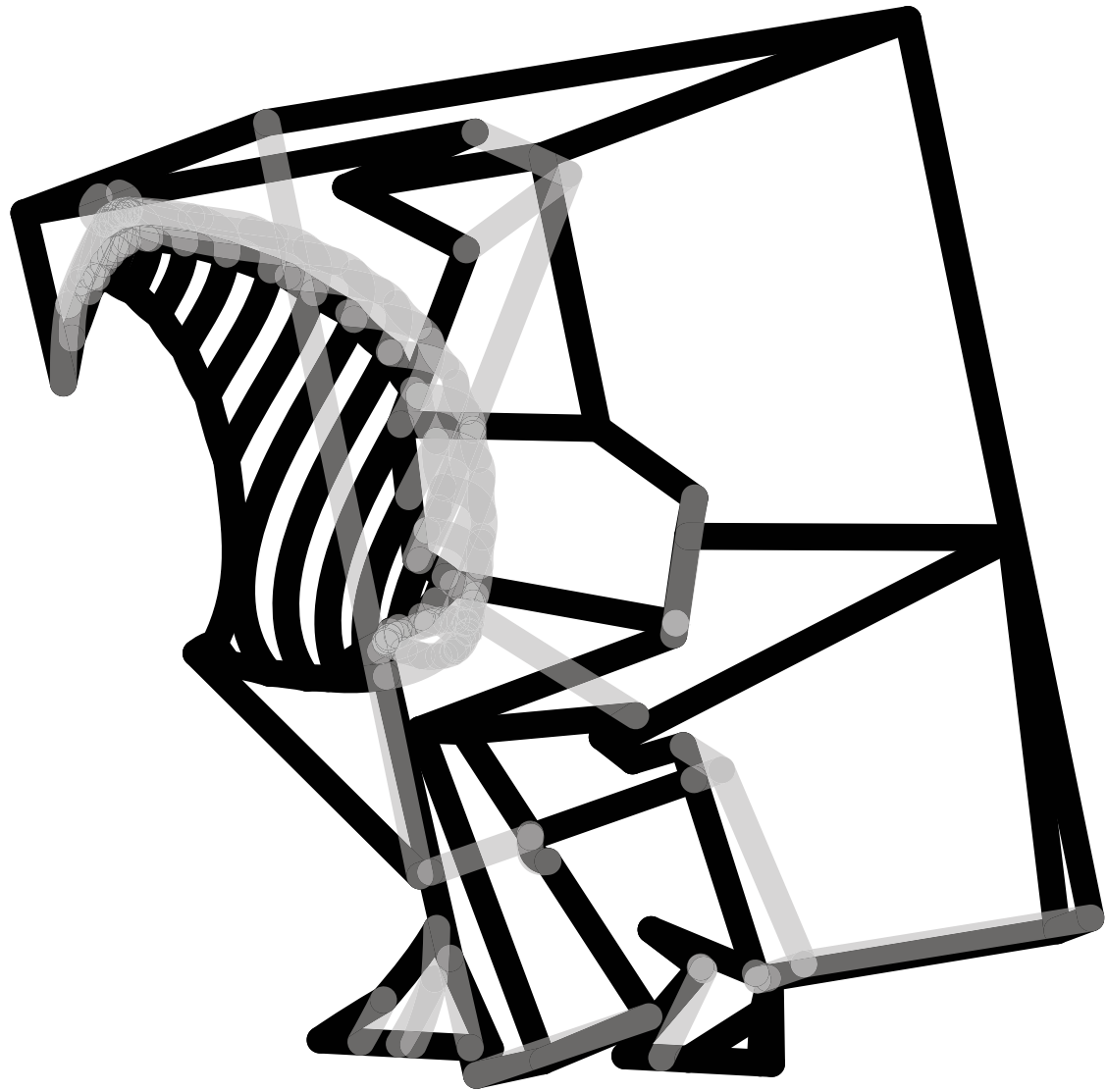


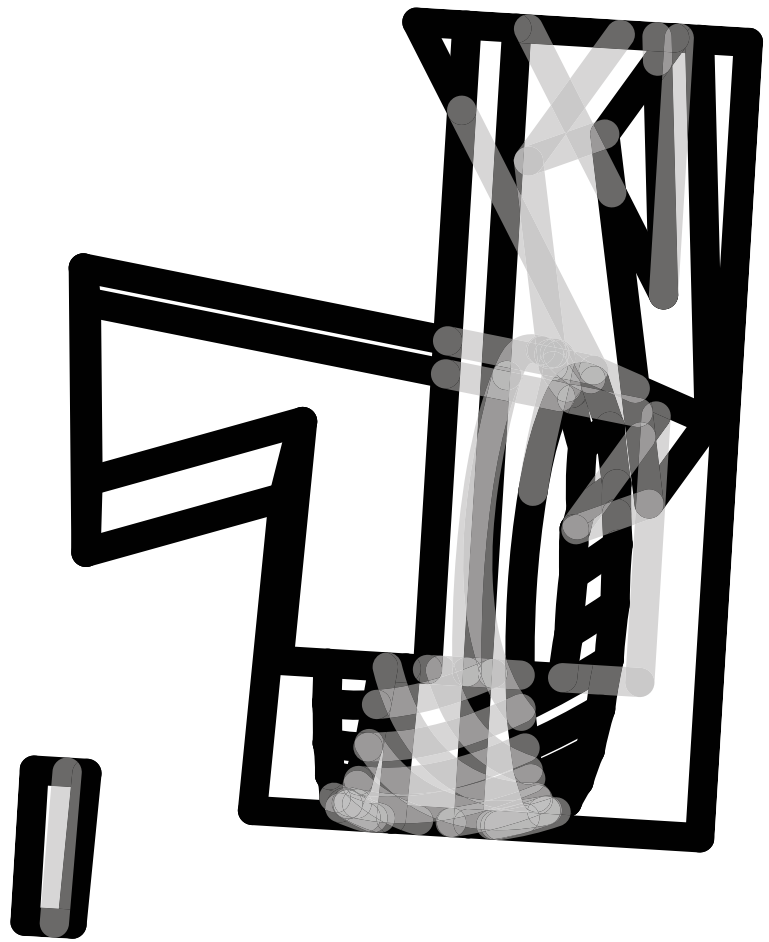
EXPORTS



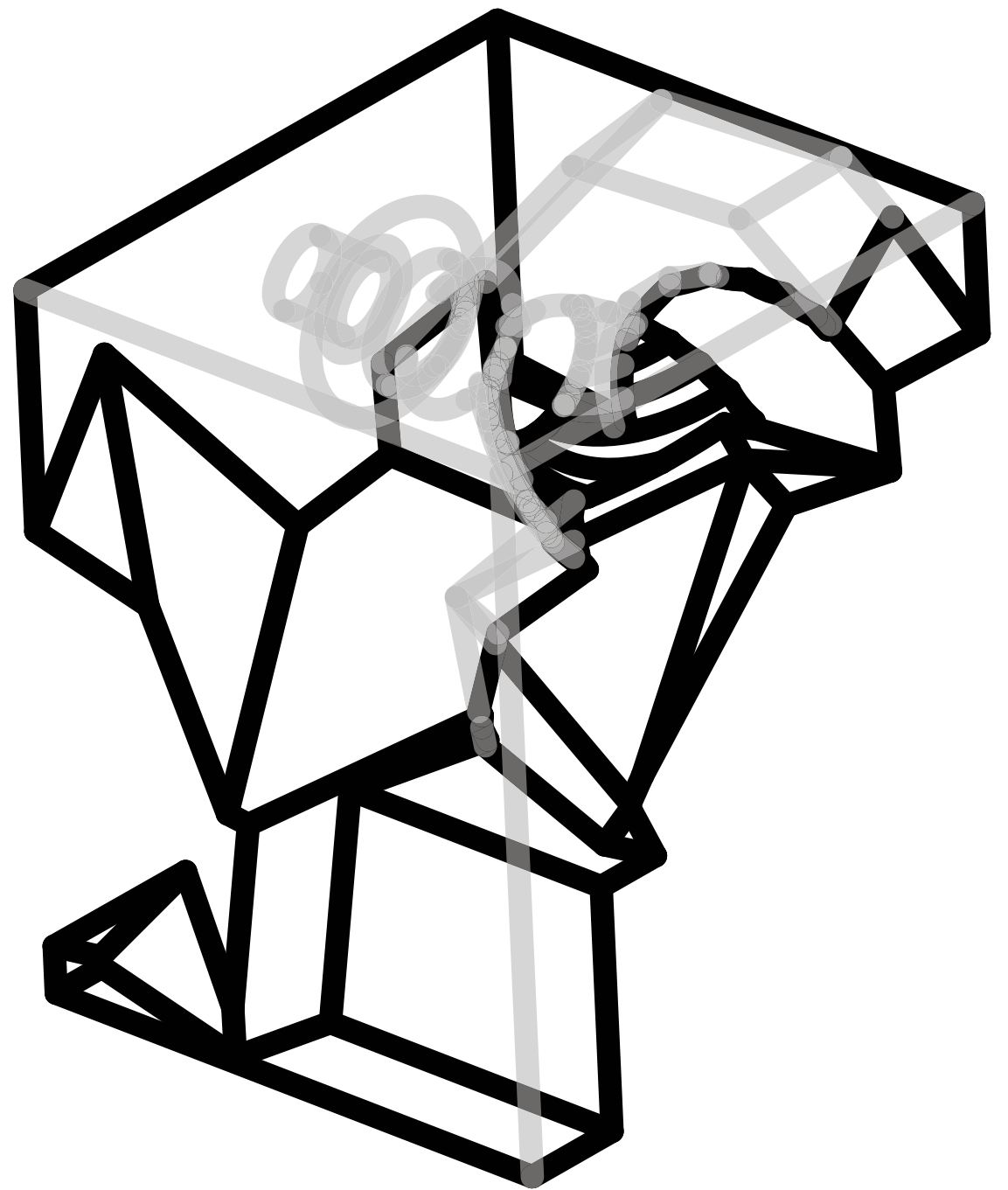
EXPORTS

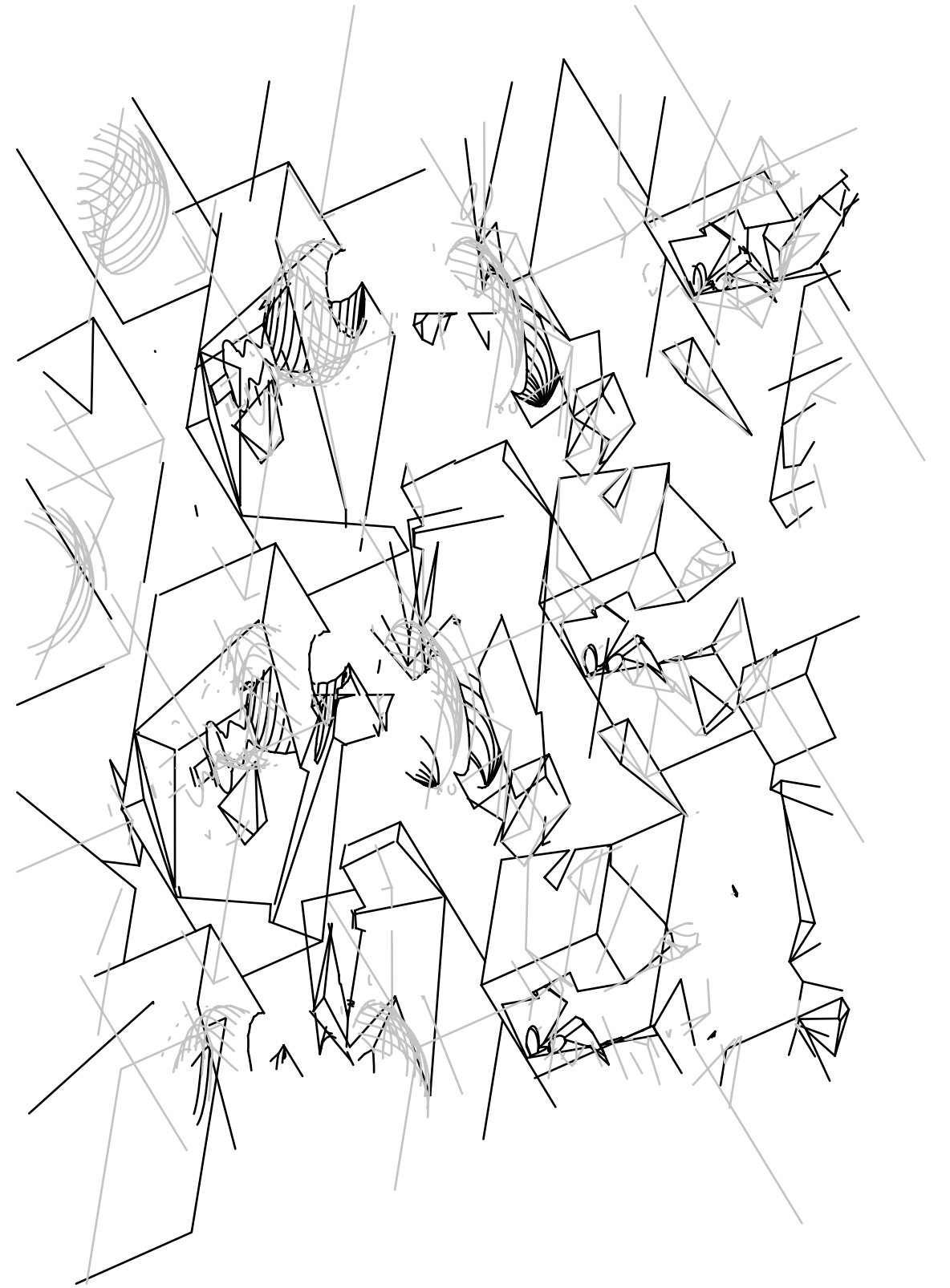
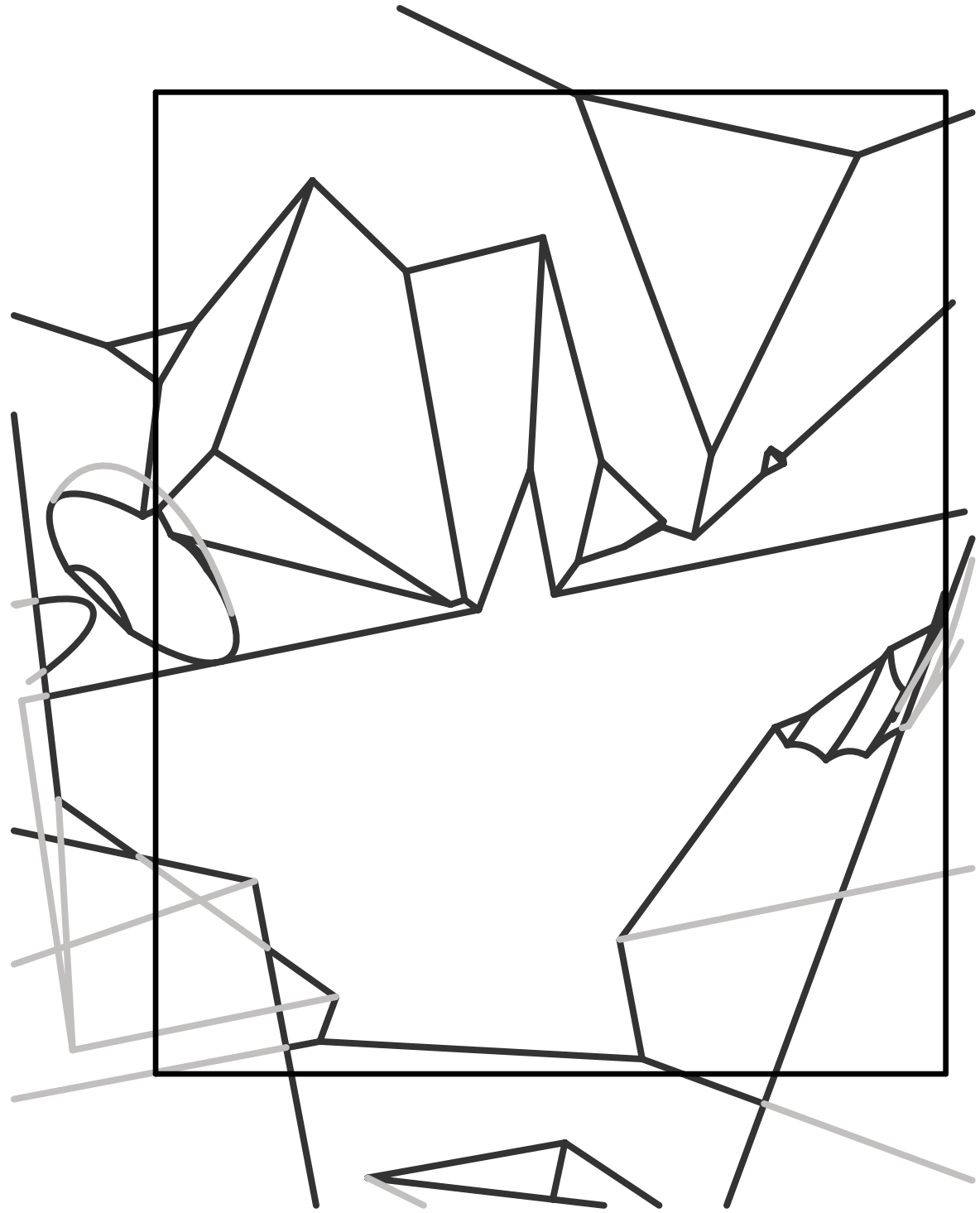


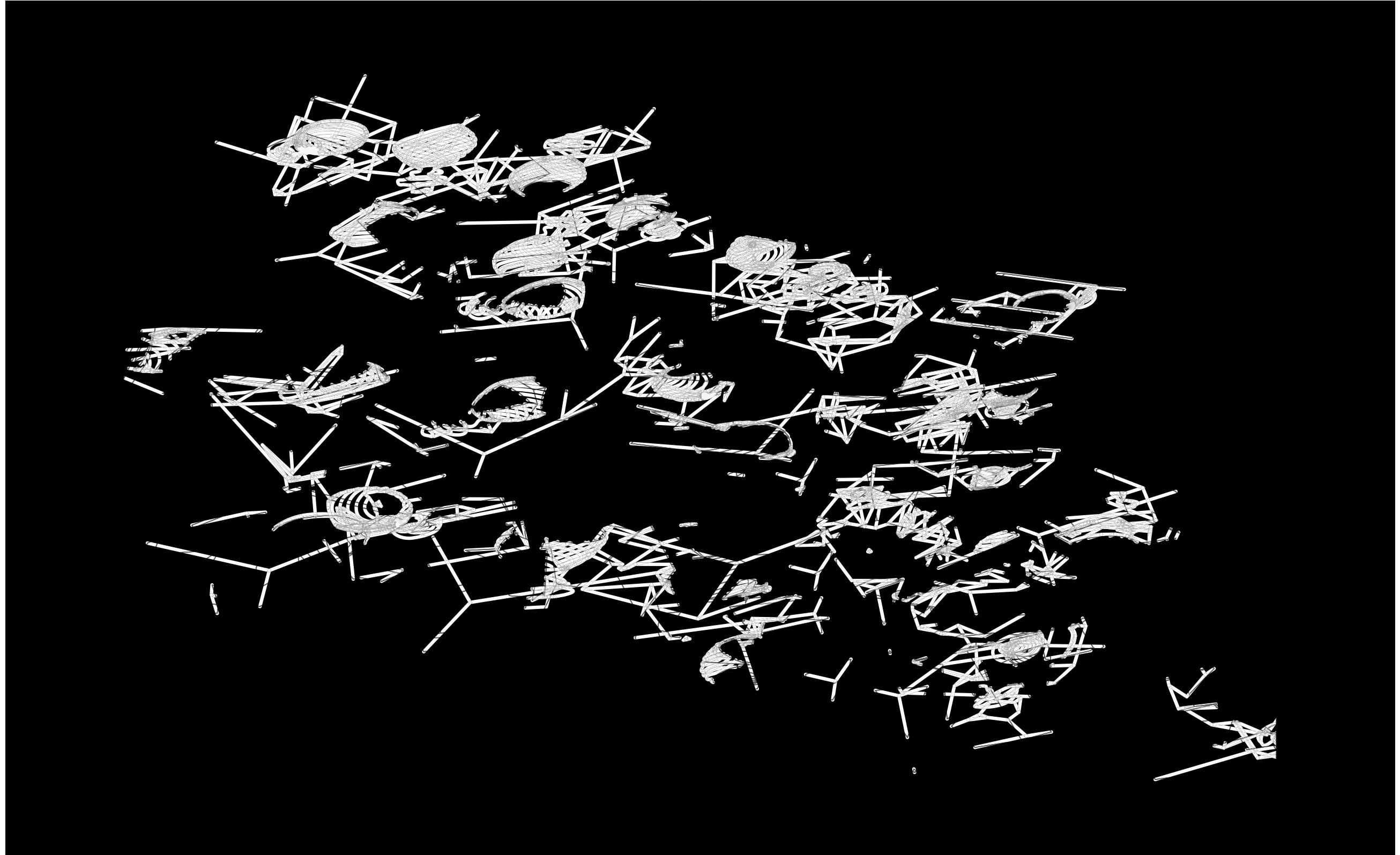




EXPORTS







The digital objects generated by experiment 3, and their 3D printed counterparts, exemplify the idea that collage-based and iterative formal generation may lead toward forms that could not be sketched, or otherwise imagined. Again, by erasing away semantic differentials of the original artifacts, it is possible to create new, unimaginable forms.

Experiment 4

While the artifacts that I unearthed at grabCAD.com were particularly useful because they were well designed, and were instantly operable within the elegant space of Rhino's fluid, curving, vector-based modeling, in my second digital experiment I began exploring the possibility of digital appropriation by way of crude 3D scanning. Using Autodesk's 123D Catch application, I assembled a personal archive of digital artifacts; essentially surreal doubles of formally compelling objects that I found in my environment. 123D Catch assembles 3D meshes by mapping pixels from 2D digital images in 3D space. Often times, due to problems with lighting conditions, reflective surfaces, hidden surfaces, transparent materials, and void spaces, the software creates bizarre "errors", and generates fantastical facsimiles of "real" objects. To see the process of erasure unfold in a different way, my first experiment with the 3D scanned digital artifacts was simply to destroy them according to their own structural logic. In a series of iterations, I reduced the resolution of each scan's mesh until the softwares could no longer render a form.



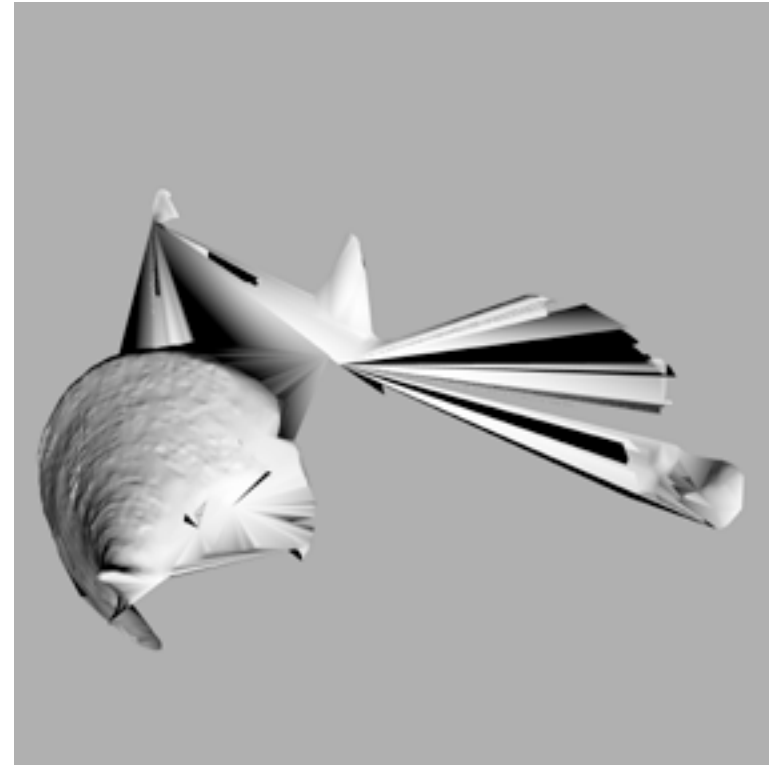
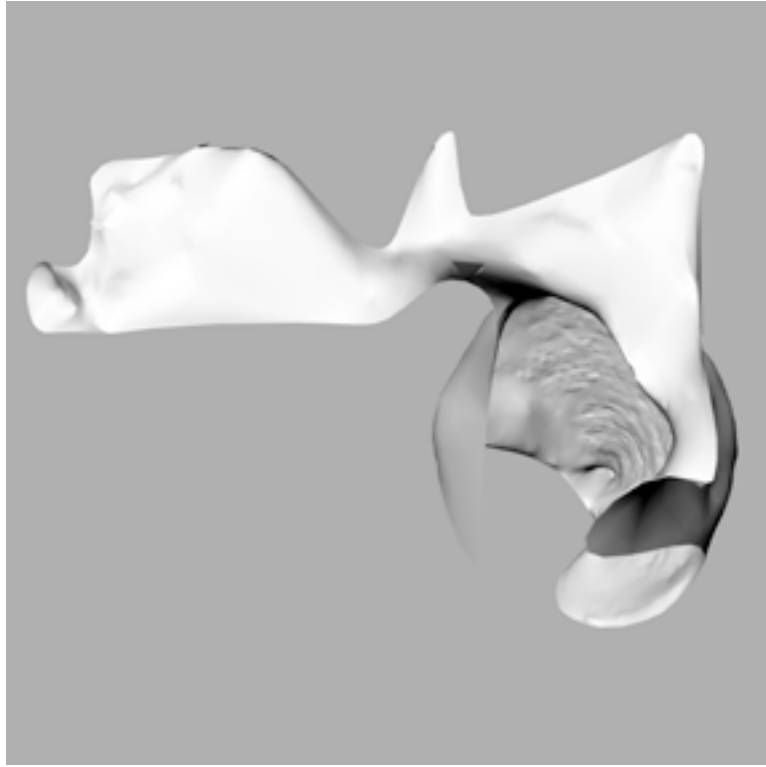
ITERATIVE FORMAL EXPERIMENT 4:

3D scans.
Traditional Rwandan Basket,
c. 2006.



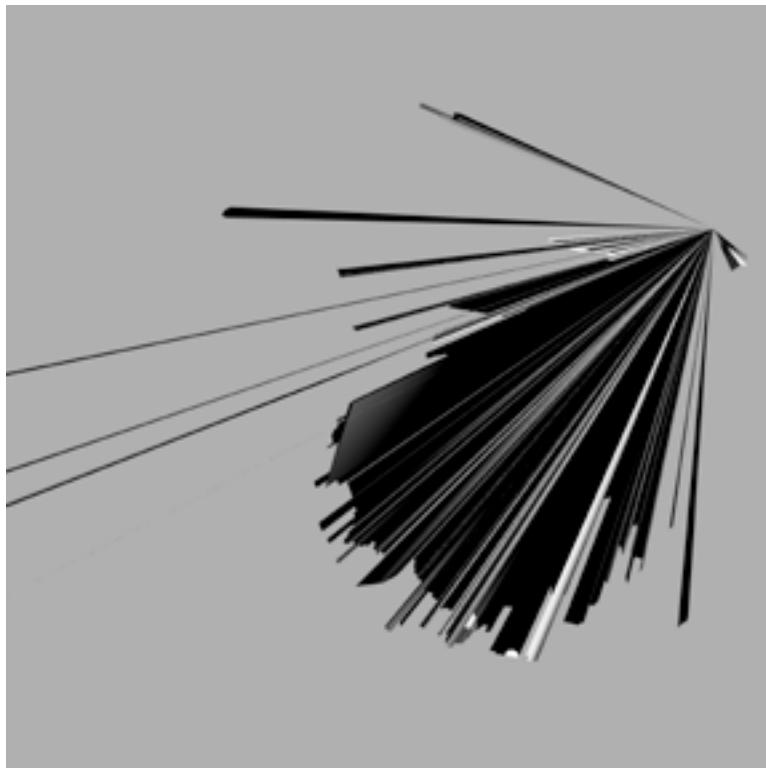
ITERATIVE FORMAL EXPERIMENT 4:

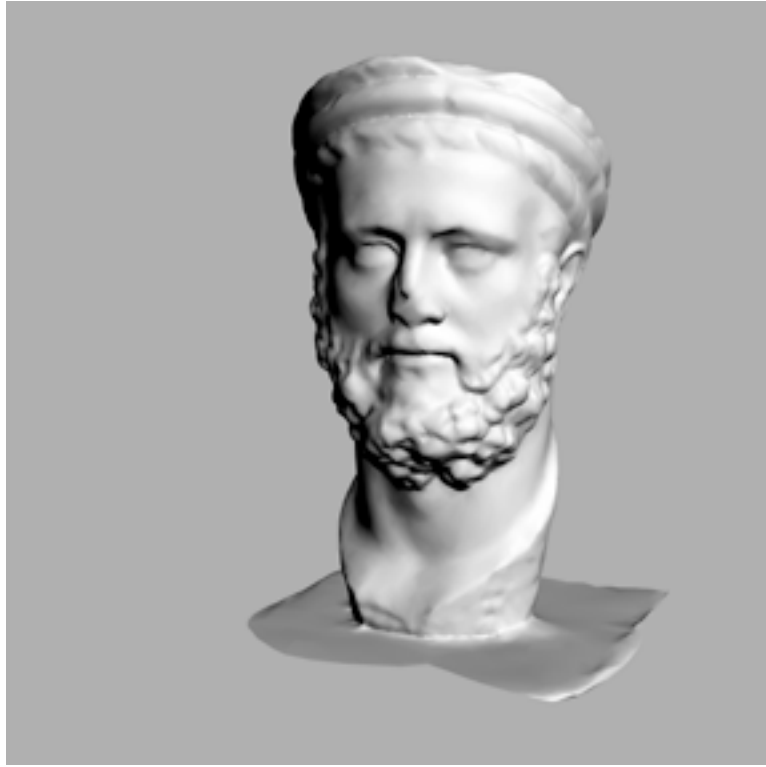
Classical Roman Bust, location
and artist unknown.



**ITERATIVE FORMAL
EXPERIMENT 4;
DEGENERATION OF MESH:**

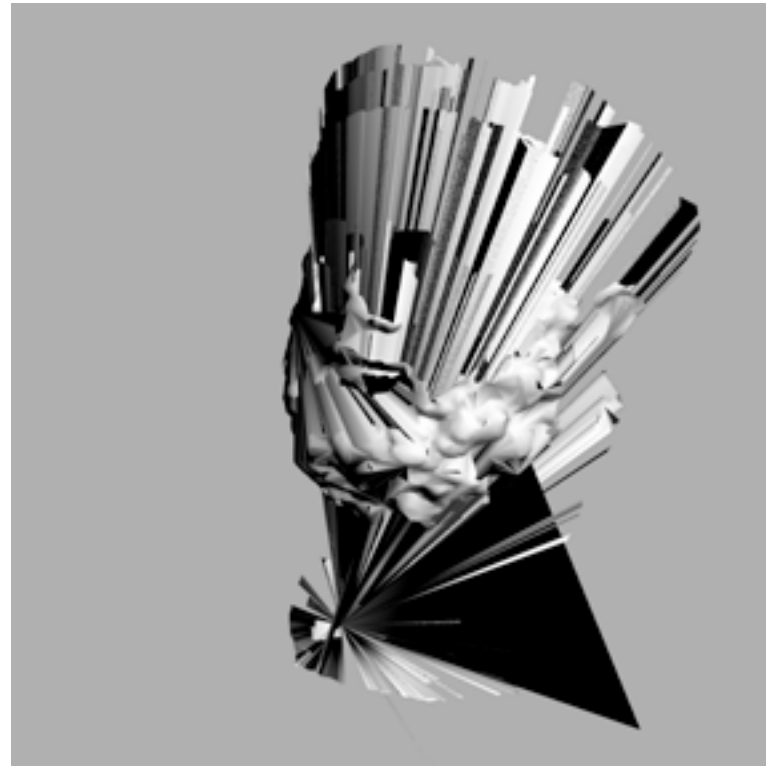
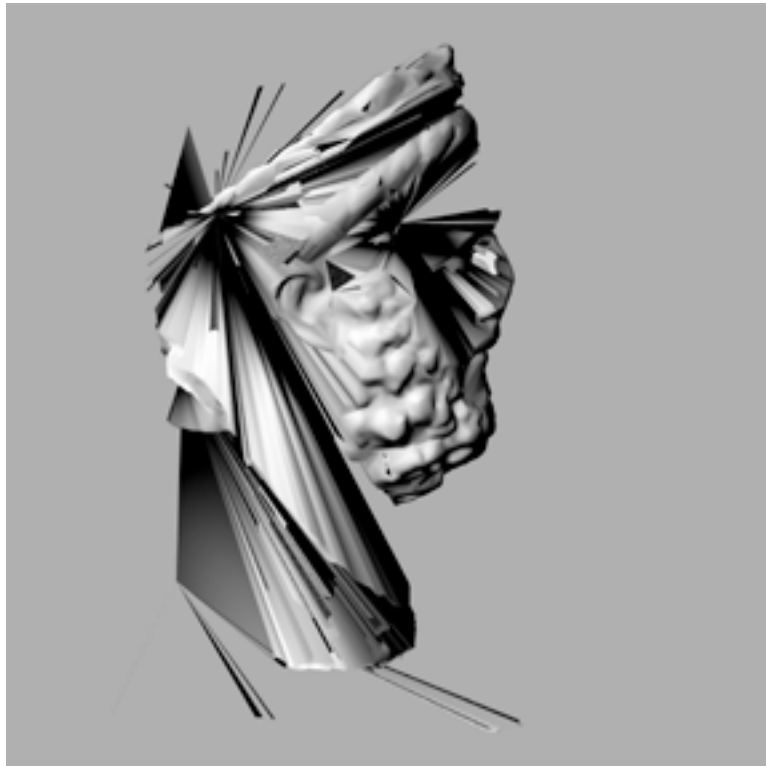
Using Rhino to collapse the appropriated mesh geometry of a hand-made Rwandan basket.



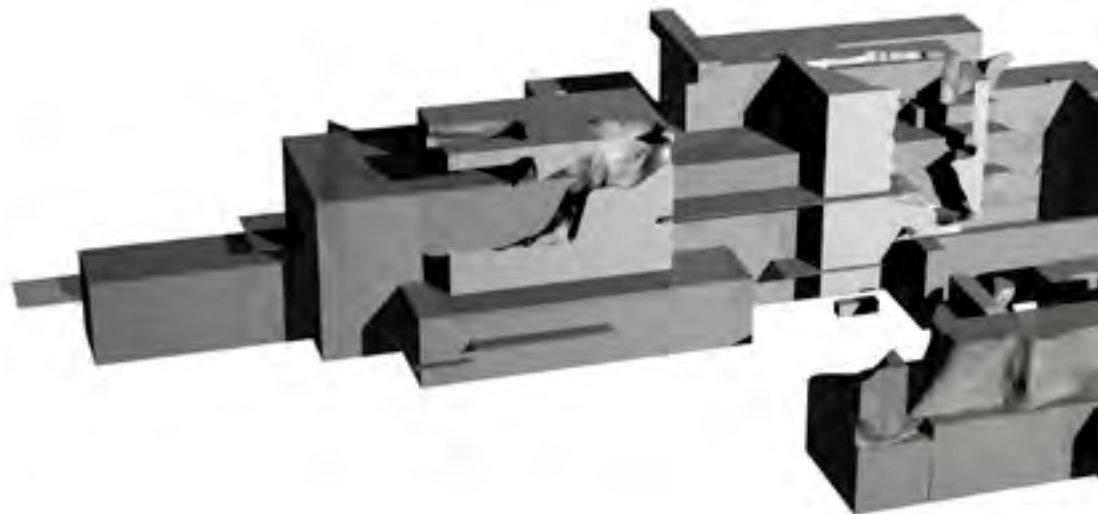


**ITERATIVE FORMAL
EXPERIMENT 4;
DEGENERATION OF MESH:**

Using Rhino to collapse the appropriated mesh geometry of a classical Roman bust.







Experiment 5

My last formal experiment returned to the idea of the ghost ship, this time manifesting as an explosion of the container grid. With an array of new forms for the "ship" to "transport", I felt ready to build objects that could escape beyond the cubic language of the singular container unit. In experiment 4, the ship and the container become one.

Selected Digital Artifacts:

1. Downloaded, 3D modeled reinterpretation (<https://grab-cad.com/library/malevich-s-modern-buildings>) of Kasmir Malevich's *Modern Buildings*, 1924, graphite on paper.
2. 3D scanned artifact from the De Young Museum: Franklin Simmons, *Penelope*. 1896.

The semantic specificity of selected artifacts becomes much more tied to the history of design in this last experiment. As a way of building a ghost ship marked by post-industrial formal semantics, I chose a representation of Malevich's "Modern Buildings" as a way to reference what is essentially



ITERATIVE FORMAL EXPERIMENT 5 NEW FORM

3D construction of Kasmir Malevich's *Modern Buildings*, destroyed using a fragment of appropriated classical drapery sculpture as a cutting tool.

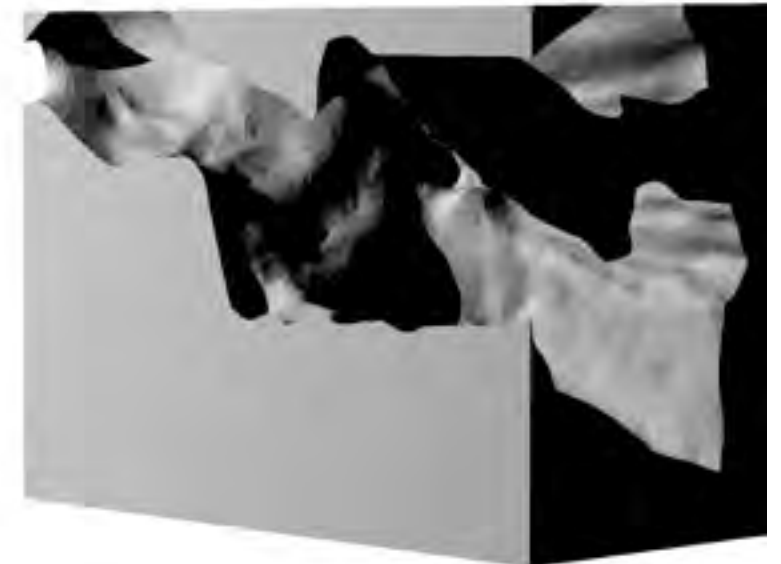
the formal genesis for modern design vocabularies; I then destroyed the purely architectonic vocabulary of the Suprematist ship with fragments of its formal and ideological opposite—a snippet of drapery geometry from the sculpted marble neoclassical sculpture *Penelope*.

Again, experiment 4 is framed by a balance between chance and biased operations, with further formal constraints:

1. *For each cut, rotate cutting fragment in increments of 90 degrees. Only change scale of cutting fragment +/- 50%. For each cut, attach fragment to a surface of the Suprematist ship, and move it a random number of units into the ship's volume, no less than half of the depth of the cutting tool, and up to the full depth of the tool. In this way, evidence of each subtraction is significantly visible on the ship's form. Repeat until the two formal vocabularies balance against each other.*



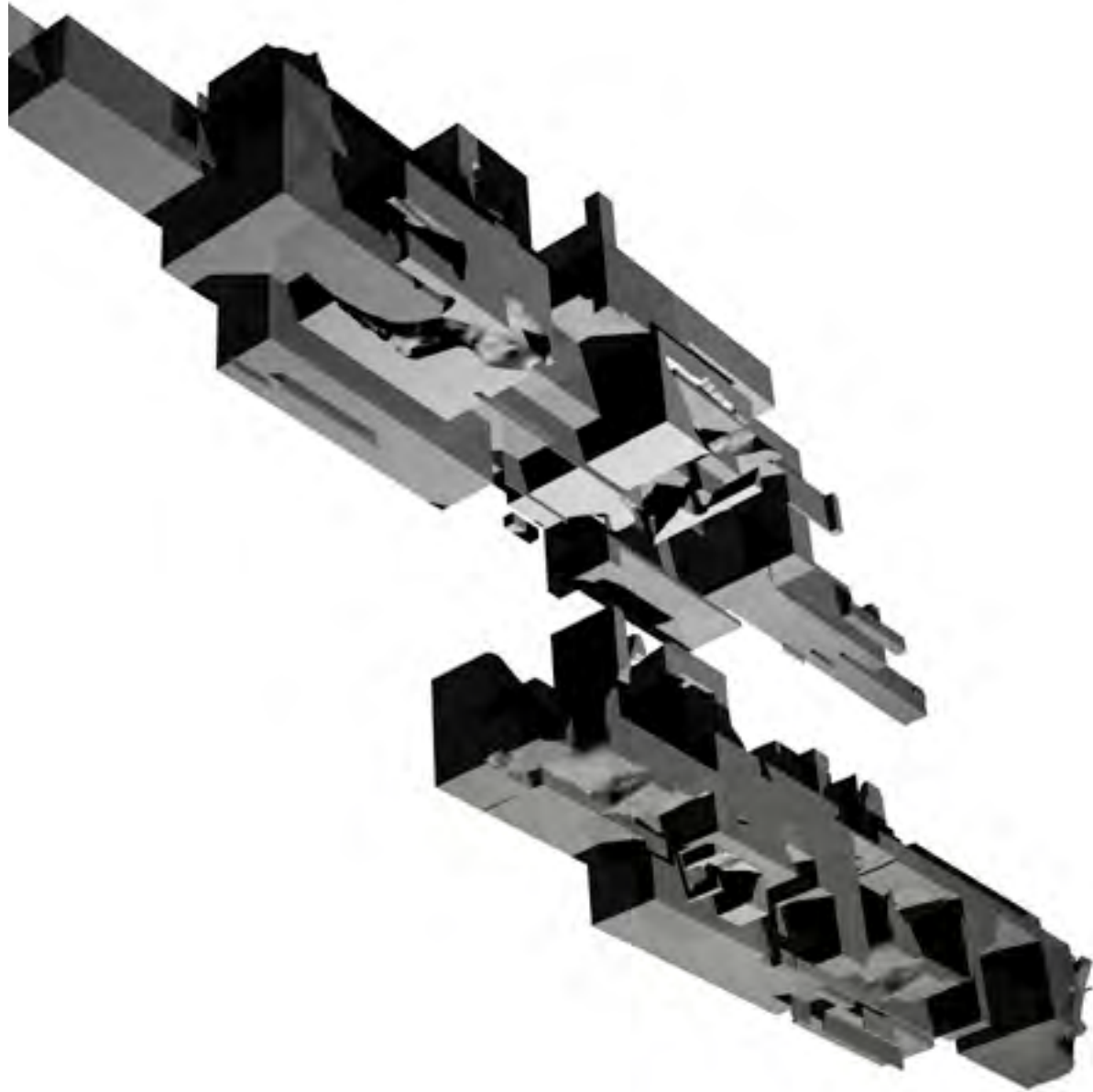
3D SCANS.
Frank Simmons. *Penelope*, 1896



NEW FORM

Fragment of appropriated classical drapery sculpture, used as a cutting tool. Detritus from cuts included.

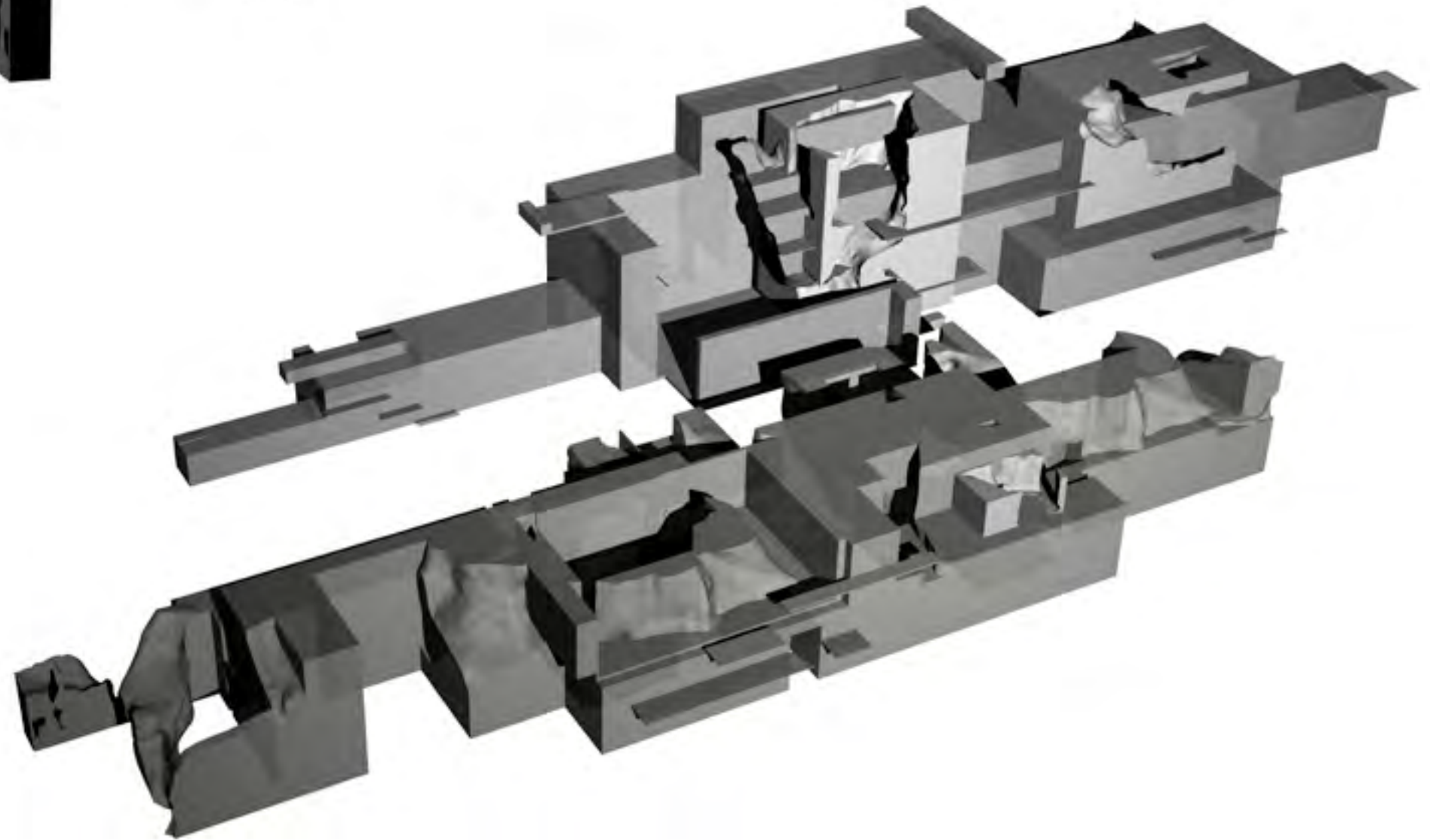
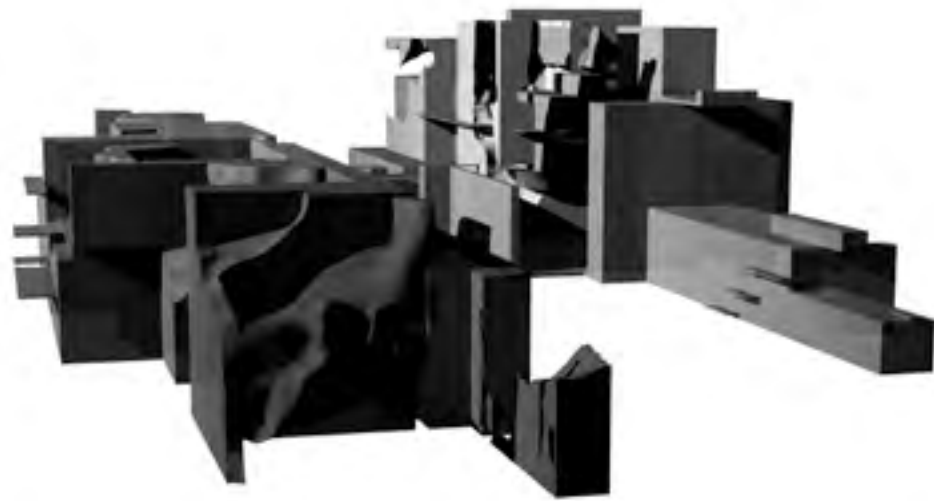




NEW FORM

Suprematism x Classicism





NEW FORM

Suprematism x Classicism



Making Sense

When I first encountered the stacks of shipping containers at Oakland's port, I couldn't help but recall the arc of Modernist painter Piet Mondrian's formal development. From paintings like *Grey Tree* (1912), to *Broadway Boogie Woogie* (1942-1943), we see Mondrian's effort to systematically and iteratively erase away particularity of form in order to reveal, what was for him, an essential vocabulary related to universality and spiritualism. Yet as we have seen, this modernist metanarrative of leveling is dangerous—in a world of capitalist enterprise, it leads toward an expressive void, in favor of a false premise. As individuals with different histories and contexts, we simply do not perceive objects in the same way. There is no universality in the way we perceive our world, nor ought there be universal forms for the things with which we fill it.

In opposition to Mondrian's strategy, and later, specifically with reference to the work of high-modernist counterpart Kasimir Malevich, I also used erasure, or leveling,; but rather to aim my work at singular particularities. What matters in these experiments is that by using erasure, an appropriated, fragmented artifact might begin to signify not a universal, but rather a distinctly personal and particular sensation.

In the future, all of the digital tools I've used for this project will become ubiquitous, like word processing softwares and ink jet printers. Today, on-line content creation is still in its infancy: self-publishing will soon relate not only to traditional media, but also products and objects of design. Archives of such objects will grow, multiply, and become more useful, and more compelling. And so the experimental form-making processes I have elaborated might become a tool to be utilized by anyone and everyone—performed on any and everything. After a century of homogeneous, modernist-Fordist product semantics, digital collage and manufacture could point the way toward a new strategy for designing objects.

Yve-Alain Bois and
Joop Joosten:

**Piet Mondrian,
1872-1944.**

Milan: Leonardo arte,
in association with the
National Gallery of Art
[and] the Museum of
Modern Art, New York,
1994.

ANNOTATED BIBLIOGRAPHY

Adorno, Theodor.

Essays on Music; Late Style in Beethoven

Berkeley, California: University of California Press, 2002.

Many thinkers have referred to Adorno's concept of "late style". In "Essays on Music", originally published in 1937, Adorno describes Beethoven's end-of-life symphonies as exemplar of a way of making or thinking, in which mastery and control are thrown out, in favor of "unproductive productiveness". Such unteathered and explorative forms of creation can be a means for breaking away from late cultural stasis. My research brought me into contact with late-style as addressed by Peter Eisenmann, Edward Said, and Thomas Pynchon.

Barthes, Roland.

A Lover's Discourse: Fragments

New York: Hill and Wang, 1978.

Barthes addresses various concepts surrounding the idea of love, by way of annotated textual fragments-- references to other thinkers, writers, and Barthes' own prose and memories. By way of the structure of the text, Barthes builds a discourse which teases out the looping difficulties in separating emotions like love, desire, and melancholy. Especially useful to designers is Barthes' discussion of "atopos"; the unknowable quality of a "loved being" that allows one to say, "That's just my type!"

Bois, Yves-Alain, et al.

Piet Mondrian 1872-1944.

Milan: Leonardo arte, in association with the National Gallery of Art [and] the Museum of Modern Art, New York, 1994.

Mondrian's theosophical treatment of the image is a starting place for the critique of the Modernist meta-narrative. While I am not interested in the sort of universalism that Mondrian sought, I am very much interested in his serial mode of working.

Borges, Jorge Luis, and Anthony Kerrigan.

Ficciones.

New York: Grove, 1962. Print.

Especially concerning "The Library of Babel", Borges creates fictions that hypothesize new meanings and possibilities for culture across space and time. Of central concern for Borges is the nature of language, and how language may simultaneously create linkages and void space between cultures.

Burdick, Anne; Drucker, Johanna; Lunenfeld, Peter; Presner, Todd; and Schnapp, Jeffrey.

Digital Humanities.

Cambridge, MA: MIT, 2012. Open access edition: http://mitpress.mit.edu/sites/default/files/titles/content/9780262018470_Open_Access_Edition.pdf

Digital Humanities addresses the way in which interface design, experience design, open source digital culture, and other digital design disciplines are now merging with traditional humanistic research in ways that for the first time since the Renaissance, allow for truly transdisciplinary research and cultural production. Burdick et al argue that design now has an ethical obligation to understand how rich media interactions affect the meaning of what was traditionally considered to be the "content".

Debord, Guy.

A User's Guide to Detournement.

1956. Published online by The Bureau of Public Secrets: <http://www.bopsecrets.org/SI/detourn.htm>

"Any elements, no matter where they are taken from, can be used to make new combinations. The discoveries of modern poetry regarding the analogical structure of images demonstrate that when two objects are brought together, no matter how far apart their original contexts may be, a relationship is always formed. Restricting oneself to a personal arrangement of words is mere convention. The mutual interference of two worlds of feeling, or the juxtaposition of two independent expressions, supersedes the original elements and produces a synthetic organization of greater efficacy. Anything can be used."

Foster, Hal (editor).

The Anti-Aesthetic: Essays on Postmodern Culture.

New York, NY: The New Press, 2002. Print.

Critics including Hal Foster, Frederick Jameson, Edward Said, and Jean Baudrillard propose ways in which postmodernism, characterized by fragmentation, temporality, and simultaneity, is changing cultural frameworks. My impression is that postmodernism is a cynical response to a violently powerful neoliberal economic agenda-- nonetheless, the postmodern argument that globalized capitalist culture has forever destabilized cultural metanarratives seems inescapable. There should be a formal response to this problem-- there may be an opportunity to return to some sort of "authentic" experience by creating hybrid cultural experiments.

Harvey, David.

A Brief History of Neoliberalism.

Oxford University Press, USA; 2007. Print.

Harvey's Neoliberalism describes how the convergent social and economic policies of Ronald Reagan, Margaret Thatcher, and Deng Xiopeng, and the Chicago School of neoliberal economic theory brought about our

current global late-capitalist economic condition. Harvey describes the repercussions and paradoxes of neoliberalism's two core tenants: complete deregulation of global capital markets, and the restoration of class power. Harvey's Neoliberalism describes how these policies, combined with neoliberal interventionary practice on the part of Wall Street, the IMF, and the World Bank, have devastated societies and economies across the developing world.

Kafka, Franz.

The Trial.

New York: Knopf, 1957. Print.

The absurdity of the bureaucratic state and systems for social control... loss of agency in modern cultures...entropy of language.

Paz, Octavio; and Weinberger, Eliot.

19 Ways of Looking at Wang Wei: How a Chinese Poem is Translated.

New York, NY: Moyer-Bell, 1987

Paz and Weinberger add comments to 19 different translations of a classical Chinese Poem by Wang Wei around 700 AD. Paz offers his own translation as well. A beautifully nuanced analysis of what is lost, or at the very least transformed, in the act of translation.

Sukela, Alan.

Fish Story.

Out of print-- online pdf: http://fadingtheaesthetic.files.wordpress.com/2013/08/fish_story.pdf

Fish Story is a guide, by way of both philosophical inquiry and photo essay, through the networks that enable transcontinental trade of goods. Sekula considers how the logic of ports can shed light onto the workings of late capitalist exchange.

