Future Tense: Art, Complexity, & Uncertainty

Aug 24 - Dec 14, 2024

UC Irvine Beall Center for Art + Technology
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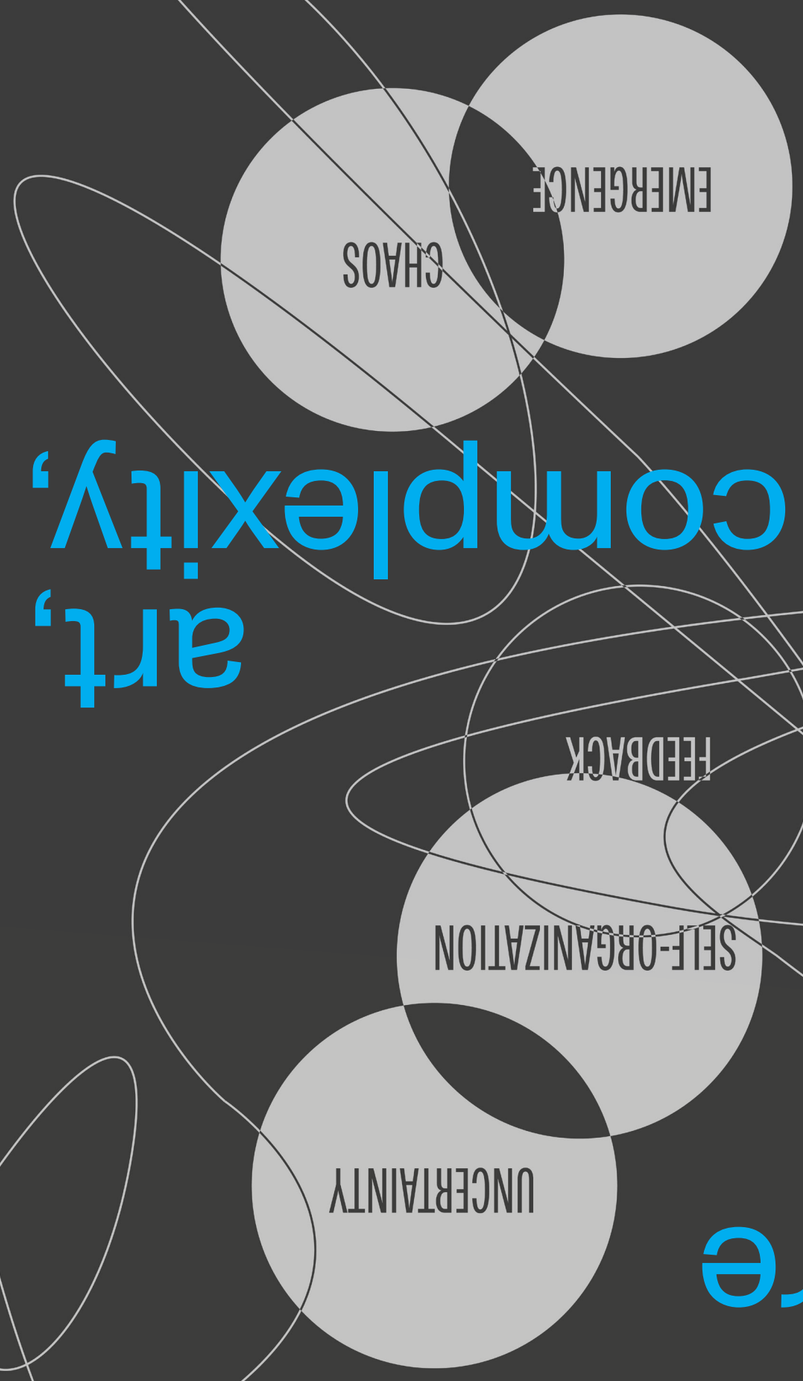

Curated by
David Familian

Ralf Baecker
Carolina Caycedo and
David de Rozas, with Juan
Mancias
Newton Harrison
Forrest and Lula Kirkland
Cesar & Lois
Chico MacMurtrie
Julie Mehretu
Lynn Hershman Leeson
Fernando Palma Rodríguez
Clare Rojas
Theresa Schubert
Laura Splan
Hege Tapio
Gail Wight
Pinar Yoldas

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PST ART
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BEALL
Donald Bren Hall
Center for Art + Technology
University of California, Irvine

Future Tense

Art, Complexity, and Uncertainty

Future Tense: Art, Complexity, and Uncertainty, part of Getty's 2024 PST ART: *Art & Science Collide* initiative, offers artistic frameworks for comprehending complex systems in the 21st century. The exhibition presents emerging and established contemporary artists who engage with complexity in myriad systems, including robotics, evolutionary biology, data surveillance, global warming, and bacterial intelligence.

Cesar & Lois, **Chico MacMurtrie**, **Laura Splan**, **Hege Tapio**, and **Gail Wight** are premiering newly commissioned, transdisciplinary works under the Beall Center's Black Box Projects, a residency program that facilitates collaborations between visiting artists and UC Irvine faculty researchers.

Ralf Baecker, **Carolina Caycedo and David de Rozas**, **Newton Harrison**, **Forrest and Lula Kirkland**, **Lynn Hershman Leeson**, **Julie Mehretu**, **Fernando Palma Rodríguez**, **Clare Rojas**, **Theresa Schubert**, and **Pinar Yoldas** are exhibiting existing paintings, sculptures, and installations that explore complexity.

Today, many scientists and scholars across disciplines agree that an understanding of complex systems is vital for studying a world where conditions, events, and phenomena are too entangled to be observed individually.

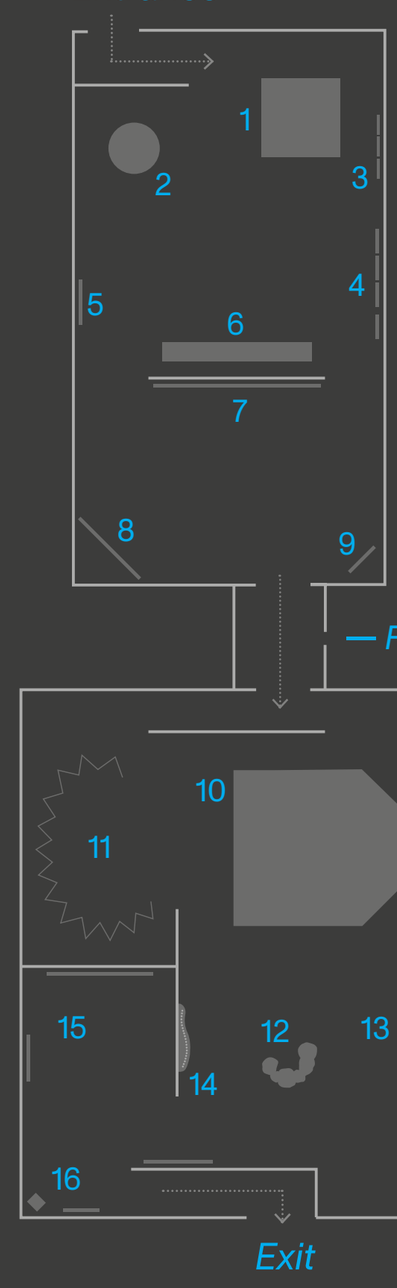
Distinct from scientific models which produce predictable outcomes, complex systems have feedback loops that can have emergent behavior that organizes into new patterns. It is this constant dynamism between order and chaos that produces the complexity and uncertainty that is visible in the art in this exhibition.

Future Tense is organized by David Familian, artistic director and curator at the Beall Center for Art + Technology, with Gabriel Tolson, curatorial assistant. Special thanks to the Beall Center's staff Jesse Colin Jackson, executive director, and Fatima Manalili, associate director, and to the staff of the Claire Trevor School of the Arts who supported this program.

Support for *Future Tense: Art, Complexity, and Uncertainty* comes from The Beall Family Foundation and from Getty. Learn more at: beallcenter.uci.edu/futuretense

gallery guide

Entrance



1. Carolina Caycedo and David de Rozas, *Measuring the Immeasurable,* 2020
2. Fernando Palma Rodríguez, *Huitztlampa,* 2023
3. Forrest and Lula Kirkland, watercolor paintings, 1935-38
4. Julie Mehretu, *Landscape Allegories,* 2004
5. Clare Rojas, *Circle of Infinite Chaos*, 2022
6. Ralf Baecker, *Interface I,* 2016
7. Laura Splan, *Baroque Bodies (Sway),* 2024
8. Carolina Caycedo and David de Rozas with Juan Mancias, *The Teaching of the Hands,* 2020
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10. Chico MacMurtrie, *Dual Pneuma,* 2024
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16. Newton Harrison, *Epitaph,* 2022 and *Making Earth and Art Park,* 1970

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Ralf Baecker

Interface I investigates the boundary between two separate interacting systems. Motors on the top and bottom pull strings, playing tug of war, and the points where the strings meet are coupled to their neighbors by elastic bands. Unpredictable signals, taken from Geiger-Müller tubes, detect the natural ambient radiation of the earth and determine the pulling strengths of each motor. The graphic shape of the red elastic mesh expresses the complex emergent behavior of the many interacting elements, and patterns develop from the contingent negotiation of individual random inputs. In Baecker's words, "this is the beauty of chaos: it offers the potential for change." ●

Ralf Baecker, *Interface I*, 2016. Installation view at NOME Gallery, Berlin 2016. Photo by Bresadola+Freese. Courtesy of Ralf Baecker.

Carolina Caycedo and David de Rozas, with Juan Mancias

The Teaching of the Hands overwrites colonial history with Native cosmology, consciousness, and resistance against ongoing forms of erasure and exploitation. Narrated by Juan Mancias, Chairman of the Esto'k Gna/Carrizo Comecrudo Tribe of Texas, the film layers oral histories, scenes of environmental violence, reenactments, archival footage, and archeological artifacts, weaving thousands of years of regional history. *The Teaching of the Hands* is part of the artists' larger body of work, *The Blessings of the Mystery*, which intersects environmental memory with Native Peoples' agency. ●

Carolina Caycedo and David de Rozas, *The Teaching of the Hands* (still), 2020. Panoramic video installation, 5.1 surround sound, 47 minutes. Narration by Juan Mancias. Courtesy of the artists.

Cesar & Lois

Being hyphaenated (Ser hifanizado) is an artwork-as-ecosystem that performs complex interactions between the planet's living beings. "*Hyphae*" references the mycelial filaments that fungi use to communicate. The sculpture has pods that host microorganisms which are connected to each other through respiration and are mediated by sensing technology. A vessel of water generates humidity in response to the CO_2 produced by fungi and by viewers, triggering changes in bioelectric signaling within each pod. Embedded lights pulse in response to these changes, while an artificial intelligence studies bioelectric signals from each organism, looking for emergent behavioral patterns.

Behind the Science: The project investigates ecological relationships at different scales — as interspecies exchanges and as part of planetary respiration. The artwork was produced in conversation with Kathleen Treseder and researchers at the UC Irvine Treseder Lab, which studies fungi's role in ecosystems and global change. Live specimens included in the artwork were sourced from the mountain ecology surrounding Escondido, California. The project asks, if our technology were modeled from nature, might we begin to think of ourselves as nodes within a community of organisms? ●

Cesar & Lois, *Being hyphaenated (Ser hifanizado)*, 2024. Mycelial networks, living organisms, wood growth rings, glass vessels, soil, water, bio-sensors, custom electronics, lights, iron supports, and visualized AI on monitor, 50 × 53 x 49 inches. Courtesy of the artists. Commissioned by the UC Irvine Beall Center for Art + Technology's Black Box Projects residency program.

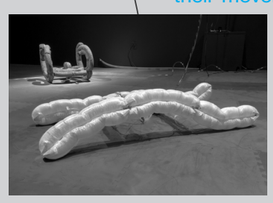
Chico MacMurtrie

Dual Pneuma is a soft-robotic performer evoking a humanoid body. Composed of inflatable, high-tensile fabric muscles, the artwork is capable of assuming a wide range of human, animal, and insect-like positions. The robot's movement is directed by feedback loops between bend sensors in its joints and pressure sensors in its feet, which allow it to respond in real-time to the complexity of live scenarios.

Alongside the robots is a series of ceramic works cast directly from the robotic figure. Compressed air is channeled through the ceramic sculptures to produce whistling sounds, which reference the water and wind-based *huaco* instruments of early Mesoamerican cultures.

Behind the Science: The *Dual Pneuma* project explores how living creatures maintain balance and evolve their movements. It builds on MacMurtrie's earlier work with "soft machines," which are inflatable robots designed to mimic natural movements. The project combines traditional programming and robotics with more user-friendly control systems.

The project is additionally informed by MacMurtrie's exploration of fluid creatures that merge across the US-Mexico border. Its hybrid form speaks to Gloria Anzaldúa's understanding of the mestiza object, or spiritual crossbreed, speculating beyond binaristic border politics and critiquing larger systems of technology and power. ●



Chico MacMurtrie, *Dual Pneuma*, 2024. Interactive inflatable robotic sculpture, Tedlar fabric, pneumatics, computer control, terracotta, and turquoise, dimensions variable. Photo by Will Tee Yang. Commissioned by the UC Irvine Beall Center for Art + Technology's Black Box Projects residency program.

Forrest and Lula Kirkland

As part of *The Blessings of the Mystery*, Carolina Caycedo and David de Rozas have installed six watercolors by Forrest Kirkland from a series of 120 painted during the 1930s. Kirkland documented the pictographs painted by Indigenous People in the caves of limestone cliffs in Texas, which were threatened by weather, vandalism, and looting. Juan Mancias, Chair of the Esto'k Gna/Carrizo Comecrudo Tribe, describes these pictographs as 4000-year-old prophecies of the coming of "new buildings and new monsters": the hieroglyphs represent cranes, powerlines, and towers that foretell the region's urbanization that has ravaged the land and continues to oppress Native Peoples. ●

Forrest and Lula Kirkland, *Pecos River Site 14*, 1938. Watercolor painting on paper, 16 × 20 inches, framed. Courtesy of the Texas Archeological Research Laboratory, the University of Texas at Austin.

Newton Harrison

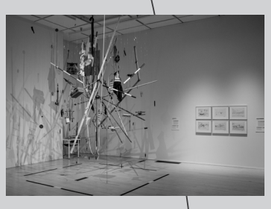
Epitaph, two large tablets that appears much like the Ten Commandments, is a testament to Harrison's late wife and question to what he calls the "web of life." He asks how humans can humble themselves and the response is a set of rules — or commandments — for our behavior, particularly towards the environment. The "web of life" conveys how nature is a vast network of entangled ecosystems that must be respected, not controlled. At the end, it says: "Learn from your companion species how to join me." Ultimately, *Epitaph* is both a personal, poetic text and a public message to humanity.

Accompanying *Epitaph* is a video interview with The Harrisons about an early work, *Making Earth and Art Park* (1970) providing insight into how their individual talents coalesced into their unique and sustaining collaborative process. With Newton's background in art, math and science and Helen's in language, education, and social psychology, their practice became an ongoing dialogue with each other and their myriad collaborators across disciplines. ●

Newton Harrison, *Epitaph*, 2022. Archival pigment print on canvas. 46 1/4 × 33 1/2 inches. Courtesy of The Harrison Studio and Various Small Fires Los Angeles, Dallas, and Seoul.

Carolina Caycedo and David de Rozas

What is lost through the process of reducing Grandmother Earth to straight lines, numbers, and economic value? *Measuring the Immeasurable* addresses this question by examining the US Public Land Survey System (1785). This ordinance appropriated and divided Native territories into private plots, forcing the Original Peoples of this country from their homelands. In the artwork, vintage and contemporary land surveying tools float above visitors' heads like a "wrongful collection of useless relics." *Measuring the Immeasurable* is part of the artists' larger body of work, *The Blessings of the Mystery*, which intersects environmental memory with Native Peoples' agency. ●



Carolina Caycedo and David de Rozas, *Measuring the Immeasurable*, 2020. Hanging sculpture, vintage and contemporary surveying tools, and artifacts, dimensions variable. Photo by Will Tee Yang. Courtesy of the UC Irvine Beall Center for Art + Technology.

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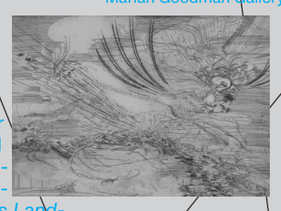
Julie Mehretu

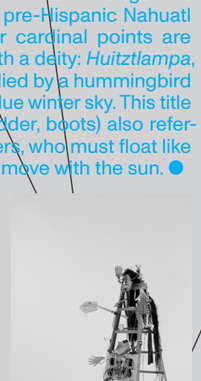
Julie Mehretu is known for her meticulously layered gestural paintings, often thought to visualize the architecture of modern systems. As in her paintings, Mehretu's *Landscape Allegories* etchings employ multiple techniques to produce images which are dually abstract and representational. The plates suggest images of wind turbulence and other weather phenomena intersecting with the ghostly scaffolding of human infrastructure. Tension is evident between the rigidity of architecture and an unruly "nature." *Landscape Allegories* was produced during the same year as Mehretu's widely known *Stadia II* painting, suggestive of the artist's timely interest in systems of power and their widespread effects. ●



Julie Mehretu, *Landscape Allegories*, 2004. Copperplate etchings with engraving, drypoint, sugar-bite and aquatint, 19 × 21 5/8 inches framed. Edition of 35 plus 7 artist's proofs (AP 1/7). Courtesy of the artist and Marian Goodman Gallery.

Fernando Palma Rodríguez

Huitztlampa, a mechatronic installation of everyday objects, is computer programmed to move in response to live weather signals from Los Angeles. Palma Rodríguez lives in a Nahua agricultural region outside Mexico City and wants his work to provide a heightened sense of urgency about both climate change and labor issues. In the pre-Hispanic Nahuatl creation story, four cardinal points are each associated with a deity: *Huitztlampa*, the south, is embodied by a hummingbird and the sun in the blue winter sky. This title and the objects (ladder, boots) also reference migrant workers, who must float like hummingbirds and move with the sun. ●



Fernando Palma Rodríguez, *Huitztlampa*, 2023. Mechatronic installation with ladder, stepper motors, electronic control, software, wheels, boots, synthetic hair, batteries, distance sensors, wooden arrows, and speaker, dimensions variable. Courtesy of the artist and Gaga Fine Arts, Mexico City, Guadalajara and Los Angeles.

Clare Rojas

In 2022, following the COVID-19 pandemic, painter Clare Rojas made a series of paintings about "the edge" of environmental collapse, of political disarray, and of the anxiety produced by both. This included *Circle of Infinite Chaos*, depicting a woman lying beneath a sphere with intersecting loops and floating objects. Perhaps it is a metaphor for synapses firing in Rojas's brain as she tries to make sense of chaos? As she notes: "I think my work has always teetered between chaos and the opposite of chaos. Serenity, maybe...I've always been searching for that balance, and the magic is somewhere in the middle." ●

Clare Rojas, *Circle of Infinite Chaos*, 2022. Oil on panel, 64 × 56 inches. Courtesy of the Orange County Museum of Art.

Theresa Schubert

Schubert's *Glacier Trilogy — Part 3: Simulating glacial water systems* looks to glaciers as the origin points of river systems, representing the future availability of water. *Part 3* presents a real-time simulation of melting glacial ice that runs over an elevation map of the Western Alps. A carbon dioxide sensor in the exhibition space determines specific parameters, connecting the exhalation of visitors directly to the complex patterns emerging in the simulated fluidic system. The artwork considers both the impact of humans on the environment and how we might use technology to improve our relationship with nature, which, the artist notes, is necessary for confronting the climate crisis. ●

Theresa Schubert, *Glacier Trilogy — Part 3: Simulating glacial water systems*, 2022. Graphic PC, custom code, CO2 sensor, and raspberry pi, dimensions variable. Courtesy of the artist.

Laura Splan

Baroque Bodies (Sway) is an interactive installation exploring the impact of the environment on gene expression. Nurturing embodied sensations of micro and macro scales, the work features a projected 3D model of a nucleosome, a cluster of DNA and proteins that holds genetic information. Landscapes reflected on surfaces were AI-generated using text excerpts from epigenetics research. Visitors' movements influence views of the nucleosome. Multiple visitors' movements share equal yet unpredictable "sway" over the view, just as environmental effects on gene expression compound in unpredictable ways. Movement also triggers sounds created with sonified data from simulations of chromatin (the material substance of the genetic chromosome).

Behind the Science: This project engages emerging epigenetic research. The name derives from Greek: "epi" means "on" or "above" and "epigenetic" describes factors beyond the genetic code. It focuses on inheritable changes in organisms caused by modification of gene expression, rather than modification of the genetic sequence. If one's genetic sequence were a musical score, its epigenetic expression could alter the way a song is played, without changing the song's underlying notes. Environmental exposures, diet, lifestyle, stress, and social factors can have an impact on our health and disease risk through epigenetic changes that regulate whether genes are turned on or off. ●

Laura Splan, *Baroque Bodies (Sway)* (installation view), 2024. Interactive audio-visual installation including data-driven sound and 3D models with AI-generated imagery, 16 × 20 × 25 feet. Photo by Will Tee Yang. Commissioned by the UC Irvine Beall Center for Art + Technology's Black Box Projects residency program.

Gail Wight

Ostracod Rising explores the intertwined relationships between Earth's rotation and atmosphere, the moon's proximity, shifting tectonic plates, the rise and fall of sea levels, and the ebb and flow of life as envisioned over a 4.6 billion year timeline. The project touches on previous extinctions and anticipated future extinctions, de-centering the traditional anthropocentric account of Earth's history in favor of the populations of small creatures who have thrived on Earth for hundreds of millions of years. The ostracod is among the planet's most numerous species, destined to emerge from the seas and take to land and sky in this speculative and hopeful future.

Behind the Science: We tend to make sharp distinctions between living and non-living systems (biology, geology, physics), but they are deeply intertwined. Four billion years of geophysical forces — from the spin of the earth to tidal patterns to volcanic explosions — have profoundly influenced Earth's life forms. Small creatures have had an overwhelming impact on this dynamic. Cyanobacteria created the oxygenated atmosphere that allowed our evolution. Innumerous bacteria inhabit our skin and our guts, support our food production, and consume our waste products. *Ostracod Rising* pays homage to this world of tiny beings and posits a bright future in which they reign supreme. ●

Gail Wight, *Ostracod Rising*, 2024. Pigment prints on watercolor paper, accordion binding. Photo by Will Tee Yang. Commissioned by the UC Irvine Beall Center for Art + Technology's Black Box Projects residency program.

Hege Tapio

Ephemeral imagines a future where venture capitalists embrace "emotion technology," speculating far beyond current emotion-sensing devices limited to analyzing facial expressions and biometrics. The project prototypes a transdermal implant which detects chemical levels in a user's bloodstream and releases neuropeptides to trigger the artificial sensation of a targeted emotion — including love, excitement, or the feeling of a brand. The *Ephemeral* installation includes a video of a fictive conference in which a future company is promoting the implant. Intended as a provocation, the project explores the complex physiology of emotions and reminds of the uncertain future humans face with advancing biotechnologies.

Behind the Science: This project draws from research into neuropeptides — biochemical messengers that pass signals between neurons — and their complex effects on emotions. Consensus remains unclear as to the precise combinations of neuropeptides that produce specific emotions, given the complexity of cultural, environmental, and genetic factors influencing emotional responses. Research is currently underway to develop implant devices with the ability to sense chemical levels in the blood, such as neuropeptides, and administer tailored doses of medications directly into the bloodstream. During her residency with the Beall Center, Tapio worked with microfluidics researchers to imagine the ever-more-realistic future of such technologies. ●

Hege Tapio, *Ephemeral* (process detail), 2024. Digital image showing production of microfluidic implant. Courtesy of the artist. Commissioned by the UC Irvine Beall Center for Art + Technology's Black Box Projects residency program.

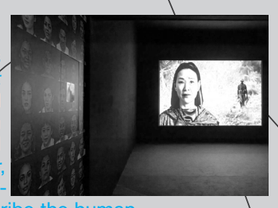
Pinar Yoldas

Alphabet of Life is an immersive art installation that explores the molecular essence of life itself: the twenty primary amino acids. These molecules are used to construct the proteins that sustain all living organisms. They are the fundamental "building blocks" of life. In the installation, the intricate beauty of each amino acid is revealed through a meticulous process. Each amino acid's molecular structure is sourced from the Protein Data Bank, transformed into 3D printable file formats, and refined to capture its essence. These structures are then laser-etched into glass orbs, creating a visual and tactile representation of the molecules that drive life's complexity. ●

Pinar Yoldas, *Alphabet of Life*, 2024. Installation of laser-etched glass spheres, each sphere 4 inches in diameter. Photo by Will Tee Yang. Courtesy of the UC Irvine Beall Center for Art + Technology.

Lynn Hershman Leeson

Hershman Leeson's *Logic Paralyzes the Heart* follows a cyborg (played by actor/filmmaker Joan Chen) who has just turned sixty-one. Her birth year, 1960, is when the term "cyborg" was coined to describe the human enhancements that enable extraterrestrial survival and travel. In this film, the cyborg details the history of cyborgian technology, from its early intention as a tool for human liberation to the ways in which this technology has produced a break between ethical human advancement and exploitation. She ultimately meets her human avatar, and the pair meditate on the current troubled relationship between humans and their world, the climate and extinction crises, and the potential for future evolution and change. The artist asks, how can we transform weapons into tools of survival? ●



Lynn Hershman Leeson, *Logic Paralyzes the Heart*, 2022. Multi-media installation with film and graphic components, dimensions variable. Photo by Will Tee Yang. Courtesy of the UC Irvine Beall Center for Art + Technology.

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CREDITS
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KEY VISUAL/ILLUSTRATION by Lena Weber & Jan Spading
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