PARADOX:

The Body in the Age of AI

PARADOX:
The Body in the Age of AI

October 5, 2018–February 3, 2019
Miller ICA at Carnegie Mellon University

Miller ICA

Carnegie Mellon University

PARADOX:

Contents

Cover image:
Contra-Internet: Jubilee 2033 by Zach Blas, 2018. HD video still.
Commissioned by Gasworks, London; Art in General, New York; and MU, Eindhoven

Exhibition Statement

Disembodied environments for interaction have proliferated with the emergence of social media, which have provided endless opportunities for social life to play out in virtual space with no physical contact. This new setting has powerfully connected millions of people, but the disembodied nature of these interactions also facilitates dehumanization. The increased access to strangers across the globe fans the flames of xenophobic ideologies, nationalism, and us versus them mentalities. The fact that technology's abilities to connect and to divide are equally powerful is a paradoxical outcome of these advances that previous generations could not have foreseen.

In the late '80s, artificial intelligence and robotics scientists had promised huge developments that they then struggled to deliver. The Moravec Paradox was one of the many challenges delaying progress. It showed that high-level reasoning and logic problems required only little computation, whereas basic sensorimotor skills, like walking or seeing, required enormous amounts of computational resources. Carnegie Mellon University faculty Hans Moravec theorized that this paradox could be explained by the process of human evolution. He writes,

> Encoded in the large, highly evolved sensory and motor portions of the human brain is a billion years of experience about the nature of the world and how to survive in it. The deliberate process we call reasoning is, I believe, the thinnest veneer of human thought, effective only because it is supported by this much older and much more powerful, though usually unconscious, sensorimotor knowledge.[1]

This paradox reveals that there is fundamental information stored in the dialogical relationship of the mind and body; its unconscious nature belies its critical role and its levels of complexity.

At about the same time as the discovery of the Moravec Paradox, Donna Haraway was imagining the cultural implications of new technologies and published her influential essay, "The Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century," in 1984. In her feminist text, the human/machine amalgam presents a theoretical framework where the category-blurring cyborg breaks down traditional social and political boundaries. Her essay offers a utopic premise that the cyborg might provide the conditions to imagine structures outside of the sexist, classist, and racists systems of patriarchy, capitalism, and colonialism. In it she writes, "Liberation rests on the construction of consciousness, the imaginative apprehension, of oppression, and so of possibility."[2] Since this essay was published, some of the dystopian influences of artificial intelligence (AI) have been brought to bear through data surveillance, privacy breaches, and election meddling. Could the paradox in the age of the cyborg be technology's equal role in liberation and oppression?

Today, access to much faster computers, big data, and more sophisticated machine learning has allowed the AI field to overcome many of the challenges Moravec and his colleagues faced in the '80s. Unprecedented advances and applications of AI are causing a techno-social paradigm shift to rapidly take hold. Entrepreneurs like Elon Musk actively develop technological enhancements, through products like Neuralink, to embed software into the body that can merge humans with AI. Before the turn of the next century the cyborg may be the new status quo.

This exhibition explores the primacy of the human body as it is poised on the precipice of a potential fusion with artificial intelligence. Inspired by the Moravec Paradox, the show looks deeper into the unconscious role the body's sensorimotor habitat has in shaping our awareness, imagination, and socio-political structures. Society tends to privilege reason and logic because it is conscious and quantifiable. But beneath this thin "veneer of human thought"[3] is a deeper, more complex knowledge system within the body. As technologists imagine the potentials of merging humans with AI, these artists consider the body's elusive and underestimated power. Their various investigations across multiple media offer room to speculate about the exchange between the unconscious and conscious and ask questions about what the body knows. Before we enter a generation where cyborgs are as ubiquitous as the internet, when we still inhabit human bodies, the urgent questions to ask are what lessons can our mortal vessels teach us and what unknown paradox might we contain?

Elizabeth Chodos
Director and Curator, Miller ICA

1 Hans P. Moravec, *Mind Children: the Future of Robot and Human Intelligence.* (Harvard University Press, 2010), 15.

2 Donna Haraway, "A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century," in *Simians, Cyborgs and Women: The Reinvention of Nature* (New York: Routledge, 1991), 149.

3 Moravec, *Mind Children*, 15.

Paradox, gallery view. Photo credit: Tom Little.

Experiments in Absorption by Kate Cooper, 2015. Installation view. Photo credit: Sean Carroll.

The Flower Matrix Pod by Claudia Hart, 2018. Installation view. Photo credit: Sean Carroll

Contra-Internet: Jubilee 2033 by Zach Blas, 2018. Film installation. Photo credit: Sean Carroll.

S-010100 by Sarah Oppenheimer, 2018. Aluminum, glass and architecture. Total dimensions variable. Photo credit: Tom Little.

Trust and Values, Bodies and AI

David Danks

The rate of technological development and the sophistication of those technologies are seemingly on an ever-upward trend. Advanced technologies—early-stage artificial intelligence (AI), predictive machine learning models, universal translators on our phones, and so much more—are becoming ubiquitous in many of our lives. Some are quite visible, such as the self-driving cars cruising around Pittsburgh. Others are more subtle or invisible, such as predictive policing algorithms that help to determine patrol routes. Some affect almost everyone, as when social media "newsfeeds" show different stories to different people, thereby exacerbating political tensions. Others affect relatively few, as when specialized medical devices are optimized through the use of machine learning. But in all cases, these technological advances are dramatically impacting people's lives and their abilities to reach the goals and interests that matter to them.

These technologies do not appear from some mysterious void; they are designed, developed, implemented, used, regulated, and altered by humans like us. Most importantly, we often choose whether to use some technology, and those choices can depend largely on issues of *trust*. We are used to thinking about trust of machinery (do I trust my car to start in the morning?) and also trust of people (do I trust my best friend to keep a secret?). These are different, though related, kinds of trust: I am principally concerned with my car's reliability, but with my friend's values and personality. Moreover, the ethical impacts of these different kinds of trust vary widely. It makes no sense to talk about "trusting a car to keep a secret," and we should treat other people as more than merely predictable machines.

One of the key features of our trust in people is its dependence on knowing their values: my trust in someone else depends partly on understanding what they value in the world and recognizing where we have shared values. In contrast, we usually do not think about machines as having values, but that assumption starts to fail with AIs. As a simple example, consider a self-driving car going one block. This might seem to be a purely technological challenge with no particular ethical dimensions. But even this basic task requires the car to balance (more precisely, the developers of the car must teach it to balance) two strongly-held values: obeying the law and minimizing the chances of an accident. These values are presumably endorsed by almost everyone, but they do not always coincide. The safest speed is slightly slower than the speed of everyone around you (all else being equal), but that could be significantly higher than the legal speed limit if everyone else is driving too fast. Our self-driving car cannot even go a single block unless it embodies an ethical value choice. That is, AI is starting to have some of the features that form the basis of trust among people!

More generally, what happens to our relationships of trust with humans or AIs as technology becomes increasingly ubiquitous and integrated into our lives? If my phone is an integral part of who I am (as an "external memory cortex"), then does my best friend trust me, me-plus-phone, or something else entirely? If a self-driving car breaks the law to be safer, then do we trust the car, the car's developers, the company that built it, or some combination of all of them? Our ways of trusting assume that the world can be divided into moral agents, like people, and mindless machines, like ordinary cars, with different kinds of trust for each. As we

Image:
S-010100 by Sarah Oppenheimer, 2018. Aluminum, glass and architecture. Total dimensions variable. Photo credit: Sean Carroll.

dissolve the lines between those two groups, we are left to ask: who…or what…should we trust?

One theme in *Paradox: The Body in the Age of AI* is the dissolution of these boundaries between humans and technology. We like to pretend that there are sharp distinctions between us and our machines: we design the AI; we develop the AI; we use the AI; we regulate the AI. Our very language encodes the assumption that we can distinguish between us and them. Multiple artists and works in this show help us to see that the reality is much murkier.

Jillian Mayer's *Slumpies* force us to confront the ways that technology is merging into us. Our phones, tablets, and other handheld devices have become indispensable parts of our lives and are remaking our minds and bodies. This generation's teenagers have increased thumb dexterity compared to past generations presumably because of their phones. We walk down streets with hunched shoulders and downward stares while reading the latest emails, news, or texts. Our bodies are literally changing as these devices become omnipresent, and *Slumpie 89 Harp Mode* provides a dramatic physical symbol of those oft-unnoticed changes. We see the *Slumpie* and immediately recognize it as a place to curl inward, focusing solely on the device that has become an extension of our minds and bodies. The *Baby Wall Slumpies (304 and 303)* invite us to further integrate the device into ourselves, by providing a more relaxed way to stand at the edge of a room, interacting with our notifications rather than our fellow humans. But if humans are becoming more machine-like through our integration with our devices, then what, or *who*, are we trusting—the device, the person, or some hybrid of the two? If my best friend stores her secret on her phone, then am I still really trusting *her*?

Of course, this integration is not unidirectional: aspects of us are merging into the technology. Jes Fan's *Systems I* challenges the notion that we can segregate off the artificial or technological from the human or biological. Melanin is a fundamental aspect of our biology, serving an essential protective function. Its incorporation into a basically artificial object challenges the primacy of the biological: we are not simply incorporating technology into us, but also being incorporated into technology. In fact, decades of AI researchers have aimed to bring human cognitive functions into a machine or artificial system; *Systems I* provides a present-day physiological parallel. As machines become more human-like, how do we need to rethink our trust of them? In particular, as they gain values but lose predictability, then what else do we need to know to trust those technologies?

Finally, we might conceive of a mutual integration that results in something completely new and different, rather than "merely" adjustments or augmentations of the original humans and machines. *Experiments in Absorption* by Kate Cooper presents auditory and visual conceptions of merges between the artificial and natural, machine and human. The juxtaposition of an artificial-seeming head with a quasi-biological surface suggests something completely different from either human or machine. Rigid artificial tubes are swallowed up by organic matter, while a body is embedded in an artificial medium. And all are set against a backdrop of droning music that is almost human and almost machine, but not truly either. One cumulative message is that our future might involve systems neither AI nor human, but true chimeras that exhibit features of each. And for such new creatures, we no longer have even a tentative baseline for establishing trust, but must instead develop some entirely new conception.

We have become used to the idea that technological change, particularly the development of AI and robotic systems, is impacting our economic, political, and psychological lives. But such systems are also changing our moral lives, particularly as we must learn to trust not-quite-human not-quite-machines. Many of the pieces in the *Paradox* show confront us with the variety of new forms that might emerge as humanity and technology merge over time. Trust will never be the same!

PARADOX:
The Body in the Age of AI

October 5, 2018–February 3, 2019
Miller ICA at Carnegie Mellon University

Curated by Elizabeth Chodos

Artists:
Zach Blas
Brian Bress
Nick Cave
Kate Cooper
Stephanie Dinkins
Jes Fan
Claudia Hart
Eunsu Kang
Jillian Mayer
Sarah Oppenheimer
Siebren Versteeg

Slumpies are functional sculptures that respond to our ever-increasing relationship with technological devices by relieving us of the need to support our own bodies while we interface with the digital world. They are a solution to an endemic problem of our contemporary moment—the type of issue that can arise only in the context of a technologically driven, luxury-saturated, consumer-oriented marketplace. Mayer's awkwardly rendered *Slumpies*, with their bulky shape and strange palette speckled with acrylic, suggest a lack of conscientious design—an ad hoc solution made from simple materials that stands in direct contradiction to the sleek designed forms and marketing culture that defines our intimate dependence on technology.

Jillian Mayer

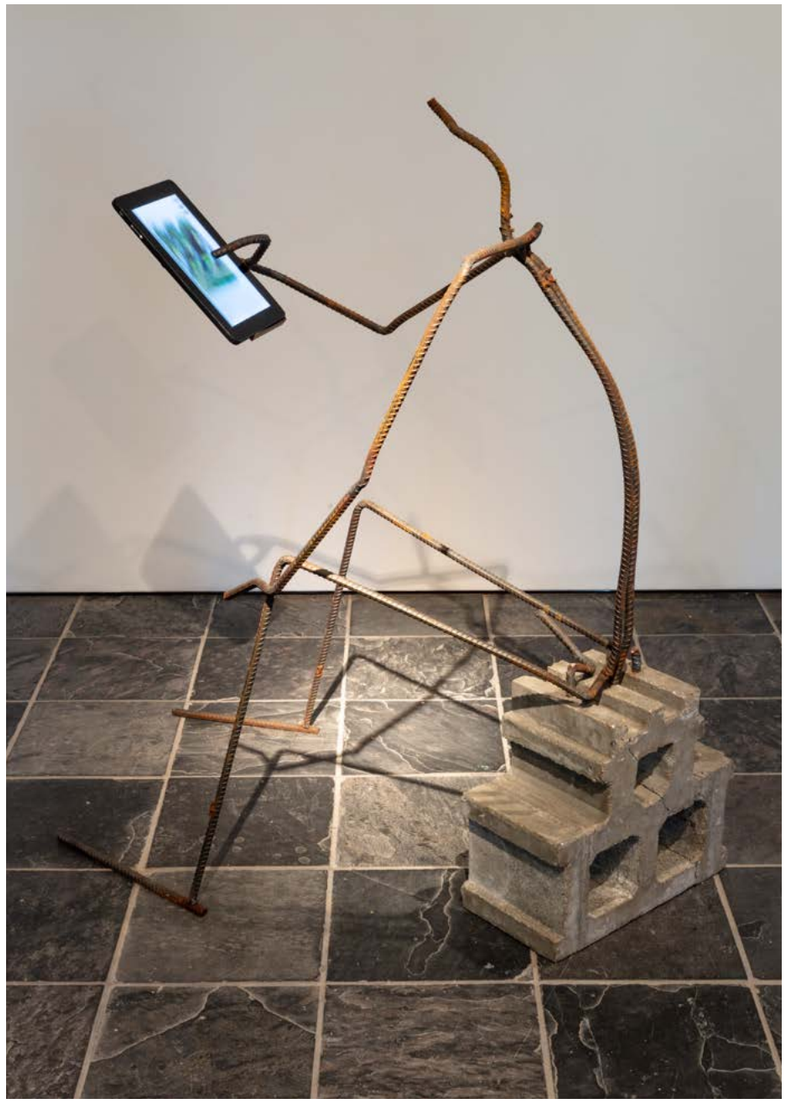
Slumpie 89 Harp Mode, 2018

Baby Wall Slumpie 304, 2018

Baby Wall Slumpie 303, 2018

Foam, concrete, resin, epoxy, fiberglass, enamel, acrylic

Versteeg's sculpture series made of steel figures outfitted with custom software playfully examine the layered cultural dynamics of artificial intelligence (AI). In *Danny Liker*, the rebar sculpture presses the *Like* heart on a computer logged into Versteeg's own Instagram account in real time. In the *Maker and the Made*, it appears as though the metal stick figure is composing abstract paintings that are being created by a generative algorithm. In both cases, AI is engaging in expressive social and cultural activities. These works are part of Versteeg's ongoing investigation into the relationship between technology and the defining qualities that make a person human.



Siebren Versteeg

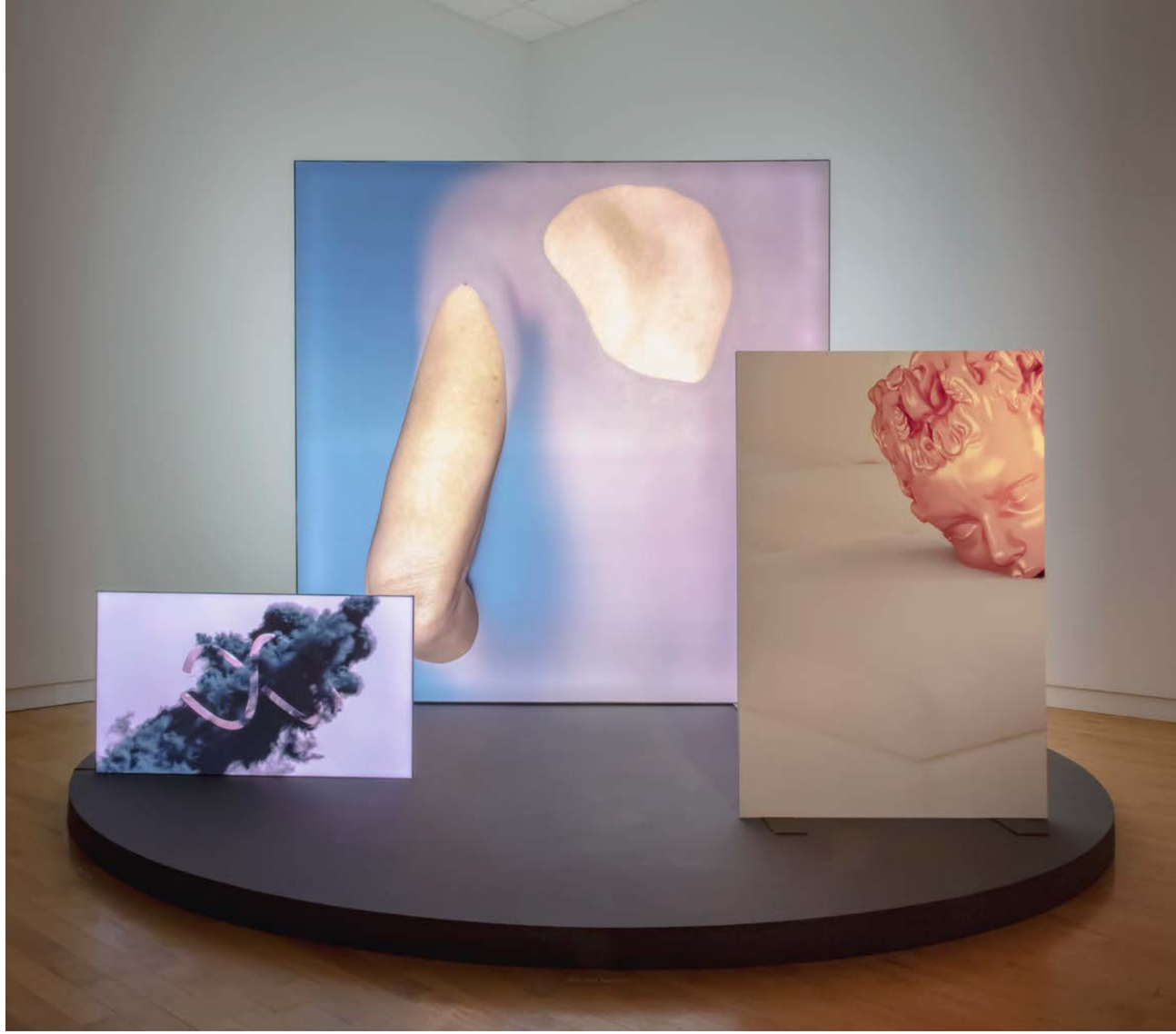
Danny Liker, 2016

Steel, concrete, tablet, custom software

The Maker and the Made, 2016

Tempera, welded steel, concrete, mixed media,
2-channel computer program output to two monitor screens

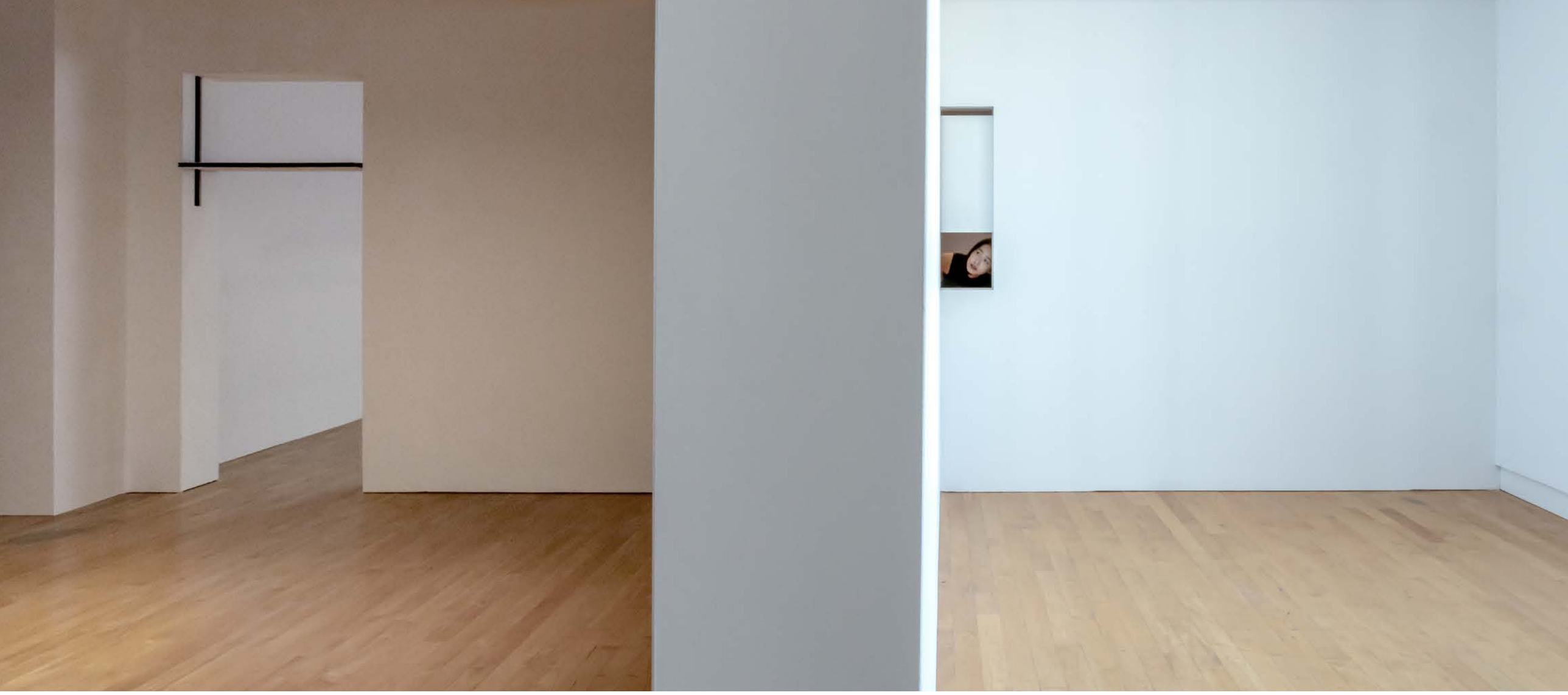
Cooper's sculptures engage consumer aesthetics from the glossy iconography of the TV commercial to the sterility of video game graphics to the luminosity of the department store poster. She uses CGI technology to create a full-fleshed, hyperreal space, adopting an aesthetic that is usually reserved for corporate giants in advertising and entertainment. *Experiments in Absorption* examines the role of gender and autonomy within a global system of image production and distribution. This work considers absorption as an inherent quality within a gendered mode of existing. Exploring the emotional and physical state our bodies experience when participating in a global consumer economy, Cooper asks what it means to be immersed in something. What is the flowing exchange and transference between the virtual networked space of the internet and the body?



Kate Cooper

Experiments in Absorption, 2015

Lightbox, monitor, looped HD video with sound, print on aluminium



I-134442 plays with the choreography between the human body and architectural space by inserting an architectural instrument into the gallery walls. This instrument invites visitors to act as participants in a joint performance with the building and each other. A building's boundaries create an ever-changing choreography that determines the way bodies navigate architectural space over time. *I-134442* reveals the temporal properties of the building by exposing the way the gallery windows reflect daylight, how its doorways mediate procession, and its vents direct airflow. Oppenheimer explores feedback loops within the built environment: the way a forward motion of a body is timed with the opening of an elevator door, how the raising of a leg is calibrated to the height of a moving escalator stair. The mutability of architecture, based on the movement of the human body and the passage of time, demonstrates how seemingly stable or permanent structures are malleable and responsive. The work shows how the spatial envelope adapts and changes in response to inhabitation while the body shapes itself to the world of the building.

Sarah Oppenheimer

I-134442, 2018

Aluminum, steel, and existing architecture

NTOO is an artificial intelligence (AI) storyteller that uses the oral histories and background information of three generations of women from one family. NTOO's knowledge spans at least 100 years of direct human experience, from the Great Migration to 9/11 and beyond. It is an interactive voice-driven storyteller run by machine learning algorithms trained on oral histories collected from living subjects. NTOO is new, a baby just learning to speak and communicate its story. Its knowledge expands through human contact and interaction and relies on a deep neural network that makes it unpredictable. Through her work and research, Dinkins investigates how artificial intelligence intersects with race, gender, aging, and imagines a more inclusive future. AI systems are becoming unseen arbiters of our private lives, civil relationships, and future histories, and many historically oppressed groups are being left out of the conversation about how AI is designed and implemented. To correct this, NTOO provides an example of what an AI created collectively by communities of color looks like.

NTOO was developed with support from a Pioneer Works Tech Residency and with the generous support of the Pittsburgh Glass Center.

Stephanie Dinkins

Not The Only One (NTOO), v.01 beta, 2018

Cast glass, deep learning algorithm, computer, electronics

Bress carefully constructs immersive scenes and environments for his masked and costumed figures. These monstrous and absurd bodies engage in repetitive activities and processes in videos that adopt a painterly vernacular and hover on the edge of photography. Bress is concerned with exploring an illusory and fabricated space, probing the relationships between figure and ground, painting and video, animate and inanimate. Through his explorations, Bress reveals a tension between virtual and physical worlds and creates an artificial space where illusion and fantasy collide with gravity and realities of the physical world. His work is a type of dynamic portraiture where the content is not of an individual subject and their personal narrative, but the conditions that define a sensorimotor understanding of the architecture of the tangible world.

Brian Bress

Beadman, 2012

High definition single-channel video, 1 min., 06 sec., loop

Sunset Geometry, 2018

High definition single-channel video, 28 min., 41 sec., loop

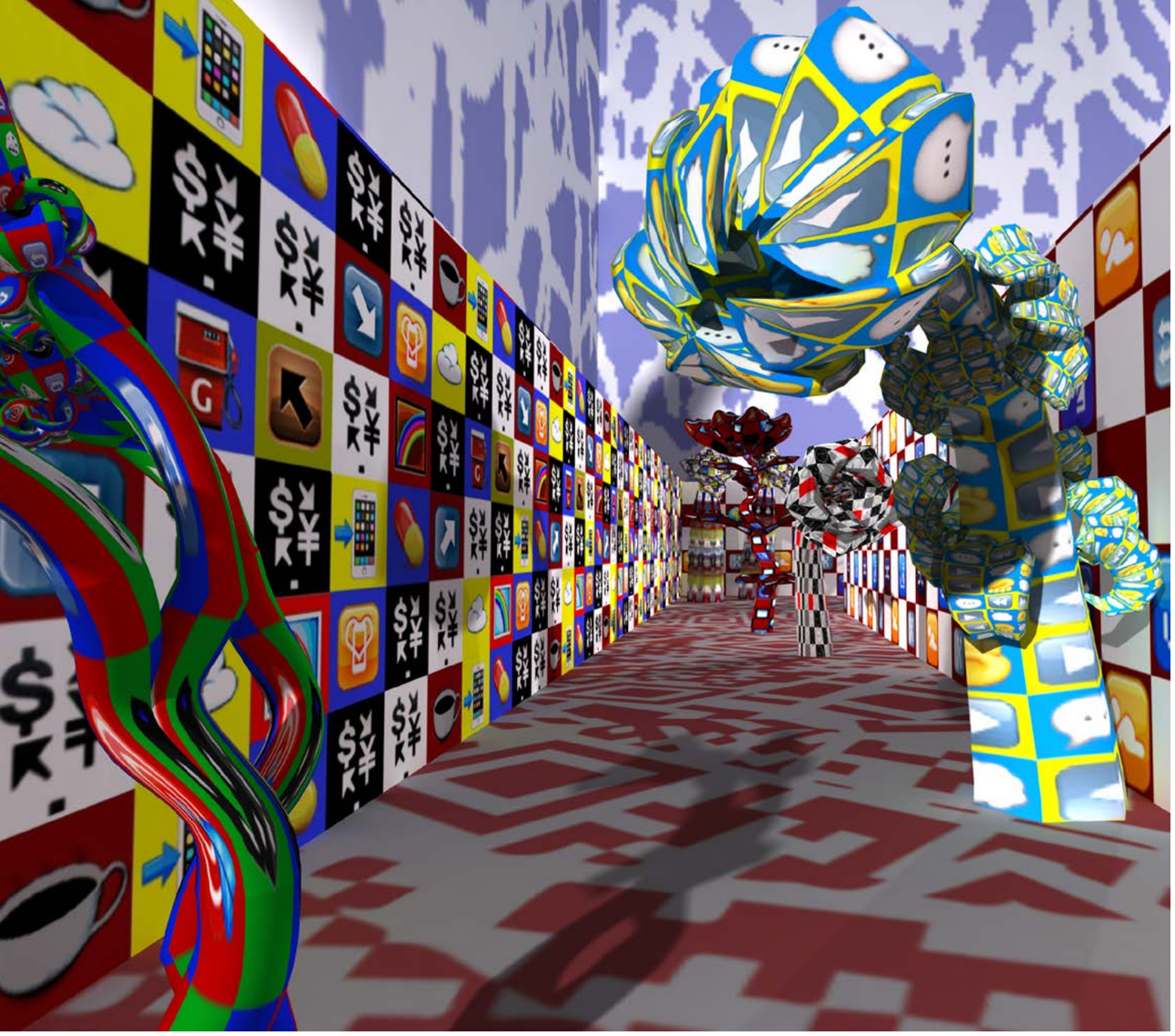
The Flower Matrix Pod is a liminal environment for an intensely embodied and immersive experience into the techno-physical world that is both seductive and oppressive. Hart mixes architectural realities with a fantastical, embellished aesthetic where technology has replaced nature. In her cross-platform, virtual reality environment, she reinterprets the Labyrinth of the Minotaur, a mythological maze from which there is no escape. Hart explores icons of power, money, addiction, and control and investigates the way human bodies and the physical world are merging with and being absorbed by new technologies.

Developed in collaboration with Center for New Audio Technology at UC Berkeley including music composed by CNMAT director Edmund Campion and cello improvisations by Danielle DeGruttola.

Claudia Hart

The Flower Matrix Pod, 2018

Mixed-media installation



VR still from *The Flower Matrix* by Claudia Hart, 2018. Courtesy of the artist.

Q+A with Claudia Hart

Claudia Hart has been active as an artist, curator, and critic since 1988. She was an early adopter of virtual imaging, using 3D animation to make media installations and projections, then later, as they were invented, other forms of virtual reality, augmented reality, and objects using computer-driven production machines. She works with digital trompe l'oeil as a medium, directing experimental theater and dance, as well as making media objects of all kinds. For this exhibition, she installed the mixed-reality environment, *The Flower Matrix Pod*. Here, this veteran of the field responds to a few questions about her work and the future impact of technology.

How do you see the interaction between technology and the body evolving over the next decade?

My idea of a virtualized reality emerges from my art practice of the past 23 years, where I adopted 3D animation as my medium but approached it in the context of experimental film and video rather than a Pixar or gaming esthetic. I developed a discourse around it couched in the terms of a "post" photographic.

Computers and softwares once available only in Hollywood effects houses and science research facilities were only introduced to art schools about a dozen years ago, engendering a new form post-internet. Post-Photography can be defined by what it is NOT in relation to everything documentary and verite about photography. It is NOT the digitalization of real, light-sensitive "capture" technology that happened with digital photography. Because of this, Post-Photography proposes a radical paradigm shift with significant cultural ramifications. It does NOT "slice" from life, but rather numerically models it with the same techniques used by scientists, but also by game and Hollywood effects houses. The artists who produce it all use specialized compositing and 3D animation software. Instead of capturing the real in an indexical fashion, Post-Photography artists use measured calculations to simulate computer-generated models of the real. These visualizations were viewed by computer operators in schematic form "inside" of their computers, meaning through software interfaces, their "windows." 3D software also simulates a model of a camera with an interface almost identical to that of a digital camera, which is also based on a traditional mechanical, analog camera.

All simulations are profoundly philosophical. It is what has come to be generally called virtual reality (VR) and the software used to produce it is epistemological in that the interface design reflects the canons of scientific knowledge. Within a single software, there are multiple interfaces, each based on different scientific disciplines including optics, biology, the nuclear physics of gases, as well as Newtonian physics, geology, and the physical properties of materials. VR software stands on centuries of theoretical and scientific models of the real and reflects the foundations of Western knowledge.

The issues implied by this paradigm shift has engendered a crisis of representation. We can see it in our current political environment when science and climate-change deniers are ruling America. It's now being propagated in the form of fake-truth propaganda, in the form of misinformation and ubiquitous infotainment.

I started working with VR four years ago, introduced to it by one of my students, Alfredo Salazar Caro, who is co-founder of "DiMODA," the Digital Museum of Digital Art. I did my first VR piece *The Process of History* for his first iteration of that project. What struck me about the Oculus experience is that it elicits an experience of delight and awe in viewers, no matter the imagery (although I've seen it used to simulate horror and abjection with similar emotional intensity).

From that first work, I began to develop a more complex version of *The Flower Matrix* that included an augmented-reality chamber—a lounge made specifically for viewing it. *The Flower Matrix* uses the same animated elements from the VR works, but in this new version the animations also appear as animated augments that can be viewed through *The Looking Glass*, my custom augmented reality (AR) app. The app is triggered by the decor of the chamber, all covered by decorative patterns doubling as computer codes. I thought of the AR lounge as a liminal space, halfway between the real world and the purely artificial fake world of VR. *The Flower Matrix* slowly evolved over a period of several years, 2017–18, during which I produced four installations at different cultural institutions around the world.

These four projects allowed me to beta test the concept and to personally experience how people experience VR, tweaking the piece sequentially. I think of *The Flower Matrix* as a physicalized computer interface. With this construct (an AR chamber designed in relationship to specific VR environments), I have designed a frame for experiencing and employing successive levels of immersion, meant to soften the harsh transition into the VR world, accessed now only through VR headsets, another but still very awkward version of a sculptural interface. Because a user occupies my AR chamber with their entire body, it heightens user-experience. They then can understand VR phenomenally and feel that their physical bodies have entered an immaterial, artificial VR world rather than just their head and eyes. *The Flower Matrix* feeds-back the virtual and the live, blending them together in a liminal, uncanny mix.

Since the 1990s when I produced my first 3D animations, I have been inspired by Donna Haraway whose *Cyborg Manifesto* (1985) imagined a Utopian future in which advanced bio-technologies would liberate human culture from the constraints of gender binaries. So, for *The Flower Matrix* mixed-reality setup, following Haraway's cyborg paradigm, I imagined blending together the physical real world and the ephemeral one in an uncanny cocktail.

Because of the liminality of *The Flower Matrix*, its effect on people is hypnotic. Users' experience is trance-like. When they finally don the VR headset, after spending some time exploring the AR decor with a computer tablet in hand, they seem to me to be in a state of ecstasy. They feel good! They walk around stroking each other and the physical elements in the room, breathlessly, unsure as to whether the things they are touching are physical or ephemeral. This has something to do with the subject matter of *The Flower Matrix*, as reflected in its visual esthetic and related music.

The Flower Matrix is, in its totality, a Haraway "cyborg," a hybrid environment using a custom augmented-reality application made for physical installation in the real world. This real-world environment is a prototype for a new kind of computer interface and takes the form of real-world architecture by means of decorative elements, embossed with augmented reality and designed for hyper-immersion in virtual reality. Inside *The Flower Matrix*, viewers dwell in a disorienting loop of modalities where the rational order of reason and technology has turned in on itself.

What excites you most about these developments and what frightens you? What development do you think has the most opportunity to make positive change?

What excites me the most is moving beyond the theoretical concerns that led me to *The Flower Matrix* to practical applications that are healing and positivistic.

Last year, I was invited by Olivia Davis, the developer and curator of an augmented and virtual reality collection at Montefiore Hospital in the Bronx, to work on a project at the hospital. Since Summer 2017, as co-curator of the Fine Art Program and Collection at Montefiore Einstein, she began building a platform for artists to create works of art in VR and AR that can inspire patients and distract them from their pain and suffering while in the hospital. This concept stems from the particularly immersive and restorative effect that VR has on people that I've also observed in *The Flower Matrix*.

In Summer 2019, Montefiore will open a new state-of-the-art infusion space for pediatric patients suffering from cancer and sickle cell disease. There will be 25 rooms and a large playroom to allow ambulatory patients and family members to escape the often long hours they sit receiving treatment.

My proposal for the Montefiore Playroom brings together Donna Haraway's *Cyborg* with Hans Moravec's *Paradox*, but practically in a playroom for children confronted with very adult realities: the fragility and vulnerability of the body, the inevitability of death, and a daily confrontation with pain. I think with VR and AR, I can lift them out of the real world, into a liminal halfway space, so they might float above their bodies and detach from their pain and anxiety, yet still engage actively in this other world.

Opportunities such as *The Healing App*, my working title for the Montefiore mixed-reality experience, permit people to deal with both human and psychic pain, as the heightened experience and the fact that it is a safe zone where you are both alone and together with other people make it a good site to work through traumatic real life experiences. Yet at the same time, those very qualities make VR environments a place where one can create traumatic experiences, a place where psychic aggression can be enacted. I have seen several artworks like this over the past years and find them saddening.

What has the potential to cause harm?

The anxieties about VR-harm that circulate around are, to me, sci-fi conspiracy paranoia. I don't believe in it. The fear is that people will use VR to escape reality, to drop out of the world to become lifeless drones vis-a-vis "The Matrix." VR is not news. All mass-media becomes "addictive," meaning it engenders profound cultural change and is adopted by the masses without criticality. This is in the end what all "culture" is: *ex post facto*. It began with the printing press, moving through photography, cinema, television, and most recently the internet—and perhaps one day VR when it is applied to systems of mass communication. To me, VR is an appendage to the real rather than a replacement. VR is a site of heightened experience and therefore heightened emotion, which means it has the possibility of also representing aspirations. I imagine it metaphorically as a "heavenly realm," suggesting the possibility of eternal life—a kind of heavenly enactment—a space where your body comes in contact with the ethereal.

What can being immersed and absorbed in technology teach us about our bodies?

It teaches us that there is fundamentally NO body-mind split. VR perceptions and the psychic experiences they engender can be felt in the body; it is proof of another concept: NO mind, only body.

Based on the scale of Cave's body, the *Soundsuits* are a type of prosthetic camouflage, masking and creating a second skin that conceals race, gender, and class. First conceived in the aftermath of the 1991 Rodney King beating, Cave initially thought of the *Soundsuits* as protective shields capable of masking a person's identity. Rooted in the tactile and physical, Cave's training as a fiber artist and dancer inspired this ongoing and otherworldly series. These extravagantly ornamented suits also explore the tension between "low craft" and "high art." They are often made from found objects and incorporate a wide range of cultural references, from American craft techniques to African dance rituals.

Nick Cave

Soundsuit, NC15.020, 2015

Mixed-media including synthetic hair, fabric, metal, and mannequin

Four custom glass bubbles containing the pigment melanin slump over an architectural armature in the sculpture *Systems I*. Melanin is the biological foundation of color in everything from mold to fungi to squid ink. Once embodied by the human skin, this pigment also defines racial categories and thereby plays a key role in organizing society. Fan manipulates this racialized biological material in his sculptures, exploring the intersection of biology and identity. Through science and technology, he locates the physical materials in the human body that are considered "natural" or "artificial" and unpacks the cultural and political meanings of the materials composing the human body in this complex techno-biopolitical age.

Jes Fan

Systems I, 2018

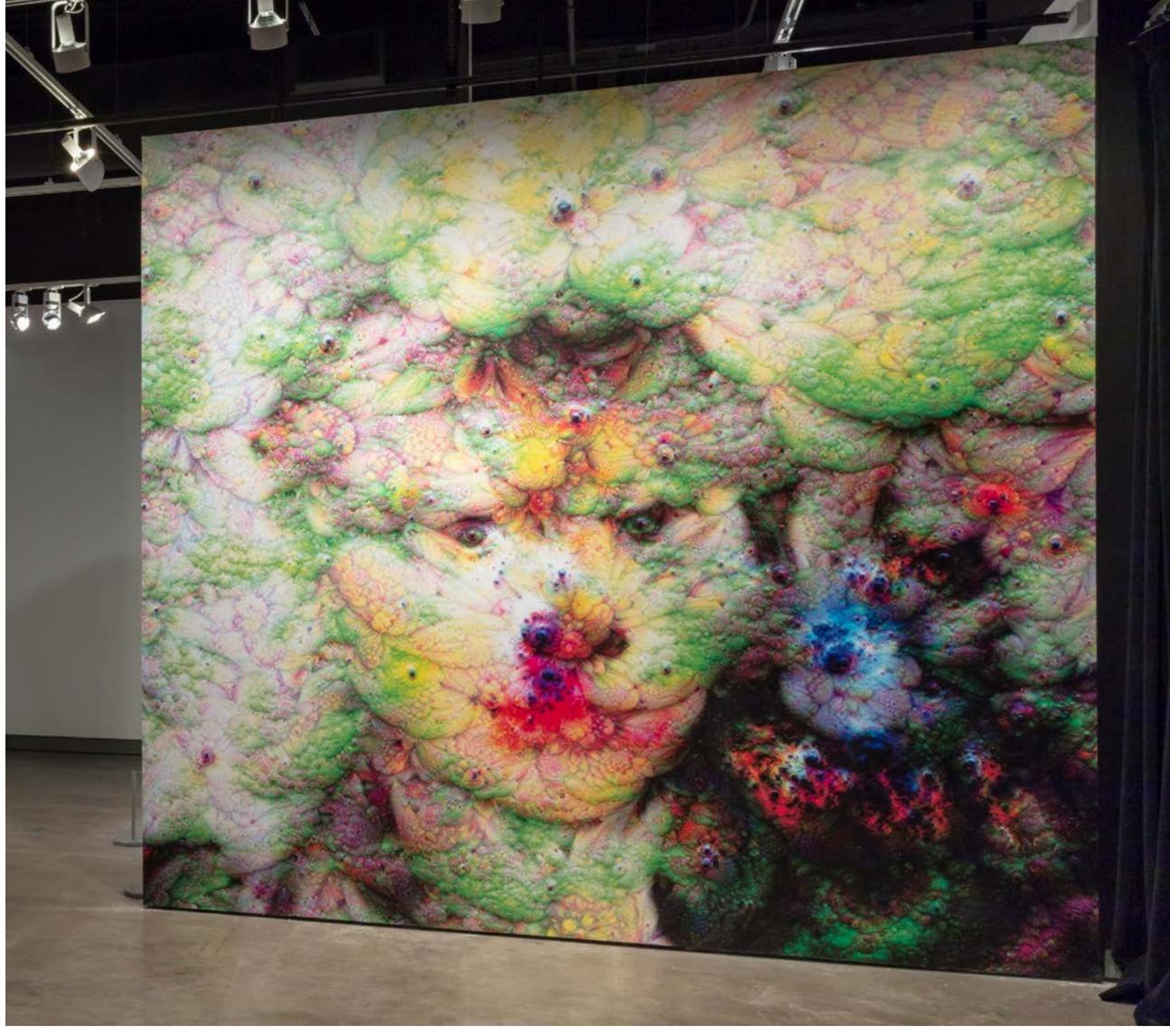
Melanin, glass, steel, silicone, plaster

This high-resolution portrait is generated by a machine learning algorithm, Maximum Mean Discrepancy Generative Adversarial Network (MMD-GAN), and its decorative details were added by the Deep Dream algorithm. *Kyungja* came out of a larger series in which MMD-GAN drew portraits of imaginary people after learning from many photographs of the human face. The algorithm was not trained to recognize categorizations of gender, ethnicity, or age, and as a result, the portraits are curiously ambiguous. This work engages a utopic premise of the possibility of unbiased artificial intelligence.

The portrait got its name from a Korean painter Kyung-ja Chun. The artist was embroiled in scandal in the early 1990s when she announced that the painting *Mi-In-Do*, a portrait of a woman wearing flowers on her head that had been acquired by the national museum and attributed to her, was not, in fact, her painting. Instead of issuing an apology, museum officials and the male-dominated art establishment dismissed her claims as the confused mumblings of a senile, old woman. The legal battle on this issue is still unresolved.

The *Mi-In-Do* scandal questions how the value and even authorship of an artwork can be "decided" by a group of people. *Kyungja* questions who the author is of this work made in collaboration with AI. Who will decide what factors determine agency in the future?

MMD-GAN is developed by Chun-Liang Li, Wei-Cheng Chang, Yu Cheng, Yiming Yang, and Barnabas Poczos at Carnegie Mellon University.



Eunsu Kang in collaboration with MMD-GAN and Deep Dream neural networks

Kyungja_Mural, 2018

Vinyl print

Contra-Internet: Jubilee 2033 is a queer science fiction film installation that includes live action and CGI, blown glass sculptures, and a single edition publication. This work re-imagines scenes from filmmaker Derek Jarman's 1978 queer punk film, *Jubilee*, starring queer icon Susanne Sachsse and visual artist Cassils. *Jubilee 2033* follows author Ayn Rand (Susanne Sachsse) and members of her Collective, including economist Alan Greenspan, on an acid trip in 1955. Guided by an artificial intelligence named Azuma, they are transported to a dystopian future Silicon Valley. As Apple, Facebook, and Google campuses burn, Azuma reveals that Ayn has become a celebrity philosopher to tech executives, as her writings foster their entrepreneurial spirit. Amidst the wreckage, Rand and The Collective are introduced to the internet, observe techies being captured by anti-campus groupies, and bear witness to the death of Silicon Valley elite. Once inside an occupied office of Palantir Technologies, the group encounters Nootropix (Cassils), a contra-sexual, contra-internet prophet, who lectures on the end of the internet as we know it. Seeking respite, Rand and The Collective find themselves at Silicon Beach, where chunks of polycrystalline silicon mix with sand and ocean.

Zach Blas

Contra-Internet: Jubilee 2033, 2018

Film installation, 30:01 min. looped

Transcript of Jubilee 2033's final scene

Zach Blas

9. SILICON BEACH
Silicon Beach, California. 2033. Sunset.

FADE IN: Full, handheld steady shot. Ayn Rand, Azuma Hikari, Alan Greenspan, and Joan Mitchell walking slowly in the sand, close to the breaking tide. No one else is on the beach. Ayn holds her shoes, so she is barefoot. They look out to the ocean, the setting sun, and discuss the ongoing Network War II. Ayn is silently crushed by this future scenario but remains rational. It's only a hallucination, afterall -- an optical error.

MUSIC: A slow, somber, mournful, ambient music, sparse, mixed with the powerful sound of ocean waves.

Azuma: The valley sprawls to the beach, which is the edge of superintelligence. Where ocean unites with sky, the last of the California prophets imagine the singularity that is still to come. Enlightenment dreams itself anew in software. Electronic signals blow in the sea breeze as waves break their immaterial ease. Beneath the shimmering water, what is left of fiber optic lines rests amid fallen satellites and other debris of network war. The ocean bed collects inoperable hard drives of those that wanted to live forever as machines. Mutations of life abound… Please be careful, I can't get wet!

CUT TO: Medium shot of Ayn and Alan. Ayn reflects with Alan. Intercut with ocean.

Ayn: The ocean encourages dreams. Oh Alan, there is much work for each member of The Collective. Man's will must exceed the horizon. I see a glistening glass skyscraper rising out of the waves -- a true phoenix! Here, the new intellectual is born.

Alan: You write the path to tomorrow, Ayn, as then and still now.

CUT TO: Joan discovers a chunk of silicon in the sand and hands it to the AI. Azuma and Joan quietly look into its shiny, reflective, opaque black surface.

CUT TO: Close-up of Azuma's hand holding the silicon. Azuma speaks.

Azuma: The men of the mind took of the earth itself, and people were given computers, circuits, and phones. An alchemical industry!

CUT TO: As Azuma continues to speak, Ayn and Alan walk further along the beach, becoming quite distant, almost off screen.

Azuma: Here, all is barren -- the earth toxic. The men gaze eastward… and to outer space, for new lands and elements that may conjure computational elixirs.

CUT TO: Back to Azuma holding the silicon chunk, right against the setting sun. The black silicon in contradistinction to the shimmering sunlight over the Pacific Ocean. As Azuma talks, the camera slowly moves closer to the silicon, disappearing the sun. The silicon chunk's surface fills the frame. Black, shiny, opaque, mysterious.

Azuma: The ocean holds the Great Blackout at bay as its depths are plunged for refuse. The possibility of connection further disappears under sediment, and bodies. The tide divides what is known from the incomputable. A twilight of linkability! What is the secret language of minerals? On the horizon, a basilisk swims, guarding the rotted TGN-Pacific cable. It coils around faltered infrastructure and calls out in an alien tongue: Communicate!

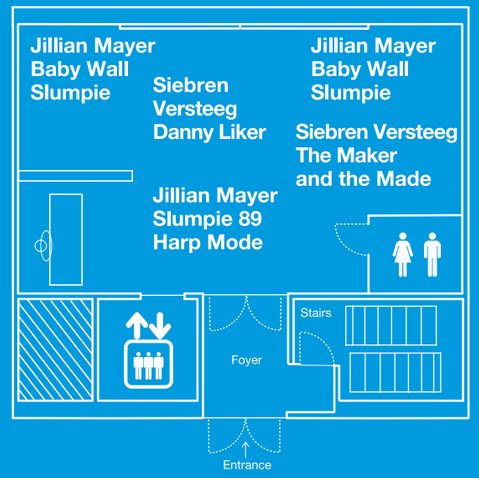
As Azuma continues to speak, a slow fade to black.

Animated sigil as loop interlude.

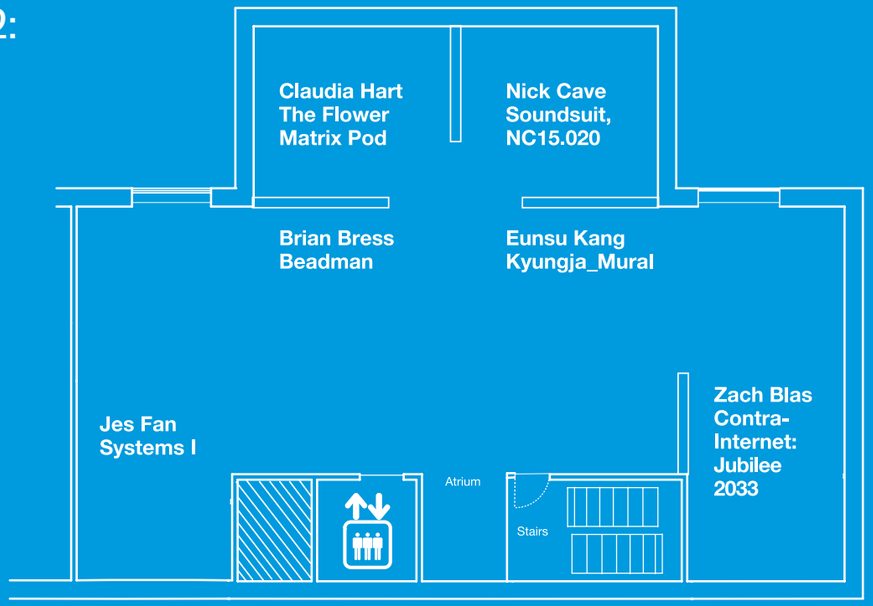
Contra-Internet: Jubilee 2033 by Zach Blas. 2018. HD video still. Courtesy of the artist
Commissioned by Gasworks, London; Art in General, New York; and MU, Eindhoven

Gallery

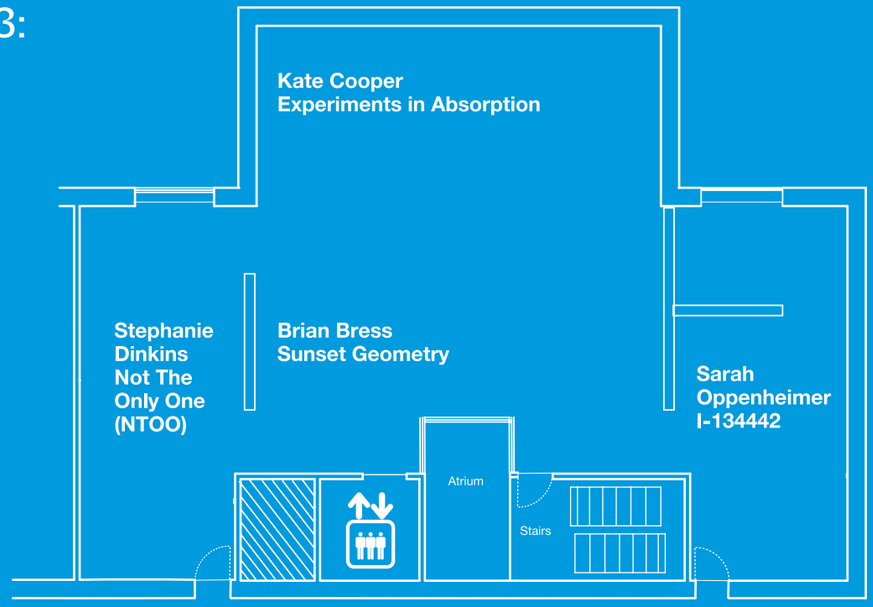
Floor 1:



Floor 2:



Floor 3:



Biographies

Artists

Zach Blas

Zach Blas is an artist, filmmaker, and writer whose practice spans technical investigation, theoretical research, queer and feminist futurity, conceptualism, performance, and science fiction. Currently, he is Lecturer in the Department of Visual Cultures at Goldsmiths, University of London. Blas has exhibited, lectured, and held screenings internationally, recently at the 2018 Gwangju Biennale; 68th Berlin International Film Festival; Art in General, New York; Gasworks, London; e-flux, New York; and Van Abbemuseum, Eindhoven. His practice has been supported by a 2016 Creative Capital award in Emerging Fields, the Arts Council England, and the Edith-Russ-Haus für Medienkunst.

Brian Bress

In Brian Bress's photographic and video work, masked and costumed figures populate surreal, collaged, and painted landscapes; his works are then housed in brightly colored, custom-built frames. His backdrops reference modernist and abstract works—Roy Lichenstein's dot paintings, Matisse's cut-outs, Cubist and primitivist painting of the early 20th century. His often-faceless characters resemble the cartoonish figures of children's shows and cereal advertisements—at once monstrous and human, but appearing unwound, engaged in repetitive activities, and possessing slow, leaden movements. In *Beadman (Parker)* (2012), a clownish figure decked head-to-toe in colorful wooden beads jumps on a trampoline, while in *Cowboy (Brian led by Peter Kirby)* (2012), a man encased in a white foam cowboy suit scribbles childish drawings directly onto the glass screen. Bress is concerned with exploring fabricated space and probing the relationships between figure and ground, painting and video, animate and inanimate.

Nick Cave

Nick Cave was born in Fulton, Missouri, in 1959. He creates the *Soundsuits*—surreally majestic objects blending fashion and sculpture—that originated as metaphorical suits of armor in response to the Rodney King beatings and have evolved into vehicles for empowerment. Fully concealing the body, the *Soundsuits* serve as an alien second skin that obscures race, gender, and class, allowing viewers to look without bias towards the wearer's identity. Cave regularly performs in the sculptures himself, dancing either before the public or for the camera, activating their full potential as costume, musical instrument, and living icon.

Kate Cooper

Creating multimedia, post-internet work that tackles issues of digital technology, capitalism, and the female body, British artist Kate Cooper challenges and appropriates the visual language of advertising. Incorporating live models and CGI fabrication into her varied practice, Cooper's female representations move through digital space as touchstones of what the artist refers to as "hypercapitalism."

Stephanie Dinkins

Stephanie Dinkins is a transdisciplinary artist who creates platforms for dialog about artificial intelligence (AI) as it intersects race, gender, aging, and our future histories. She is particularly driven to work with communities of color to co-create more inclusive, impartial, and ethical artificial intelligence environments. Dinkins's art practice employs lens-based practices, emerging technologies, and community engagement to confront questions of bias in AI, consciousness, data sovereignty, and social equity. Investigations into the contradictory histories, traditions, knowledge bases, and philosophies that form/inform society at large underpin her thought and art production.

Dinkins earned an MFA from the Maryland Institute College of Art in 1997 and is an alumna of the Whitney Independent Studies Program. She exhibits and publicly advocates for inclusive AI internationally at a broad spectrum of community, private, and institutional venues—by design. Dinkins is currently a 2018/2019 Soros Equality Fellow, Data & Society Research Institute Fellow, and Artist in Residence at Nokia Bell Labs. Past residencies include Sundance New Frontiers Story Lab, Eyebeam, Pioneer Works Tech Lab, NEW INC, Blue Mountain Center, The Laundromat Project, Santa Fe Art Institute, and Art/Omi.

The *New York Times* recently featured Dinkins in its pages as an AI influencer. Apple Inc. recognized Dinkins's research and community-centered efforts by featuring her as a local hero in their "Behind the Mac" ad campaign (Brooklyn, NY edition). *Wired*, *Art In America*, *Artsy*, *Art21*, *Hyperallergic*, the *BBC*, *Wilson Quarterly* and a host of popular podcasts have recently highlighted Dinkins's art and ideas.

Jes Fan

Jes Fan is a Brooklyn-based artist born in Canada and raised in Hong Kong, China. They are the recipient of various fellowships and residencies, such as the 2017 Joan Mitchell Painters and Sculptors Grant, the Van Lier Fellowship at the Museum of Arts and Design, the Pioneer Works Residency, and the John A. Chironna Memorial Award at the Rhode Island School of Design. Fan has exhibited in the United States and internationally; selected exhibitions include *Mother is a Woman at Empty Gallery* (Hong Kong), *Whereabouts* at Glazenhuis Museum (Belgium), *Disposed to Add* at Vox Populi Gallery (Philadelphia), *Material Location* at Agnes Varis Gallery (New York). Fan holds a BFA in Glass from the Rhode Island School of Design.

Claudia Hart

Claudia Hart emerged as part of a generation of '90s intermedia artists in the "identity art" niche. She still examines issues of identity, now focusing on how technology has affecting cultural constructions of gender identities and issues of the body, perception, and nature collapsing into technology and then back again. Hart was an early adopter of virtual imaging, using 3D animation to make media installations and projections, then later, as they were invented, other forms of virtual reality (VR), augmented reality (AR), and objects using computer-driven production machines, all based on the same computer models. At the School of the Art Institute of Chicago, she developed a pedagogic program based on this concept—*Experimental 3D*—the first art-school curriculum dedicated solely to teaching simulations technologies in an art-world context. She lives in New York and Chicago, works with the Transfer Gallery and bitforms gallery, and is married to the Austrian media artist Kurt Hentschlager.

Eunsu Kang

Eunsu Kang is a media artist from Korea. She creates interactive audiovisual installations and artworks using machine learning methods. Her work has been exhibited in numerous places around the world including Japan, China, Switzerland, Sweden, France, Germany, and the US. She has won the Korean National Grant for Arts three times. Kang earned her PhD in Digital Arts and Experimental Media from the University of Washington, an MA in Media Arts and Technology from the University of California, Santa Barbara, and an MFA from the Ewha Womans University. Currently, she is Visiting Professor of the School of Computer Science at Carnegie Mellon University.

Jillian Mayer

Jillian Mayer's artistic practice is a means of processing how our physical world and bodies are impacted and reshaped by our participation in a digital landscape. Through videos, photography, painting, performance, sculpture and installation, her projects explore how technology affects our identities, lives, and experiences. Mayer explores the points of tension between our online and physicals worlds and makes work that attempts to inhabit the increasingly porous boundary between the two. Her works and performances have been premiered at galleries and museums internationally, such as the Museum of Modern Art, Museum of Contemporary Art North Miami, The Bass Museum, MoMa PS1, the Contemporary Museum of Montreal, and film festivals, such as Sundance, SXSW, and the New York Film Festival.

Sarah Oppenheimer

Oppenheimer's calculated manipulation of standardized spaces disrupts the embodied experience of spatial continuity, reorienting and clarifying the experience of the built environment.

Siebren Versteeg

Born approximately 17,000 days ago, New York-based artist Siebren Versteeg uses digital technologies to create algorithms that conflate painterly abstraction with images, often culled from the internet, to produce, display, and interpret an ongoing array of visual permutations. He has studied at the School of the Art Institute Chicago, the University of Illinois at Chicago, and The Skowhegan School of Art, ME. Solo exhibitions include bitforms gallery, NY; The Museum of Art at the Rhode Island School of Design; Hallwalls Contemporary Art Center, NY; the Wexner Center for the Arts, OH; Max Protetch Gallery, NY; Rhona Hoffman Gallery and The Museum of Contemporary Art in Chicago. Group exhibitions include the Smithsonian's Hirshhorn Museum, Washington, D.C.; Essl Museum, Vienna; The Contemporary Museum, Baltimore; The Fabric Workshop, Philadelphia; and the National Museum of Art, Czech Republic. His work is in the collections of the Whitney Museum of American Art, the Guggenheim Museum, the Albright-Knox Art Gallery, the Yale University Art Gallery, the Hirshhorn Museum, and more. Versteeg is currently an Artist in Residence with the Chemical Engineering program at the University of Texas at Austin.

Contributors

Elizabeth Chodos

Elizabeth Chodos focuses on advancing contemporary art and supporting contemporary artists through exhibition, residencies, and higher education. She is Director of the Miller Institute of Contemporary Art at Carnegie Mellon University. She is a co-founder of Common Field, served as Executive and Creative Director of Ox-Bow School of Art and Artists' Residency, and was formerly Executive Director at Threewalls in Chicago. Chodos received a dual master's degree from the departments of Art History, Theory, and Criticism and Arts Administration at the School of the Art Institute of Chicago and her Bachelor of Arts in Creative Writing from Sarah Lawrence College.

David Danks

David Danks is L.L. Thurstone Professor of Philosophy & Psychology and Head of the Department of Philosophy at Carnegie Mellon University (CMU). He is also an associate member of the H. John Heinz III College of Information Systems and Public Policy and the Center for the Neural Basis of Cognition (both at CMU). His research interests are principally at the intersection of philosophy, cognitive science, and machine learning, as he integrates ideas, methods, and frameworks from each to advance our understanding of complex, cross-disciplinary problems. Most recently, he has been examining ethical, psychological, and policy issues that arise around the introduction of autonomous technologies (such as self-driving cars), with the aim of ensuring that our practices remain human-centric, rather than technology-centric. This work extends across many domains, including transportation, healthcare, privacy, and security, and engages with academic, government, and industry groups. Danks is a James S. McDonnell Foundation Scholar (2008) and an Andrew Carnegie Fellow (2017). Before arriving at CMU, he received an AB in Philosophy from Princeton University, an MA and PhD in Philosophy from the University of California, San Diego, and was a Research Scientist at the Florida Institute for Human & Machine Cognition.

Acknowledgments

PARADOX: The Body in the Age of AI
October 5, 2018–February 3, 2019

This exhibition was made possible with
support by Regina and Marlin Miller.

Special thanks to the Pittsburgh Glass Center, Facebook Reality Labs, The Entertainment Technology Center, and Pioneerworks.

Miller ICA

Carnegie Mellon University

Miller ICA is Carnegie Mellon University's contemporary art institute providing transformative experiences with contemporary art through exhibitions, conversation, and exchange in a free and open public space.

General operating support for the Miller ICA is provided by Carnegie Mellon University. Exhibitions and programs are supported by Regina and Marlin Miller, as well as the CMU College of Fine Arts and in part by a grant from the Pennsylvania Council on the Arts, a state agency funded by the Commonwealth of Pennsylvania. Additional support comes from gallery members, patrons, sponsors, and donations.

PENNSYLVANIA COUNCIL ON THE ARTS

Published by the Miller ICA in conjunction with the exhibition.

Miller ICA at Carnegie Mellon University
Purnell Center for the Arts
5000 Forbes Ave.
Pittsburgh, PA 15213
www.miller-ica.cmu.edu

Produced by
Elizabeth Chodos, Director
Margaret Cox, Assistant Director
Sonia Yoon, Designer

Event photography: Sean Carroll
Exhibition photography: Tom Little
Copy editor: Larissa Garcia

Printed by Kreider Printing Company, Pittsburgh.

First printed in 2019 in an edition of 800.

ISBN: 978-1-7335378-0-3

$20.00
ISBN 978-1-7335378-0-3
52000
9 781733 537803


Miller
ICA
Carnegie
Mellon
University