

CERRITOS COLLEGE ART GALLERY

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ART GALLERY

Cerritos College
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NATURAL HISTORY | JEFF CAIN

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PROJECT OVERVIEW

The newly established Cerritos College ART+TECH Artist-in-Residency was designed to be an annual program with an unique pedagogical vision: bring a professional visual artist to the Cerritos campus and give them free range to experiment, on a rotating departmental basis, with the advanced technology resources available there.

By inviting a practicing artist into the somewhat unexpected environment of vocational technology education, the program strives to inspire technology students to reimagine the boundaries of their discipline, as well as to encourage art students to explore alternative/non-traditional mediums for creative expression. During the inaugural 2014 residency period, the divisional technology partner was the Engineering Design department, with this coming year's partner slated for Automotive Repair.

For the November 2014 residency, artist Jeff Cain was selected to work with Cerritos College faculty and a cross-section of students from both the Art department's 3D-Design program and the Engineering Design Technology program. Together, they collaborated to help produce Cain's vision for life-sized 3D-printed sculptures inspired by spatial scans of taxidermied animal specimens on display at the Los Angeles Natural History Museum, as well as from the artist's own private holdings.

These animals, native to the western-half of the American continent, are loaded with semiotic significance to our collective understanding of pristine wilderness and, simultaneously, the human encroachment that threatens its very existence. The coyote, which was ultimately chosen to be featured in the exhibition, additionally has art historical associations, most notably Joseph Beuys' famous 1974 performance, *I Like America and America Likes*

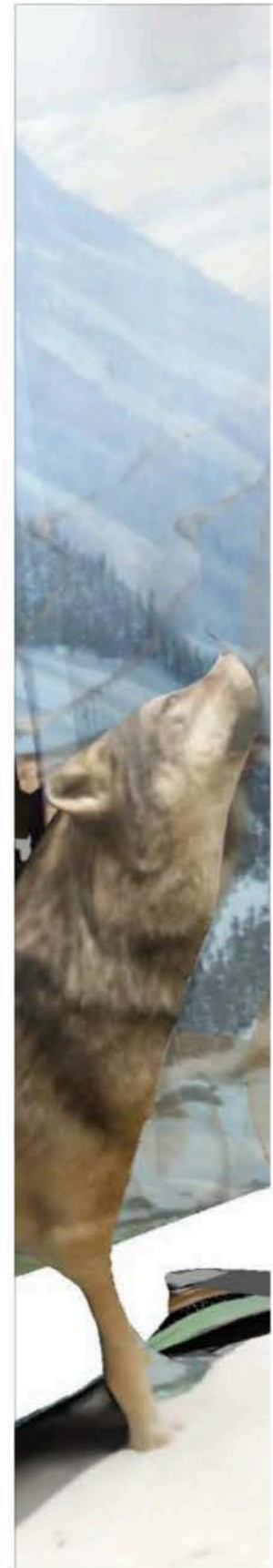
Me, in which he co-habitated with a live coyote for three days inside the space of a gallery.

For Cain's project, a taxidermied coyote was scanned, manipulated, and printed, using the 3D software and hardware available in Cerritos College's Engineering Design lab, as well as at USC's Roski School of Art & Design, and the corporate headquarters of this year's sponsor, AirWolf 3D.

Assembled from multiple tessellated print-chamber-sized polyhedral forms, inspired in part by the utopian designs of Buckminster Fuller, this semi-erased biological specimen literally fuses with modernist design tropes in order to reflect on the difficulty of reconciling California's futurist and utopian impulses with the increasingly distant and endangered legacy of its wild past.

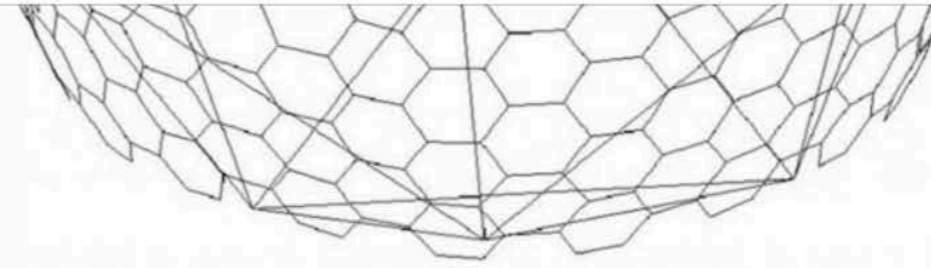
In addition to the physical object presented in the center of the gallery space, framed photographic by-products of the initial scanning processes are also hung on the wall, representing both categorical and illusionistic dioramas from the Natural History Museum itself. With their amorphous edges, as well as their blurred, shifting, and overlapping content, it would be easy to think of these images as a form of glitch art. However, since it is exactly digital files like these that are ultimately stitched together to form the rendered 3D models used to produce printed objects, there's really nothing glitchy about them. They are doing exactly what they were programmed to do, serve as the invisible resource for algorithmic processing. It's just that Cain has extracted them from that expected trajectory, in part because complete in-the-round scanning access was limited by the proscenium nature of the diorama structures themselves, openly exposing the machine-readable metadata as a fragmented aesthetic artifact.





CHAPTER 2 THE ARTIST AND THE ANTHROPOCENE

Jeff Cain



The Golden Bear specimen in the Natural History Museum of Los Angeles stands quietly in a contemporary display about the history of California. In the following rooms, his natural cohorts the coyote, mule deer, condor, and tule elk pose surrounded by meticulously painted dioramas.

I have always been moved by these stoic, taxidermic animals, preserved as institutions have done since the age of exploration. Each creature is parceled and sanitized, rendered as beautiful icons of an increasingly unrecognizable Californian wilderness. The Golden Bear, the Californian subspecies of the Grizzly Bear who adorns the state's flag, was last shot dead in Tulare County in 1922. Yet, in this extinct specimen, I could see a greater narrative: one that might reconcile California's natural history with its still-promised futurist vision.

I was compelled to join these two contradictory ideals by reproducing natural specimens with 3D printing technology, an emerging creative industry that once again promises to remake the West.

For just a few short weeks in its complex colonial history, California was known as the Bear Republic. This short-lived nation, embodied by its most iconic wildlife, was the original ideal of California, the unspoiled wild, the bountiful land. These romantic notions were popularized by writers and explorers like John Muir, whose prose grandly described the Central Valley, currently one of the state's most fraught landscapes, ecologically, as well as politically. Now a critical region for industrial farming, the Central Valley was once home to large numbers of Tule Elk, a species whose population has dropped by 99%, with less than 4000 individuals remaining.



Ansel Adams, like John Muir, captured an image of California as the sublime untamed west. It was a story told of natural wealth: an image composed of endless water, forest, (s)oil, and gold. The vast landscape once dotted by rancho and mission became bisected by railroad and aqueduct. Cycles of innovation and industry disassembled the image of the natural West to rebuild it as the technological West. As seen through the film industry's mechanical eye, the cropped landscape could be the dunes of ancient Egypt, the dust of a Pioneer Town, or the rocky first footstep on Planet-X.

A new, seemingly disembodied California emerged when UCLA researchers sent the first internet message to Stanford, seeding a digital revolution. Driven by the economic impact of Silicon Valley, the technological identity for California has superseded

the natural one. Marshall McLuhan's oversized prophecy is increasingly becoming the dominant California Ideology.

Looking up at the golden bear through the scratched screen of my smartphone, I quickly grab a series of shots from multiple angles. Uploaded to the cloud, to be processed with algorithmic speed, within minutes I received a glitchy 3D rendering of the beast. It's a first iteration, but it shows me what is possible. This is the so-called third industrial revolution: 3D Printing. It is the new, technological promise of design and industry: not a dematerialized technology, but one that brings virtual ideas into miraculous physical forms of plastic, metal, wood, and even living tissue.

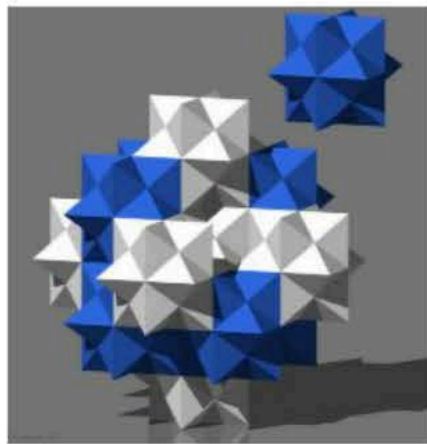
We are told that objects will be individually customizable and made on-demand. Manufacturing waste will be significantly reduced and locally manufactured objects will cut down energy consumption used for shipping. Each generation of objects can improve and evolve with incremental changes. Many of the 3D printers already attempt self-replication: one printer prints the next, and that printer prints the next, and so on. Complexity is free.

Elsewhere in the museum, a display describes the way that mass extinctions often mark the intersecting points between massive environmental shifts and geological epochs. It says that we currently live in the Holocene, but I know that the display may soon change. The human impact on the planet may be ushering in a new epoch, the so-called Anthropocene. Beginning with the first Industrial Revolution, atmospheric changes and mass extinctions brought about by industry have fundamentally changed the natural world creating a new geological era: the human epoch.

The cataclysmic intersection of futurist impulse and natural history was what I was ultimately trying to reconsider in the coyote sculpture created during the residency at Cerritos College. To the Miwok Indians, who resided in what is now the Bay Area, the coyote was seen as the creator god who made people out of the natural materials at his disposal. I thought recreating that animal out of our own new technological materials would be an appropriate way to rethink California's conflicting forces and propose the idea of beginning again.

There is, of course, limited access to the specimen displays at the Natural History Museum. To compensate, I purchased a taxidermic coyote that was once part of a collection of Western décor in the Pioneertown lodge, so that I could have full access for generating a complete mesh. With the Cerritos New Product Development class, we created a model through processing carefully shot images through Autodesk's new Memento software.

Since most 3D printers have build platforms much smaller than a cubic foot, I knew that I would have to break up the model



into sections to construct a to-scale sculpture. Instead of making simple divisions, I chose the stellated rhombic dodecahedron as the basic shape for the modular geometric forms. It was a visually complex shape that fits together as a solid interlocking honeycomb with no negative space. Despite its visually complex form, however, it also has a flat bottom, so that it can be printed easily with

Stellated Rhombic Dodecahedron with Interlocking Honeycombed Formation Wikimedia (TED-43), 2011

minimal post-processing. And finally it was a form that was explored by utopian futurist designer R. Buckminster Fuller, and therefore evoked the optimism of the space-age design of California's midcentury decorative arts. The polygon would become a kind of three-dimensional decoration that would also parcel out the body into complex geometric forms.

The original coyote model had to be broken up into over 100 individual pieces. Each piece was created by mechanically extruding a thin piece of plastic, one layer at a time and took on average, approximately five hours to print. To accommodate the 500 hours needed, a bay of Airwolf 3D printers at the Airwolf factory would print out individual pieces during the final testing phase before a printer is sold to the public. Once printed, the white pieces were smoothed in an acetone vapor bath and assembled with the unsmoothed black pieces to set up a strong visual and material contrast between the gooey organic elements and the rigid geometric forms.

To accompany the sculpture, I also printed some renders of my photographic research from the Natural History Museum: high-resolution two-dimensional images from the 3D models that I had generated from the displays. The images have unusual digital ruptures that distort and cut the imagery, specifically because of the limited vantage point those dioramas allow. I found that these images not only helped illustrate the process, but also helped reiterate the same theme in a related form.

I hope that the resulting work shows neither an overly-fatalistic nor an overly-optimistic point of view, but instead presents a hybrid form that evokes a critical, and ethical, imaginary for thinking about the impending era of the third industrial revolution and the Anthropocene.



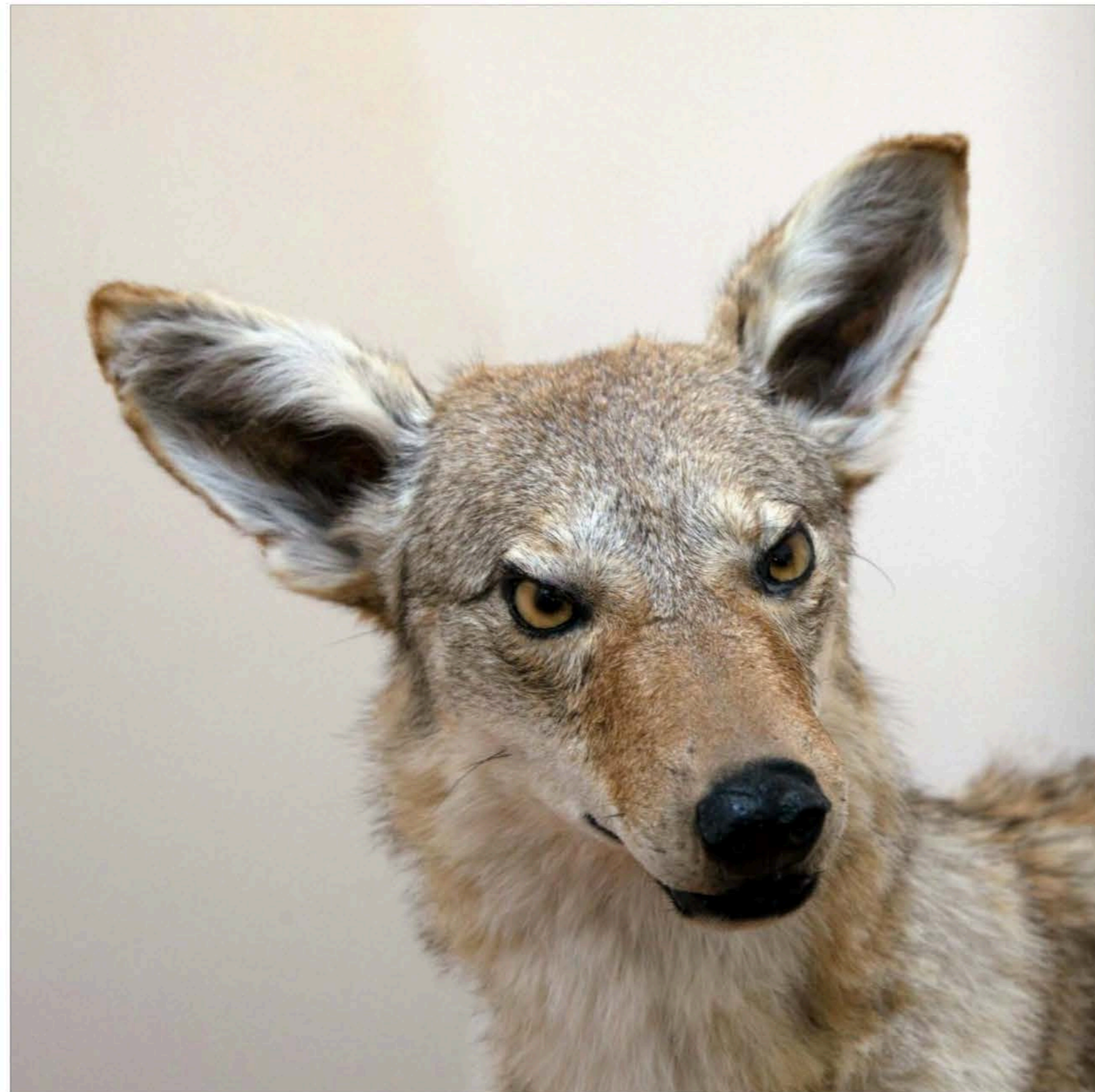


The Shore Bird Diorama, Natural History Museum of Los Angeles, Wikimedia (Jlim06), 2012



The Deer Diorama, Natural History Museum of Los Angeles, Wikimedia (Jlim06), 2012





PRODUCTION IMAGES



Dr. Miodrag "Mickey" Micic with "Wile E. Coyote" and Print



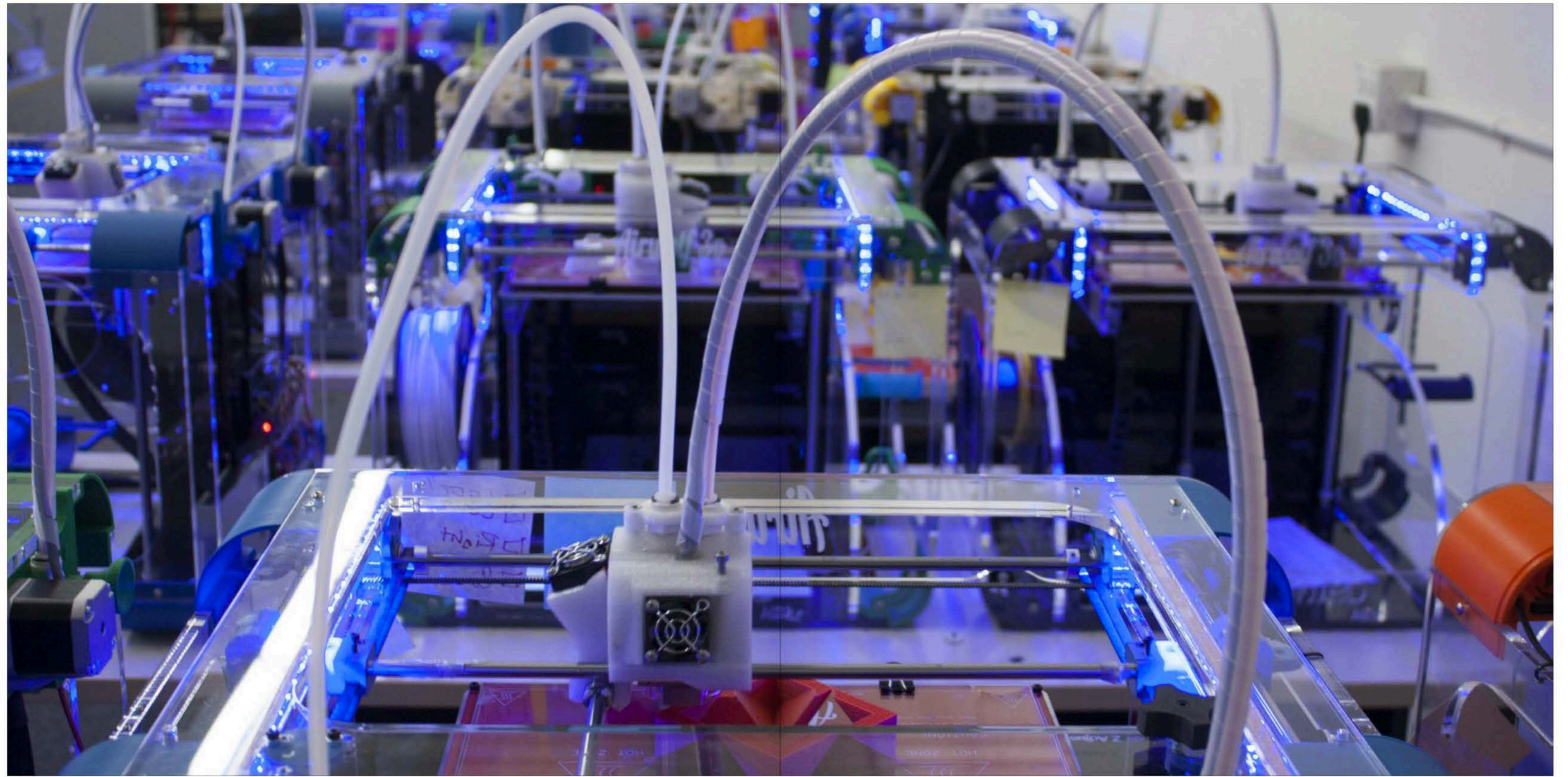
Jeff Cain & Mickey with Prints



"Wile E." with Multiple Miniature Photo-Realistic Test Prints

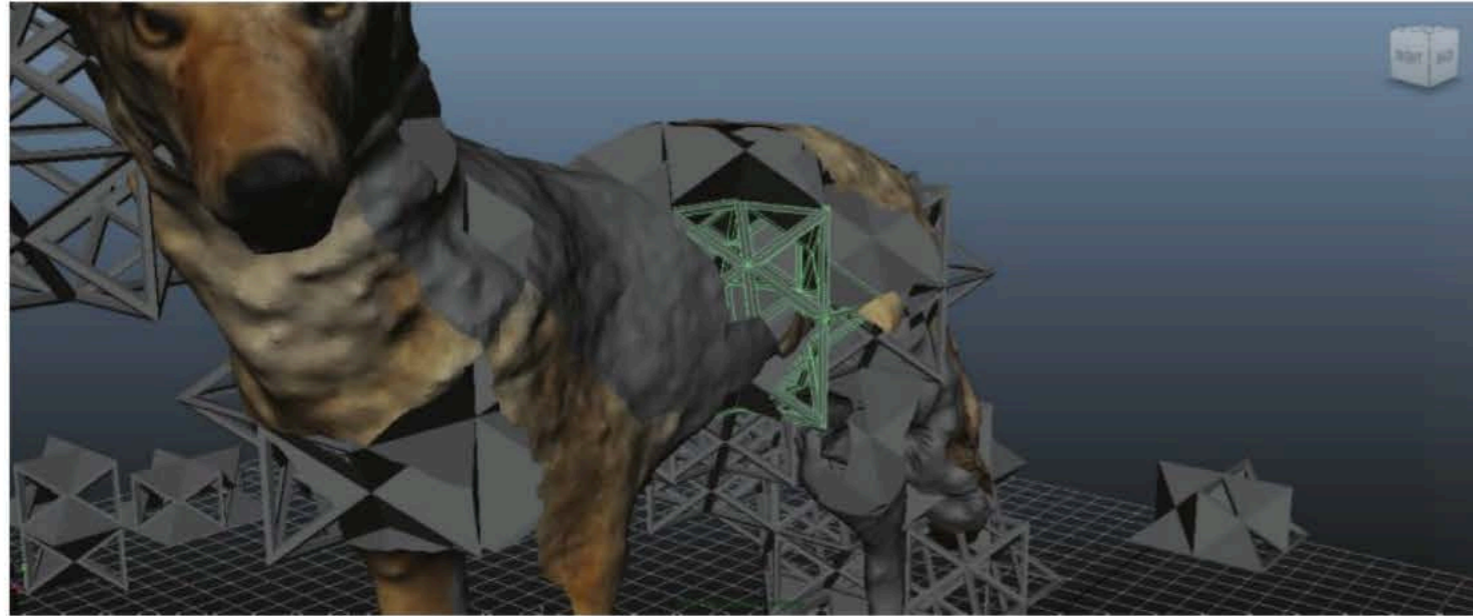


3D Fragments (To Be Assembled)

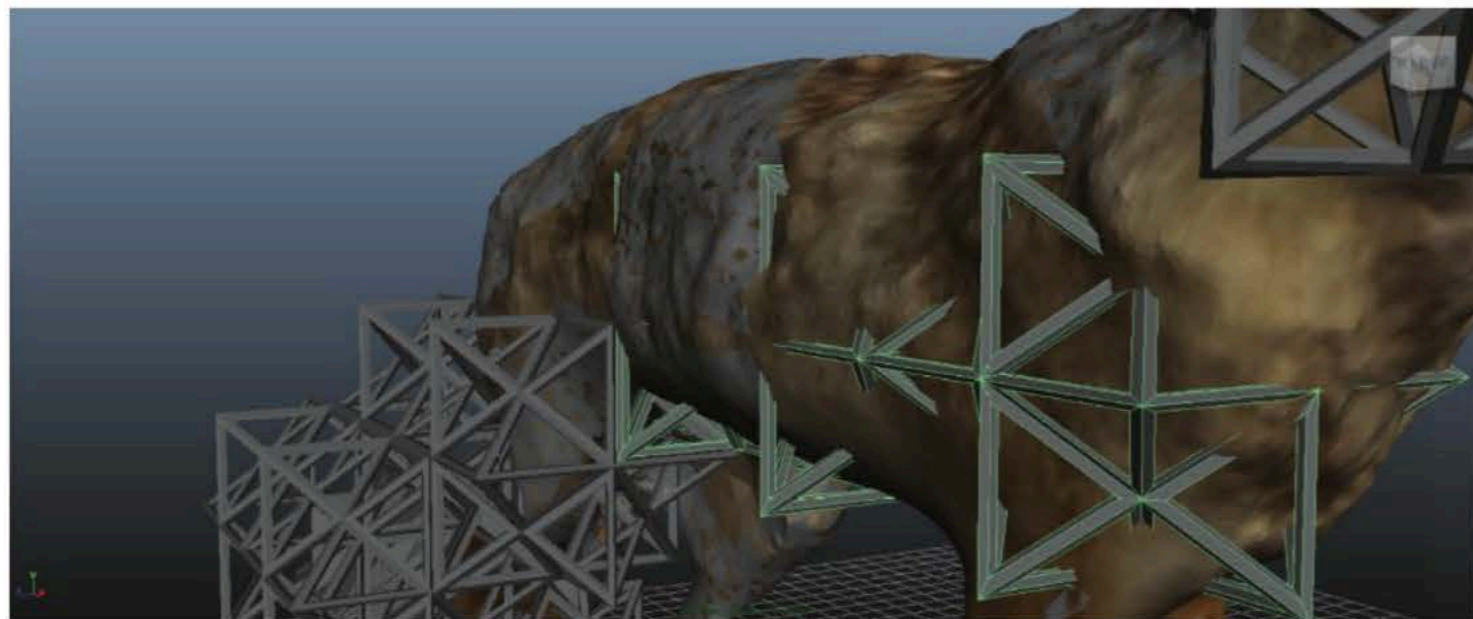


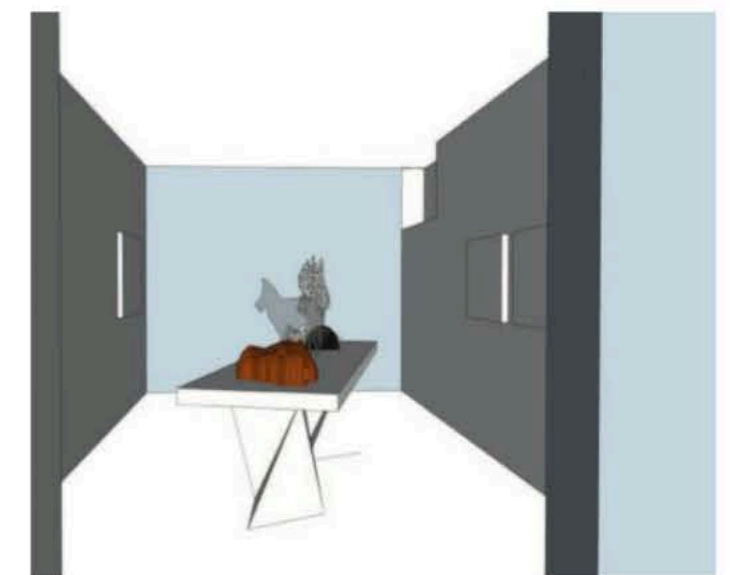
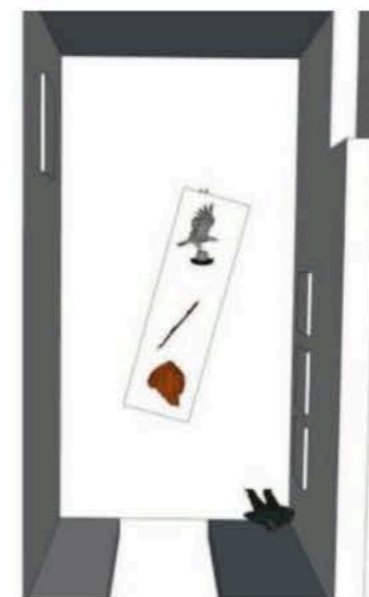
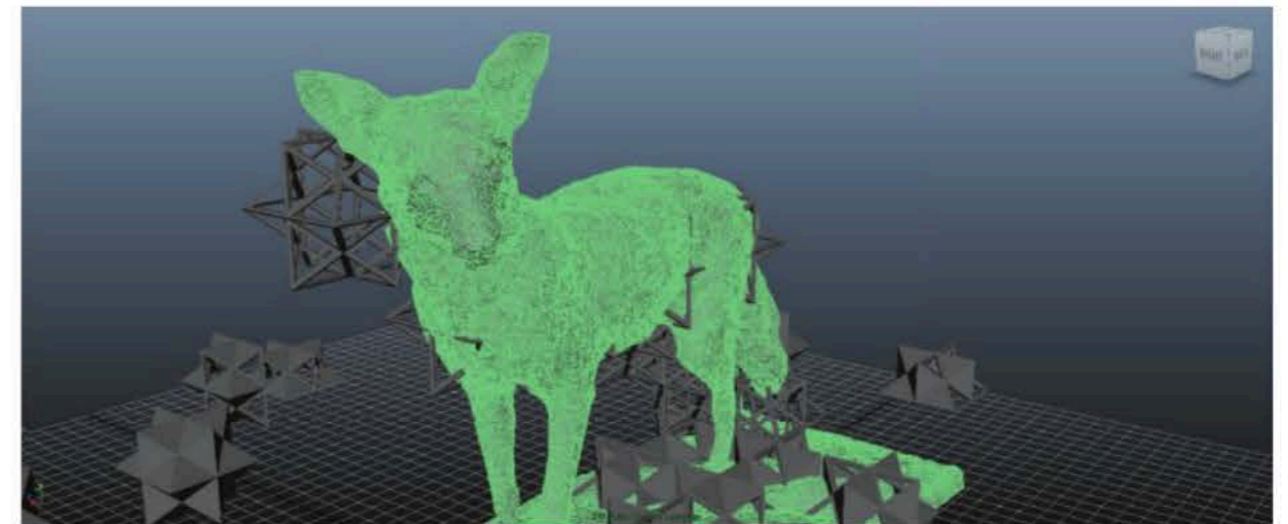
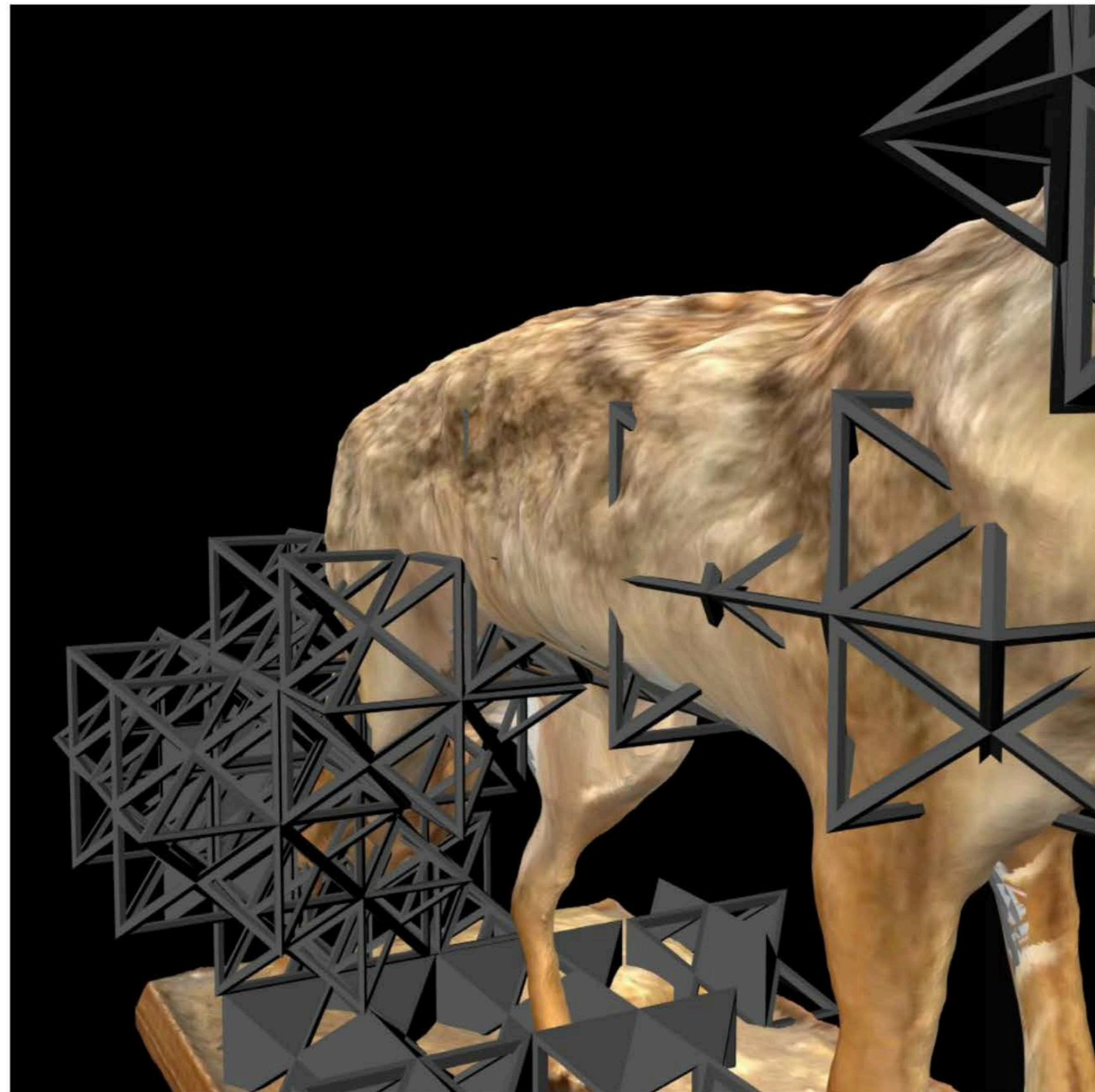
Pages 8-9: Taxidermied Coyote in Makeshift Scanning Environment with Noisy Background (Newspapers)

Pages 12-13: 3D Print Farm at AirWolf 3D Corporate Headquarters Producing Early Full-Color Test Fragments



Pages 14-17: Various Screen Shots of 3D Coyote Model Rendered in Maya Software Platform

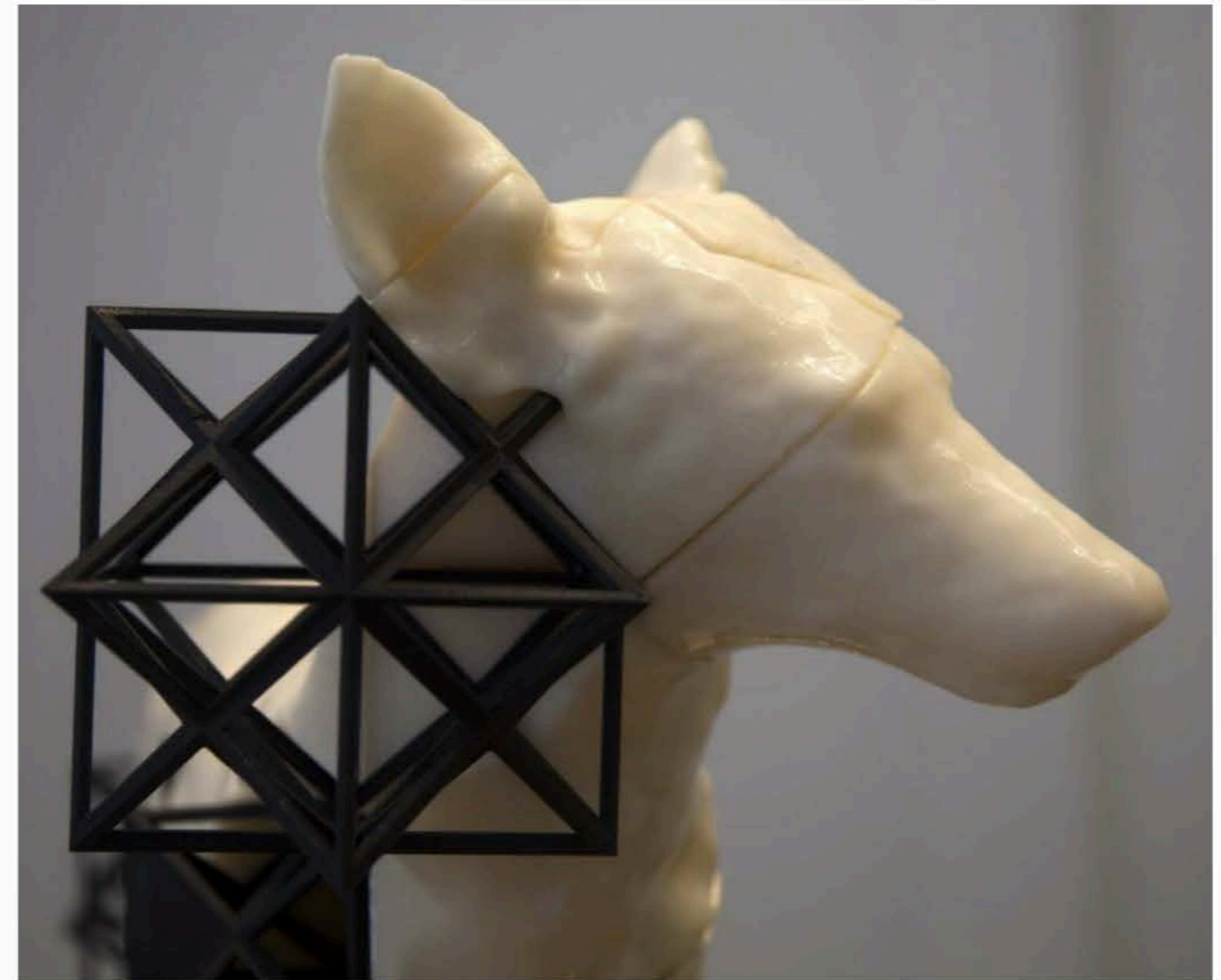




Natural History Installation Mockups
L: Plan View | R: Front View



INSTALLATION SHOTS | EXHIBITION PLATES



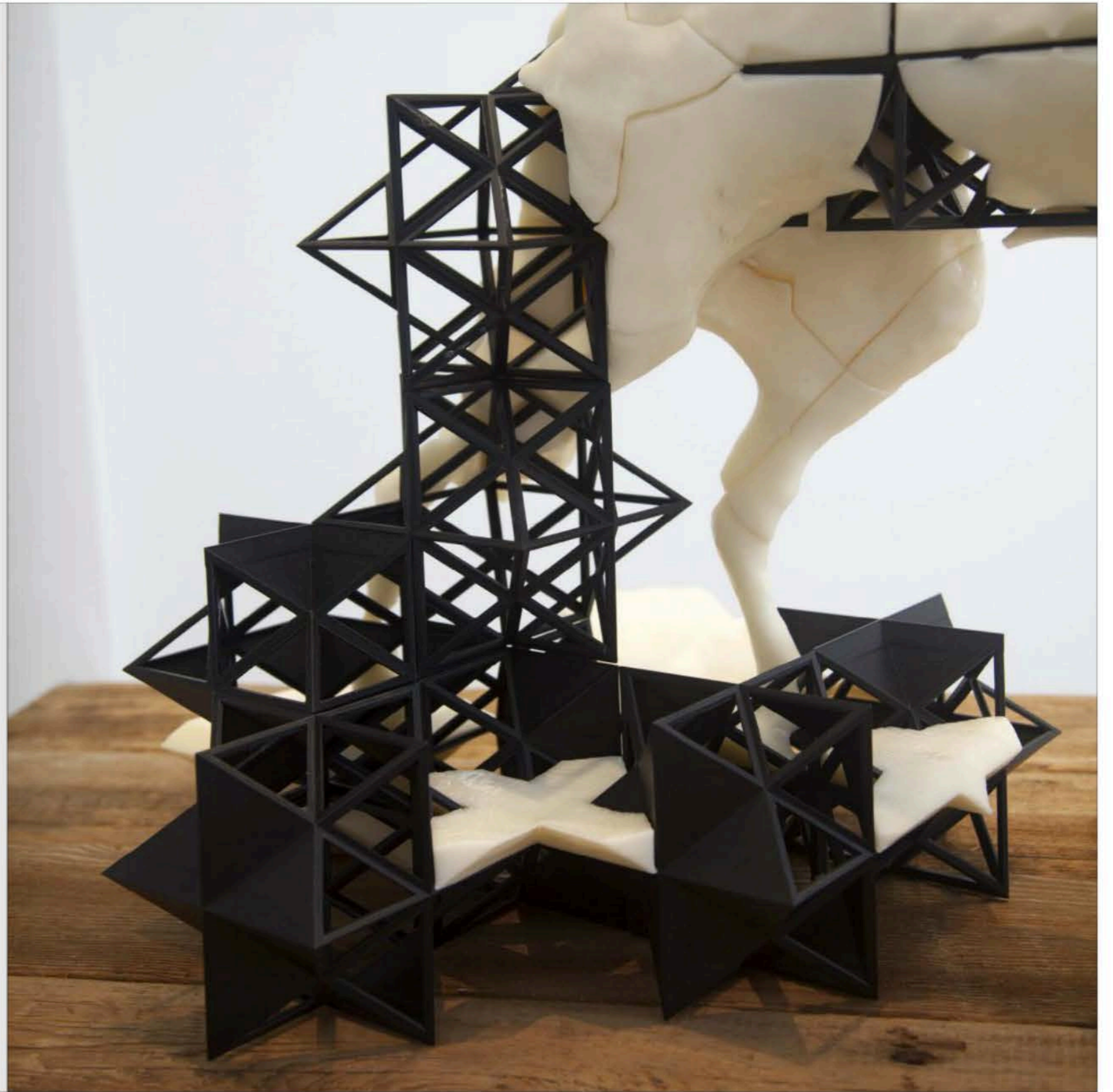
CANIS LATRANS #1, 2014-2015

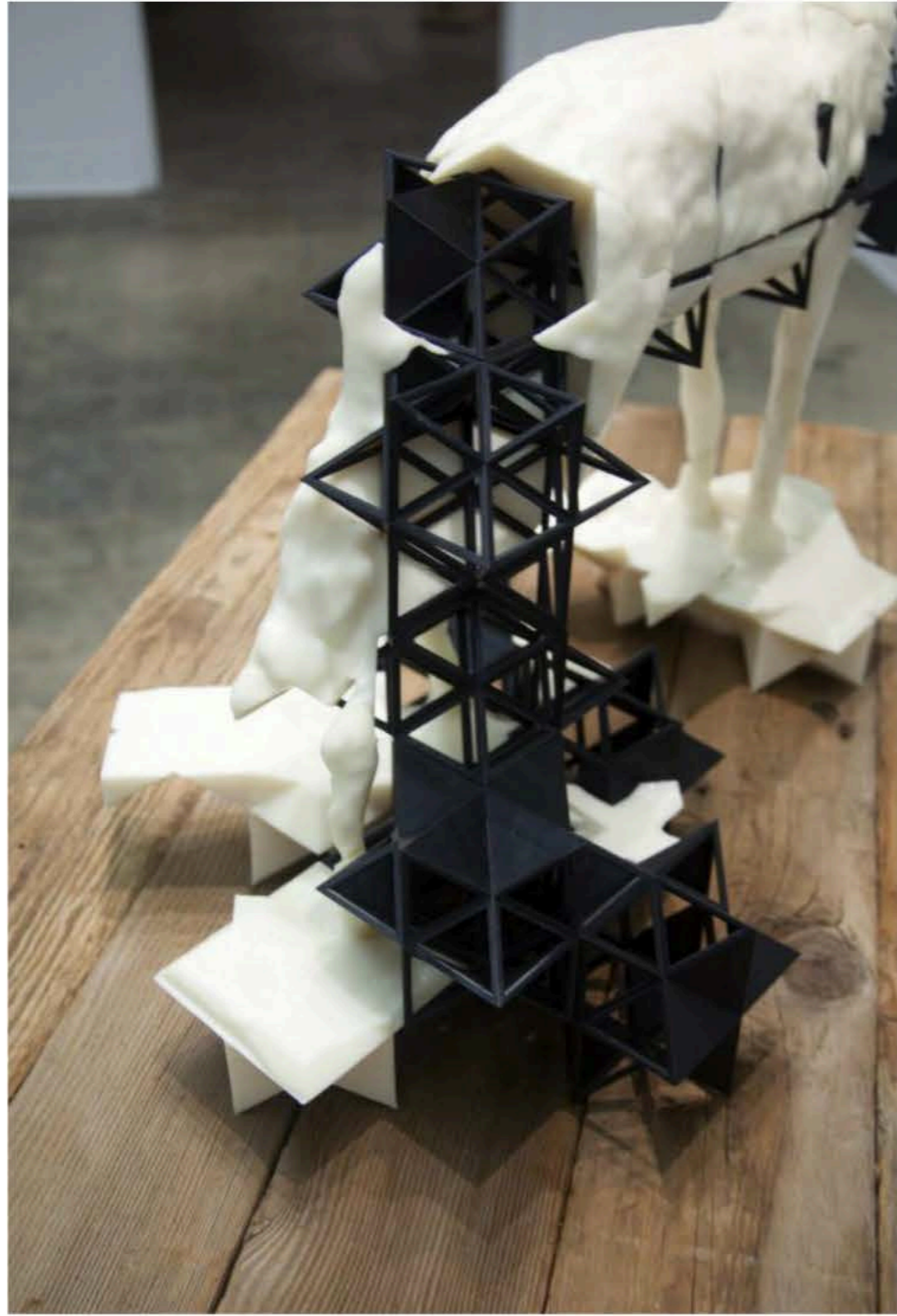
Plastic/ABS and Wood

Coyote: 25 x 21 x 36 inches

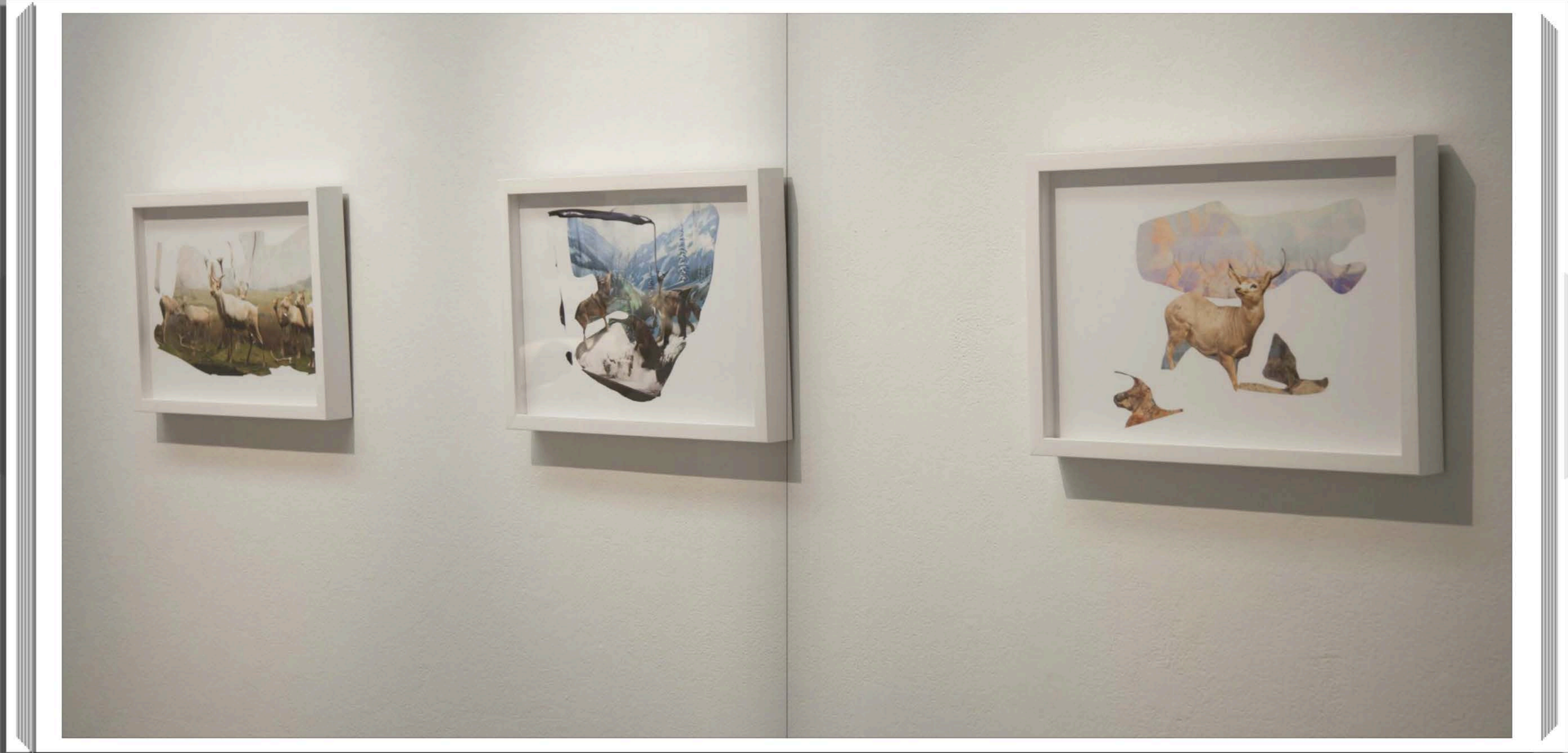
Table: 32 x 30 x 48 inches











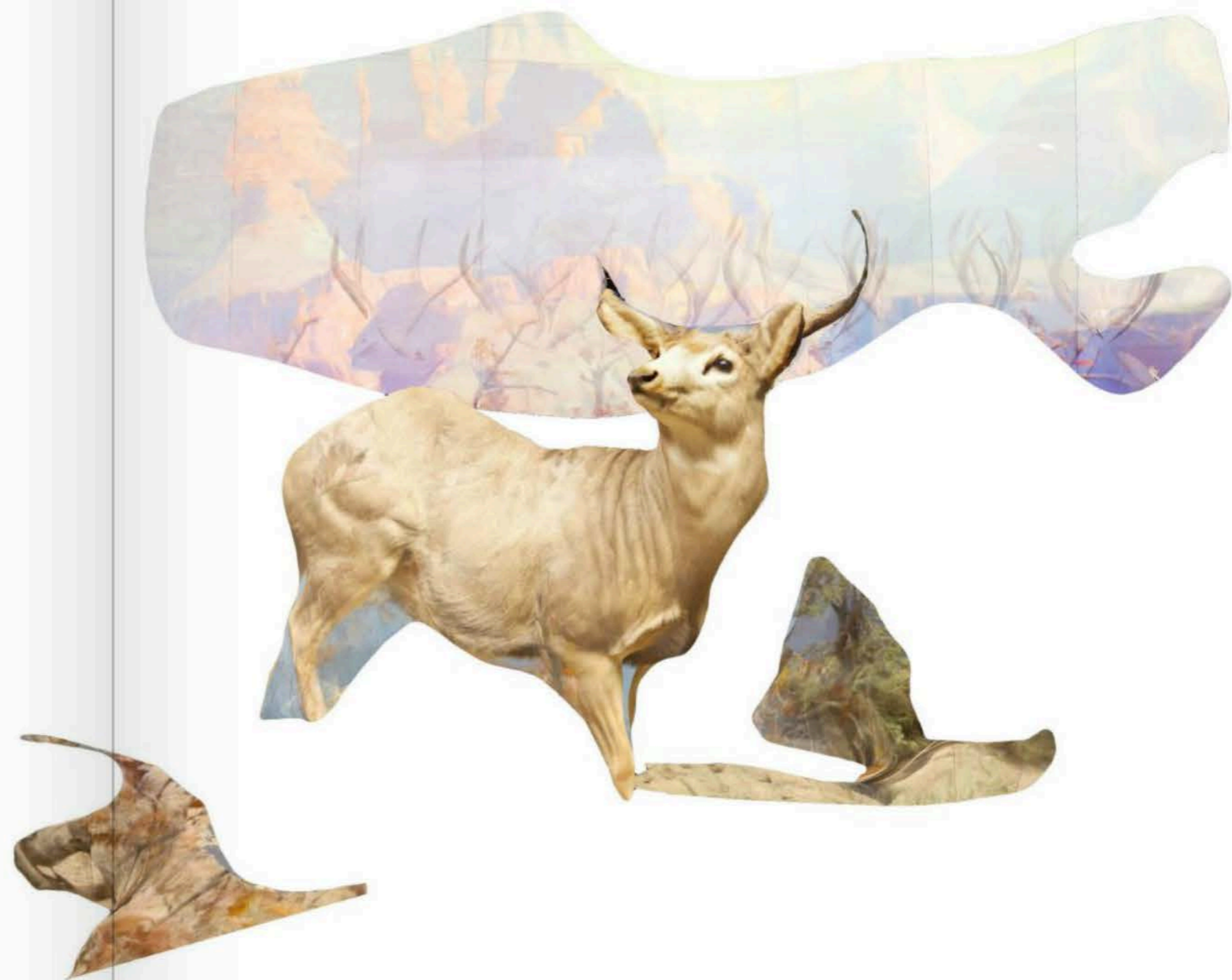


DIORAMA, TULE ELK
(*Cervus Canadensis Nannodes*)
2014
Archival Inkjet Print
14 x 20 inches



DIORAMA, GRAY WOLF
(*Canis Lupus*), 2014
Archival Inkjet Print
14 x 20 inches

DIORAMA, MULE DEER
(*Odocoileus Hemionus*), 2014
Archival Inkjet Print
14 x 20 inches



AVIAN DISPLAY CASE
(*Aquila Chrysaetos*), 2014
Archival Inkjet Print
22 x 30 inches

