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The thematic exhibition *Mouse in the Machine* brings together contemporary digital artworks at the intersection of technology and nature. With fifteen works by twelve artists, the show examines how software can simulate, generate and recreate natural processes—life, labor, thought, reproduction and death—into virtual experiences charged with fresh meaning.

The contemporary digital artists in this exhibit use customized software and code in order to expand our world and to envision new ones. Their artworks achieve lifelike biological and ecological systems to emulate the passage of time, seasons and lifecycles. With designer flora and fauna, they sprout habitats teeming with interspecies and technological interaction.

The exhibition asks, do computers have persona? Can they truly be programmed with artificial intelligence? In an age where nature is being reshaped by technology, how will technology be adapted to function naturally, even biologically?

The title *Mouse in the Machine* playfully reinterprets the famous philosophical expression “ghost in the machine,” which calls into question the nature of the mind or the soul as it pertains to animating the human body. If art can be a form of artificial consciousness, can it truly perform the role of its creator beyond the normal human lifespan?

–Jason Foumberg, Thoma Foundation curator

The Carl & Marilyn Thoma Art Foundation maintains a growing collection of electronic, interactive and software-based artworks from pioneering experimenters and contemporary innovators in the field of digital art. The group exhibition *Mouse in the Machine* features technological artworks by Nam June Paik, John Gerrard, Bruce Nauman, Marina Zurkow, Harold Cohen and others, spanning over forty years, illuminating the diverse creativity of this progressive art genre. *Mouse in the Machine* is on view at Art House, an exhibition space in Santa Fe, New Mexico, dedicated to exploring the fields of art represented in the Thoma Foundation collection.

Exhibition runs June 2, 2016 through Spring 2017.



© Jim Campbell, Photo: Joseph Rynkiewicz

Jim Campbell (American, born 1956)

Grand Central Station No. 3, 2009

LEDs, custom electronics and Plexiglas diffusion screen

33 x 44 x 1¾ inches

Grand Central Station No. 3 depicts commuters walking across the platform of Manhattan's busy Grand Central train station. The seemingly endless flow of anonymous humans through the space, interpreted through 1,728 LEDs, forms a rhythmic pattern of data and pulsing light. Jim Campbell spread out the LEDs in a diffuse grid, taking advantage of our brains' natural ability to organize fragmented visual information into a coherent narrative. Viewers must fill in the pixilated gaps with prior knowledge about how humans are shaped and how they move, efficiently linking perception with information.



© Daniel Canogar, Courtesy of bitforms gallery, New York

Daniel Canogar (Spanish, born 1964)

Rise / Times Square, July 2014, 2015

Generative animation on computer and monitor

66 x 37³/₄ x 2¹/₄ inches

Daniel Canogar recorded 1,200 strangers crawling across a gigantic green-screen in the middle of Times Square during the summer of 2014. Anyone passing through Times Square that day was invited to participate, and an iteration of this animation was exhibited on forty-seven LED screens there at night, looking as if the building facades were being conquered by crawling bodies. In the animation, the recorded individuals are released by a generative algorithm that never repeats its composition. The crowded figures propose the collective energy of gathering in a public square like Times Square, an increasingly rare experience as many people now interact digitally, online, in immaterial spaces and networks.



© Harold Cohen, Photo: Thomas Machnik

Harold Cohen (English, 1928-2016)

Untitled, 1995

Computer-generated drawing, in ink and colored fabric dyes, on paper
52 x 68 inches

Harold Cohen has come the closest to successfully constructing and programming an artificially creative painting machine. His seven artworks in the collection span twenty years and illustrate the evolution of his custom software, called Aaron, in its understanding of line, composition, foreground and background, figure, perspective and color.

Cohen modeled Aaron's artificially intelligent code on human thought. It could run a logic sequence or decision tree (the common if-then maxim) that allowed for endless possible outcomes based on what it knows, or has been programmed to know, about making images. Aaron could choose how many people to draw in a given picture, their gender and when to finish the work.

A notable Color Field painter during the 1960s, Cohen quit the London art scene because he no longer wanted to make decisions about what to make. He wrote his first computer program in 1968, then studied at Stanford's Artificial Intelligence lab, and declared his intention to produce what he called "rule-based art," in order for the "art to invent itself."



© John Gerrard, Courtesy of the artist and Simon Preston Gallery

John Gerrard (Irish, born 1974)

Oil Stick Work (Angelo Martinez, Richfield, Kansas), 2008

Realtime 3-D generative animation on computer and plasma screen, in artist's Corian frame, on artist's Corian console table
60 x 46 x 21 inches

Oil Stick Work (Angelo Martinez, Richfield, Kansas) depicts a scene in a Kansas farming town (population 43) near the Oklahoma Panhandle, and the real time of day there, simulated with a video-gaming software called Realtime 3D. A virtual character named Angelo Martinez (also modeled on a real person) works to paint the barn's walls black with a small oil-stick crayon. He paints from daybreak to dusk, six days a week. It will take him thirty years to cover the barn's walls, so in the year 2038 Martinez will disappear but the barn will remain on view. The key innovation of this artwork is the program's ability to independently accumulate data, expressed as the incremental oil-stick painting. The artwork has been called "a cautionary tale" about migrant labor and dependence on fossil fuel oil.



© Rafael Lozano-Hemmer, Photo: Peter Mallet

Rafael Lozano-Hemmer (Mexican, born 1967)

Please Empty Your Pockets, 2010

Conveyor belt, Mac mini computer, HD projectors and HD camera
48 x 16½ x 48 inches

Please Empty Your Pockets, the artwork requests. Visitors are invited to place small objects on a conveyor belt, which are scanned and included in a virtual inventory. The program randomly samples recalled scans with the current one to produce a live experience of augmented reality. Approximately 600,000 user-input objects can be stored. The work functions on the Open Computer Vision application, a program typically used for robotics, machine learning and human-computer interfaces, to produce real-time copies of discrete objects. The artist says that the interactive sculpture “feels the public” while evoking the ubiquitous experience of surveillance in contemporary society. Lozano-Hemmer relinquishes control of his evolving artwork, powered by anyone who wishes to alter it.



© James Nares, Courtesy of the artist and Paul Kasmin Gallery

James Nares (English, born 1953)

Globe, 2007

Single-channel Blu-ray DVD on monitor, with sound, 43 minutes

James Nares created a customized lens by sandwiching a glass marble in his digital video camera's lens. He then explored his neighborhood—Chelsea, in Manhattan—in which he has worked and lived for decades, in order to see the environment in a new, altered way. A core member of the 1970s avant-garde downtown scene, Nares has witnessed this area transform from an artist's enclave to a luxury zone. The custom lens refracts what it sees, bending, inverting, yet also clarifying the textures of graffiti, construction materials and street life during a period of transition in the early days of the twenty-first century. Nares' lens is an instance of optical play and visual curiosity, refraction being the same phenomenon that produces rainbows and mirages. The soundtrack by Phil Kline evokes a nostalgic mood.



© Bruce Nauman

Bruce Nauman (American, born 1941)

Setting a Good Corner (Allegory & Metaphor), 1999
Single-channel DVD on monitor, with sound, 59:30 minutes

Bruce Nauman filmed himself erecting a fence post on his Las Madres Ranch in New Mexico. The work proceeds in real-time, unedited, until the job is complete. It takes one hour. The artist performs his labor—literally exposing the work of the artwork—as a metaphor for disciplined living.

Since the 1960s, Nauman has worked at the forefront of media-based art, yet turned his attention to the duties of his ranch for recent projects. During the hour-long duration of *Setting a Good Corner*, Nauman works without speaking. He digs some holes, secures the foundation and sets the tension wires. Ranchers will be able to identify the expertise required of Nauman's task.

Setting a Good Corner can be considered a form of landscape art. Much like the landscape painters of yore, Nauman demonstrates the relationship of mastery that humans attempt to assert over land, enacting a tug-of-war between humans and nature.



© Nam June Paik, Courtesy of Carl Solway Gallery

Nam June Paik (Korean, 1932–2006)

TV Fish, 2000

Aquariums, monitors, single-channel DVD animation and fish
21 x 41 x 28 inches

For *TV Fish*, Nam June Paik placed video art within the unexpected context of live-fish tanks. The startling contrast of electricity and water is meant to zap our minds out of other commonly held dualities: nature and technology, reality and illusion, life and art. Paik encourages art and life to synthesize, for instance, by showing a relationship between live fish and a recording of fish within this artwork's self-referential yet playful system.

Paik was a pioneer of video art in the 1960s. His work validated video as a legitimate art form, and he inspired generations of artists to boldly experiment with emergent technologies. Paik wrote in 1964, "My experimental TV is not always interesting but not always uninteresting, like nature, which is beautiful, not because it changes beautifully, but simply because it changes."



© Alan Rath

Alan Rath (American, born 1959)

Wall Eye I, 1997

Electronics, generative software, CRT monitor and aluminum
16½ x 11 x 14 inches

The eye motions in *Wall Eye I* are determined by a live algorithm written by the artist. When the lights are turned off, the eyes fall asleep.

Alan Rath was exposed to the work of Nam June Paik as a child. Trained in electrical engineering, he uses electronic sculpture to question the emotional potential of machines and robots. For instance, why do humans tend to create robots in their own image with familiar expressive characteristics? At what point do a screen, wires and aluminum begin to look beautiful or ugly, communicate a feeling or resemble a human? "Machinery," says Rath, "is a reflection of the people who make it."



© Daniel Rozin, Courtesy of bitforms gallery, New York, Photo: John Berens

Daniel Rozin (Israeli, born 1961)

Mirror No. 12, 2013

Video camera, custom software, computer, projector and oval wood mount
34 x 60 x 20¾ inches

Daniel Rozin developed software to continuously interact with what it sees. The output is a magic mirror that animates and alters viewers and their surroundings. Live imagery, captured from a small camera, replicates the living scene as an endless virtual painting—and a distorted reflection—of reality. Rozin welcomes the spectator's realization that their presence is essential in the meaning of the artwork. The art is remade anew with each visitor, yet the painterly image questions the nature of perception: is the reality we see just the expression of an invisible biological code? Rozin's mirror exemplifies digital technology's ability to extend visual perception.



© Stephen Wilkes, Courtesy of Bryce Wolkowitz Gallery

Stephen Wilkes (American, born 1957)

Serengeti National Park, Tanzania, 2015

Archival C-print

60 x 101½ inches

To create this composite image of a single day at an African watering hole, Stephen Wilkes took 2,200 photographs over twenty-six hours. The final image contains fifty seamlessly blended shots. The sun rises scene-right and sets on the left. It is not a time-lapse image; the photos are taken individually by hand as Wilkes, hidden from view, observes the animals as they come and go during the migration season. For his *Day to Night* series, Wilkes admits, "I change time within a photograph." His lifelike peaceable kingdom is only possible due to the advent of digital-imaging technologies, and although it appears naturalistic, it is an edited intervention of reality by the artist's hand. He calls it "telling a story."



© Marina Zurkow, Courtesy of bitforms gallery, New York

Marina Zurkow (American, born 1962)

Mesocosm (Wink, TX), 2012

Real-time generative program on computer and monitor, with sound

This digital animation imagines a dystopian ecosystem emerging around a real sinkhole on an oilfield in the small Texas town of Wink. There, land collapsed in 2002 into a 900-foot—and growing—hole, likely caused by the injection of wastewater into the cavities created in the process of extracting fuel products from the Earth. Zurkow's real-time simulation follows its own measure of time, where one minute is one hour, and a day passes in twenty-four minutes, eternally into the future. The animation unravels with character combinations using a generative code called ActionScript to release folders of 'actors,' be they butterflies, weather events or people in Hazmat suits, into the landscape. Zurkow's title, *Mesocosm*, is a term used in environmental science that describes an artificial and controlled ecosystem. Her virtual world revises the idea of natural beauty found in parklands.

About the Thoma Foundation:

The Carl & Marilyn Thoma Art Foundation recognizes the power of the arts to challenge and shift perceptions, spark creativity and connect people across cultures. We lend and exhibit artworks from our collection and support innovative individuals and pivotal initiatives in the arts.

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