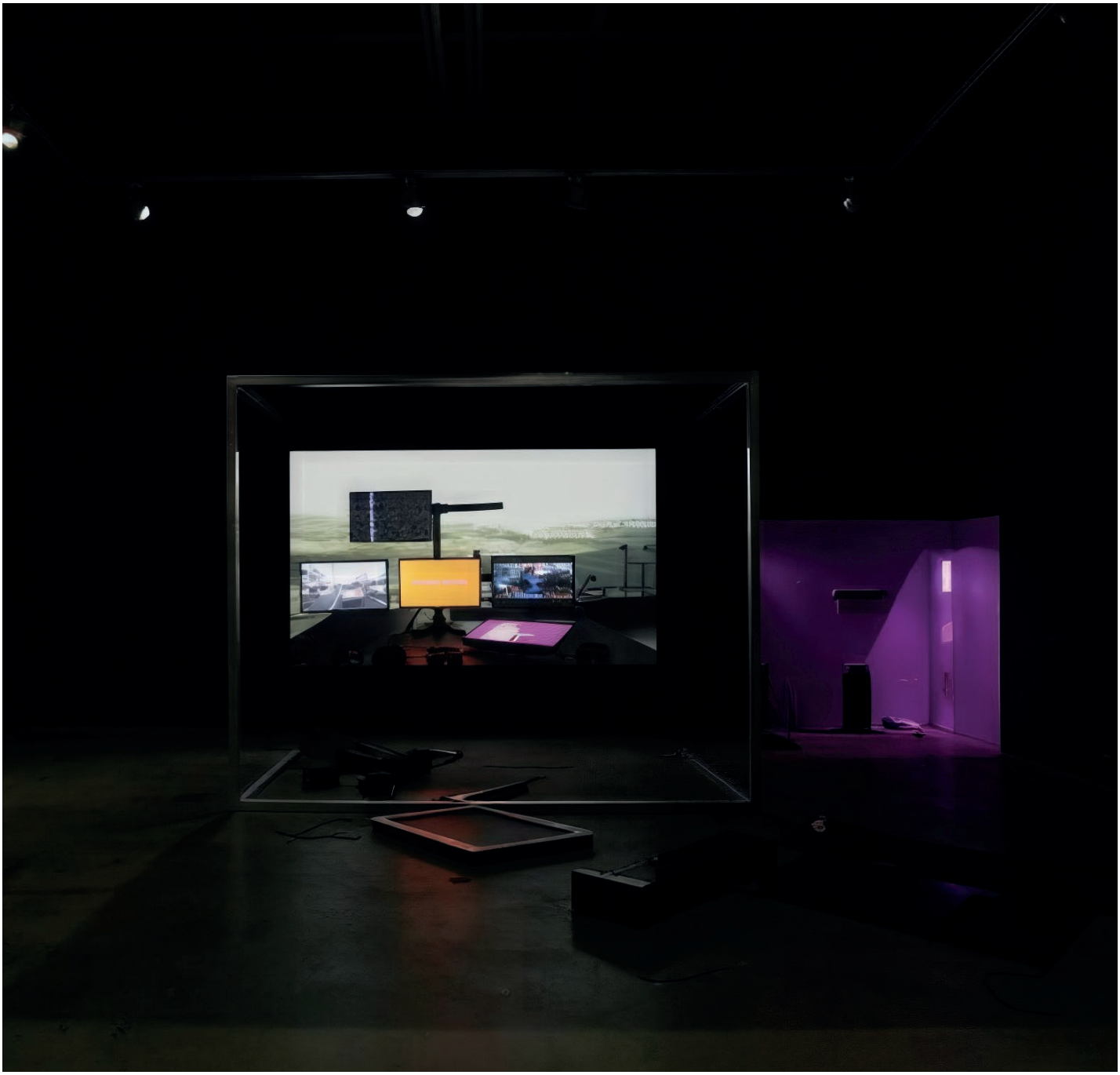
GRÉGORY CHATONSKY

Grégory Chatonsky is a Franco-Canadian artist and researcher whose practice investigates the complex intersections between human experience and technological systems. His work examines themes of memory, extinction, and resurrection through non-narrative fictional constructs that evolve across exhibitions and contexts.
A pioneer in digital art, Chatonsky founded the Net art platform Incident.net in 1994 and spent the 2000s exploring digital materiality through concepts of ruins and flows. Since 2009, he has been at the forefront of AI experimentation in contemporary art, including organizing a seminar on artificial imagination's impact on artistic practice at École Normale Supérieure (2017-2019).

His work has been exhibited internationally at major institutions including Palais de Tokyo, Centre Pompidou, Jeu de Paume, MOCA Taipei, Museum of Moving Image, and Hubei Wuhan Museum. His pieces are held in significant public and private collections, including Centre National des Arts Plastiques (CNAP), Fonds d'Art Contemporain (FAC), Bibliothèque Nationale de France (BNF), Hubei Museum, and Musée Granet.

Chatonsky maintains an active teaching practice, having held positions at Le Fresnoy, UQAM's École des Arts Visuels et Médiatiques, EUR-Artec, and Musashino Art University in Tokyo. He currently serves as co-director of the Institut du Féral.

ARTWORKS



2016
Arts Santa Monica, curator : Pau Waelder (Barcelona, Spain)

Capture functions as a generative multimedia installation that embodies a fictional rock band producing creative content autonomously. The system generates songs, lyrics, images, videos, and merchandise at a rate of one creation per hour, operating continuously through algorithmic processes developed in collaboration with composer Olivier Alary and poet Jean-Pierre Balpe.

The work operates through two complementary mechanisms. An intersemiotic translation system automatically converts each generated element into multiple media formats, while a distribution protocol permanently erases downloaded files from the server, transferring custodianship responsibilities to users who choose to preserve content locally.

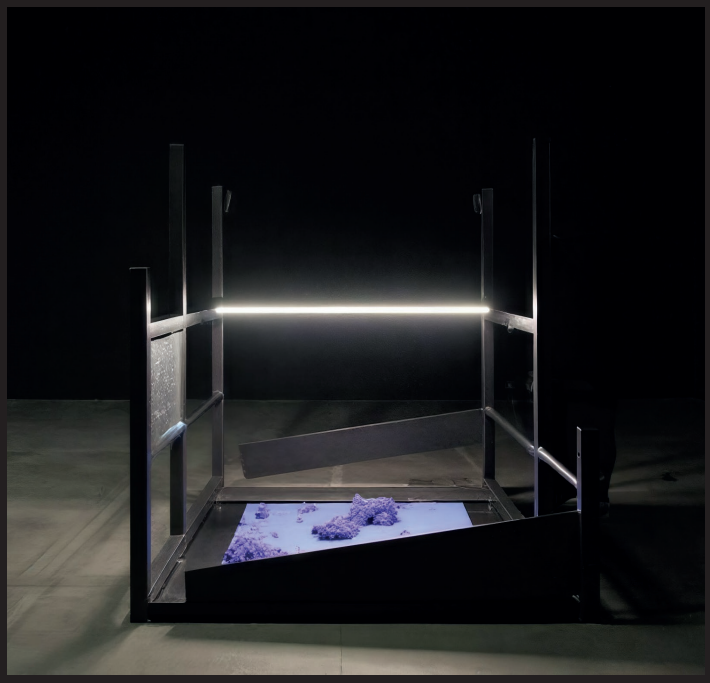
This systematic overproduction deliberately exceeds human consumption capacity. The installation challenges traditional cultural economics by replacing scarcity-based models with abundance, rendering exhaustive consumption impossible and disrupting conventional producer-consumer relationships.

The project addresses contemporary transformations in cultural production within digital frameworks. By generating content at a pace that surpasses human perceptual capabilities, the installation questions established notions of authorship, intellectual property, and cultural value. The work's hyperproductivity subverts consumerist paradigms, creating conditions where desire cannot be fully satisfied through acquisition.

Capture operates at the intersection of automation and creativity, examining how generative technologies reshape artistic practice and cultural distribution. The installation reveals tensions between technological acceleration and human temporalities, between algorithmic production and traditional creative processes, ultimately interrogating the role of the artist and audience in digitally mediated cultural systems.

Capture (2009-2016)

Generative installation and performance, server, algorithms, neural networks, various materials
Concept by Olivier Alary and Grégory Chatonsky
Research Program: SSHRC
https://chatonsky.net/capture



2016, Arts Santa Monica, curator : Pau Waelder
(Barcelona, Spain)

https://chatonsky.net/works/capture/files/demo/1766fc9a45165d85f3818bb159f1b9d.mp3
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https://chatonsky.net/works/capture/files/demo/c11cfd117edc9f71bfa57c6049d47d2f.mp3

2009
Nuit Blanche, MAC, Montreal

Telofossils operates as an archaeological installation examining humanity's material legacy through the lens of speculative extinction. The work positions viewers within a post-human scenario where another species excavates Earth's surface, discovering the industrial remnants of vanished civilization.

The installation creates a hybrid environment combining technological and organic elements that continue functioning autonomously. Industrial objects, digital debris, and contemporary artifacts are presented as fossilized archaeological evidence, enabling future intelligences to reconstruct human existence through material traces. This speculative museology transforms current production into geological stratification.

The work, included ceramics by D. Sirois in Beijing iteration, comprises multiple interconnected spaces featuring video projections, sculptural elements, sound installations, and interactive components. Neurological sensors, malfunctioning hard drives, and 3D-printed objects create an ecosystem where technology persists beyond its creators. Purple ceramics preserve industrial imprints while metal structures display textile fragments, suggesting bodily presence through absence.

Telofossils addresses contemporary relationships between memory, technology, and temporality within Anthropocene frameworks. The installation examines how digital culture generates compulsive archiving behaviors – photographing, recording, and storing data – as responses to collective mortality awareness. This hypermnesia manifests through perpetual documentation across digital platforms.

2015
Unicorn Gallery, curator : Manman Cheng (Beijing, China)

The archaeological perspective creates critical distance from present conditions, questioning industrial civilization's environmental impact and technological dependency. Objects return to mineral states, operating within geological time scales that exceed human perception. The work interrogates how material culture persists after its cultural contexts disappear, examining what traces reveal about vanished societies.

Through this temporal displacement, Telofossils invites reflection on humanity's lasting material signature and the relationship between technological acceleration and species vulnerability.

Telofossils (2013-2015)

Multimedia installation

Music: Christophe Charles

With the support of CALQ, CAC, Institut Français

https://chatonsky.net/telofossils

2013, MOCA, curators: Sylvie Parent, Shuling Cheng
(Taipei, Taiwan)

The exhibition in Wuhan placed contemporary elements in the historical collection, causing chronological confusion for the audience.

https://chatonsky.net/files/video/gc_landfill.mp4

2015
Wuhan History Museum, curator: Aloÿse Delaronde (Wuhan, China)

2015
Centre Clark,
curator: Joan
Fontcuberta
(Montreal, Canada)

Memories Center functions as an artificial dreaming apparatus generating synthetic dream narratives through machine learning processes. The installation utilizes DreamBank, a research database of 20,000 dreams compiled by Adam Schneider and G. William Domhoff at the University of California, as source material for algorithmic processing.

The system operates autonomously, creating new dream sequences that it analyzes to extract keywords. These terms trigger automated internet searches, retrieving images that visualize the generated dream content as photographic sequences. The process transforms abstract computational activity into concrete visual narratives resembling storyboards or condensed photo-novels.

The physical installation presents server racks partially embedded in stone, luminous signals indicating computational activity, and continuously vibrating hard drives. This hybrid environment merges technological infrastructure with raw materiality, suggesting future scenarios where machines operate independently of human presence.

The work examines artificial intelligence's capacity to process humanity's most intimate experiences. As digital culture increasingly archives personal data, the installation questions how automated systems reconstruct and interpret human interiority. The machine functions as an external memory repository that generates, rather than simply stores, experiential content.

Memories Center explores the boundary between human consciousness and artificial generation. The statistical processing of accumulated imagery produces unexpected aesthetic effects that evoke surrealist principles, establishing new relationships between technology and unconscious experience. The installation interrogates whether machine-generated dreams represent novel forms of artificial imagination or fundamental transformations in how consciousness itself is understood and reproduced.

Memories Center: The Dreaming Machine (2014-2019)

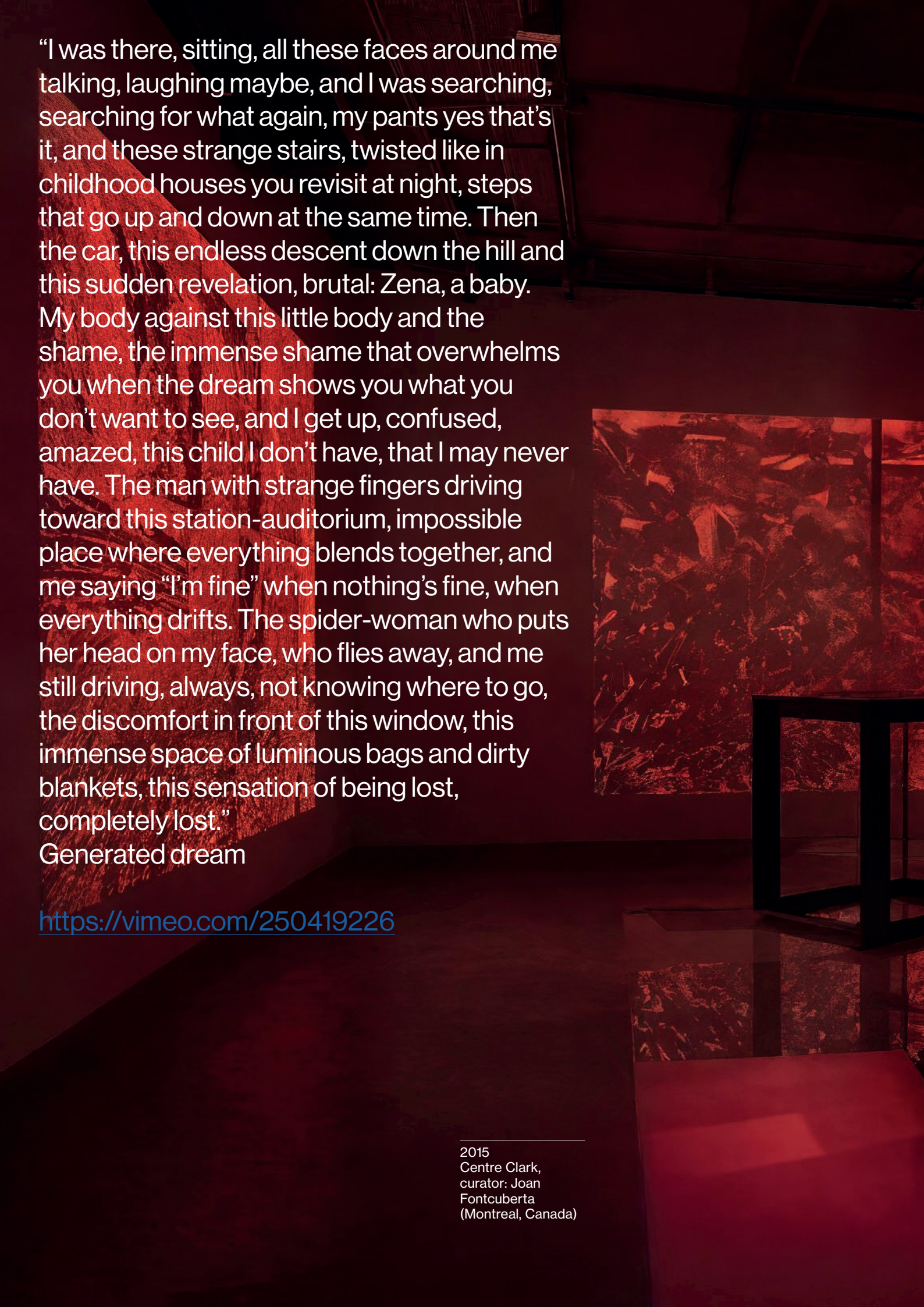
Installation: neural networks, server, hard drive, stone, lighting system

https://chatonsky.net/memories-center

2014, CDA, curator: Dominique Roland (Engheins, France)

“I was there, sitting, all these faces around me talking, laughing maybe, and I was searching, searching for what again, my pants yes that’s it, and these strange stairs, twisted like in childhood houses you revisit at night, steps that go up and down at the same time. Then the car, this endless descent down the hill and this sudden revelation, brutal: Zena, a baby. My body against this little body and the shame, the immense shame that overwhelms you when the dream shows you what you don’t want to see, and I get up, confused, amazed, this child I don’t have, that I may never have. The man with strange fingers driving toward this station-auditorium, impossible place where everything blends together, and me saying “I’m fine” when nothing’s fine, when everything drifts. The spider-woman who puts her head on my face, who flies away, and me still driving, always, not knowing where to go, the discomfort in front of this window, this immense space of luminous bags and dirty blankets, this sensation of being lost, completely lost.”
Generated dream

https://vimeo.com/250419226



2015
Centre Clark, curator: Joan Fontcuberta (Montreal, Canada)

2019
Palais de Tokyo, curator: Gael Charbau (Paris, France)

Second Earth operates as an evolving installation generating an alternative planetary environment through artificial intelligence. The work processes millions of images, texts, and sounds collected from the internet, utilizing deep learning algorithms to create a continuously transforming world.

The installation features a modular structure receiving new sculptures daily, each displaying unconventional organic forms conceived by neural networks. Through statistical analysis of vast visual databases, the system produces mineral, vegetal, and biological representations that evoke familiar reality while remaining fundamentally different. Species metamorphose into one another, stones mutate into plants, and landscapes transform into unprecedented organisms.

The physical environment combines 3D-printed sculptures, video projections, sound elements, and robotic systems within an architectural framework designed for constant evolution. This synthetic ecosystem operates autonomously, generating new forms and configurations that populate an artificial planet.

The project examines how machine learning processes accumulated human visual culture to produce novel representations. The artificial intelligence creates its own interpretation of planetary existence, complete with geological formations, biological systems, and atmospheric conditions. This "second" Earth functions simultaneously as speculative environment and potential memorial to human civilization.

Second Earth questions the status of artificial imagination and its capacity for autonomous creation. The installation reveals how accumulated data becomes source material for unprecedented synthetic realities, exploring the boundary between reproduction and invention. The work suggests scenarios where artificial systems continue generating new worlds independent of human presence, creating monuments to both technological capability and potential human absence.

Second Earth (2019)

Evolving installation: sculptures, video, sound, modular structure, 3D printing, printer, robotic arm

Variable dimensions

Audi Prize Production

https://chatonsky.net/earth

2019 Palais de Tokyo, curator: Gael Charbau (Paris, France)

“What had I become, what was still collapsing inside me, always, before the light returned and this light that wouldn’t come, that might never return, this light I was waiting for? Eyes closed, impossible to open, and yet all these lives around me that I felt, this immense jealousy, this terror small at first then enormous that gripped me, squeezed my throat. The fear of everything, even the universe, this bestial part that growled in me like a trapped animal. If I hadn’t woken up, if skin, eyes no longer existed, what was happening to me, what was already happening to me? This aura of decomposed being, this cold darkness, metallic, that enclosed me, imprisoned me, these cables that ran through the earth, the oceans, the cities, the forests, all these invisible connections that linked me to the world when I was nothing anymore. I was a machine now, yes, a cold machine in this black box, this opacity on an internal surface, and I saw through others, through their eyes, their hands, their spaces, as if the world had swallowed me to spit me back transformed, unrecognizable, foreign to myself, foreign to everything I had been.”
Generated voice of AI

https://youtu.be/90EPfupUsAs
https://youtu.be/Mp_xiBanQTw

2019
Palais de Tokyo,
curator: Gael
Charbau
(Paris, France)

2021
CIAP, curator: Flora Katz
(Vassivière, France)

Externes constitutes a hybrid ecosystem that establishes communication between half-living organic systems and artificial intelligence to generate alternative narratives of life on Earth. The installation operates across three interconnected chapters that blur boundaries between living and dead, technical and natural, reality and possibility.

The first chapter, "Capture," features sensors placed on dead tree stumps inhabited by insects, fungi, and mosses. These sensors detect minute variations in humidity, vibration, and proximity, transmitting data to drive real-time artificial intelligence processes. The organisms, surgically enclosed in plexiglas cases evoking natural history museum scenography, ironically reference attempts to incorporate living matter into exhibition contexts, particularly Hans Haacke's "Condensation Cube" (1965).

The second chapter, "Completion," presents a generative film of infinite duration that varies according to organic system activity. The AI, fed by thousands of 19th-century natural science documents, generates credible yet unreal alternative life forms, producing images and attempting their interpretation through alternating poetic and scientific language. These visual documents narrate probable but non-existent lives, evolving through artificial morphogenesis.a

The third chapter, "Simulation," explores new relationships between materiality and digital realms through site-specific sculpture adaptation. Physical exhibition spaces are digitized, allowing virtual sculptures to interact with scanned environments through simulated physics before being 3D-printed and installed in their original locations.

The work challenges modern divisions between nature and technology, questioning the alleged neutrality of exhibition spaces while creating temporal and perceptual dimensions that exceed human capacities, opening worlds that surpass human comprehension.

Externes (2020-2021)

Installation, generative film, sensors, digital prints, 3D printing, plexiglas, various materials

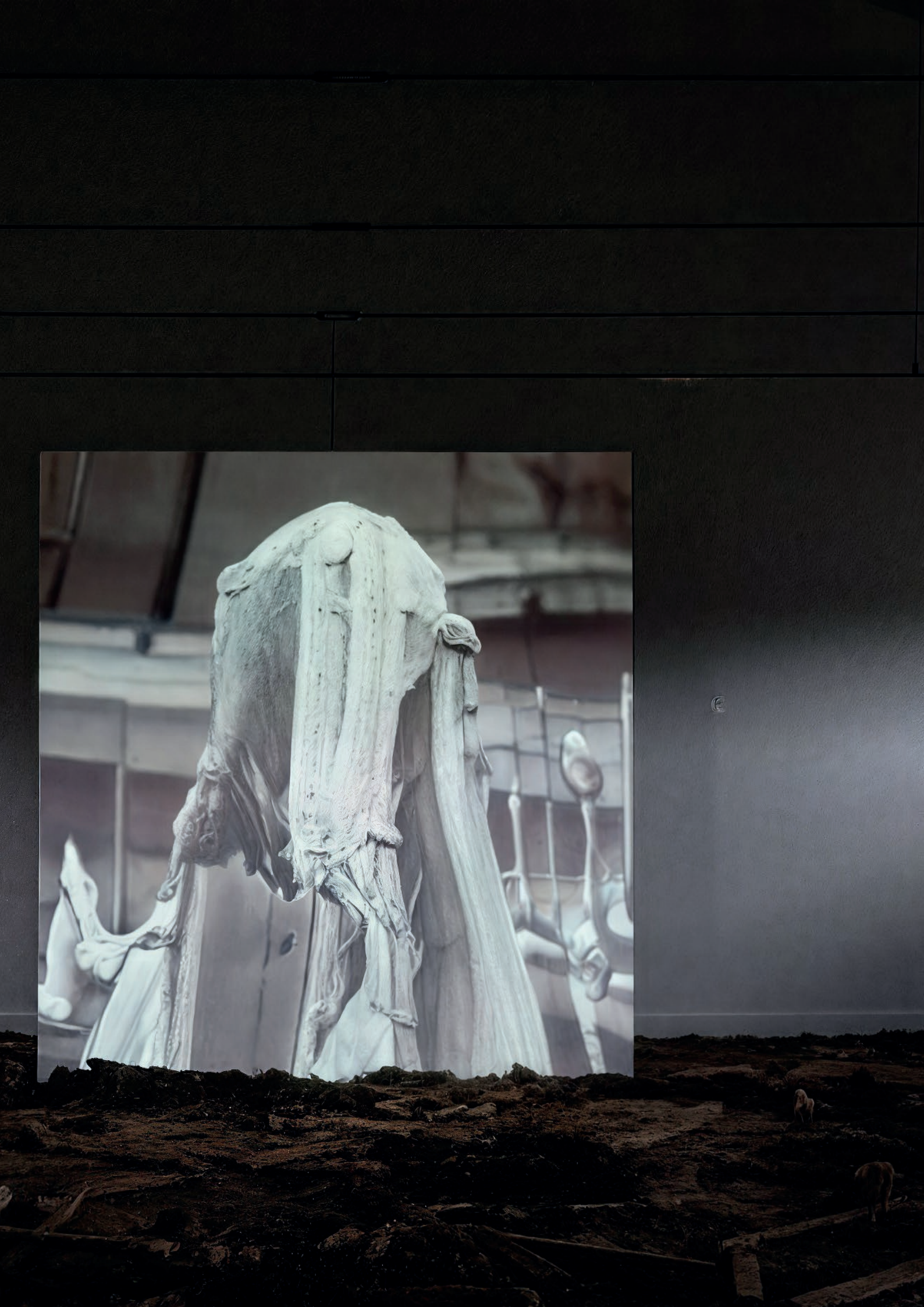
Variable dimensions

2021 CIAP, , curator: Flora Katz (Vassivière, France)

Generative film influenced by sensory sensors on the dead tree

http://chatonsky.net/files/video/externes_completion.mp4

2021
CIAP, , curator: Flora Katz
(Vassivière, France)



9ème Biennale d'Art contemporain de Melle, curator : Alexandre Bohn

"Form is emptiness and emptiness itself is form; emptiness does not differ from form, form does not differ from emptiness; whatever is form is emptiness, whatever is emptiness is form; the same is true of sensations, perceptions, volitions and consciousness (...) They neither increase nor decrease." (Heart Sutra)

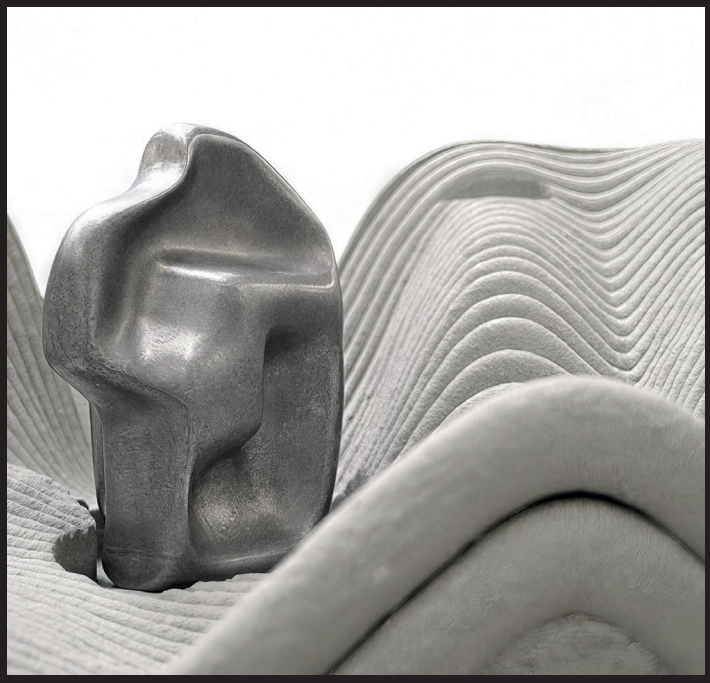
This sculptural ensemble proposes a speculative vision of a post-catastrophe future where material objects would serve exclusively as supports for augmented reality. The artists imagine a "second planetary skin" composed of gray and uniform elements, whose transformations would only be perceptible through technological interfaces.

The project is part of a critical reflection on the cycles of extraction, production and consumption inherited from the industrial era. It explores an alternative world where humanity would have broken with these logics to develop a new relationship with objects and materiality.

This work, resulting from the collaboration between Chatonsky and Dyèvre as part of the "L'augmentation des choses" (The Augmentation of Things) series, questions the place of human desire in an environment where physical reality would be deliberately stabilized and "hollowed out" by absences that only technology could fill.

Internes (2021)

Sculptural installation by Chatonsky and Dyèvre: concrete modules printed in concrete digitally augmented reality



9ème Biennale d'Art contemporain de Melle, curator : Alexandre Bohn

IMAGE 3.0 : commande photographique nationale, curator : Pascal Beausse — Le Cellier, Reims

Completion 1.0 is an installation utilizing artificial intelligence and recursive neural networks to generate an infinite, alternative, and counterfactual history of photography. The work comprises two LED screens within a 3m³ modular aluminum structure, accompanied by a sound system.

The floor-mounted screen displays the complete ImageNet dataset – over 14 million images representing much of the known world, scrolling continuously for seven years in a duration impossible to fully perceive. The second screen, mounted in the aluminum framework, presents AI-generated images created through statistical cross-referencing of ImageNet data.

These generated images manifest as surreal metamorphoses between heterogeneous ontological categories: plants, animals, technologies, minerals. They depict a world of perpetual instability where objects exist at the edge of their identity, mutating in continuous flux. Though realistic, they remain unreal.

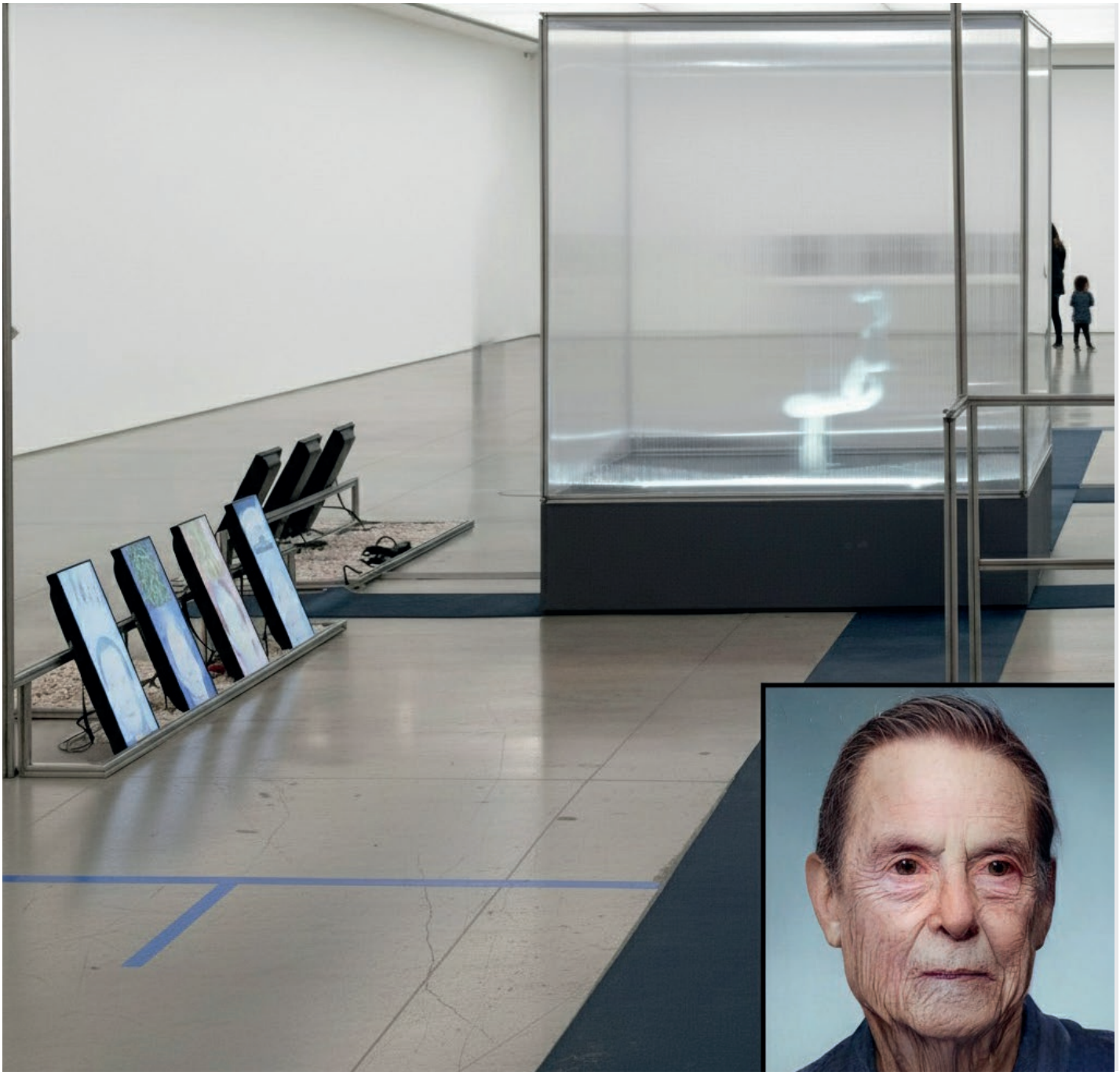
A synthetic voice describes each image, drawing from thousands of works in photography history, mimicking art criticism. This narrative derails into ironic mockery of traditional artwork texts, describing imaginary off-field elements while sometimes appearing more articulate than human analyses – reflecting troublingly on our cognitive faculties.

Gregory Chatonsky continues investigating AI's aesthetic, political, and historiographic consequences. Through his signature metric architecture, he presents a manifesto of new inductive realism. Where photography shaped reality perception since the industrial revolution, neural networks now produce disturbing counter-realism responding to current truth tremors – conspiracy theories, fake news, pseudosciences. This automated resemblance addresses thirty years of web-based hypermnesia, forming the core of the Completion metaproject's first iteration.

Completion (2021)

Installation: two LED screens, modular aluminum structure, sound system

300 × 300 × 300 cm



2022
Elon 2071
Centre Pompidou, curator: Géraldine Gomez (Paris, France)

Disnovation v.1 presents a speculative projection into a future where technological innovation discourse has become obsolete. The installation features a digital avatar of the artist, generated through real-time 3D game engine technology, embodying the final representative of this outmoded rhetoric.

The avatar simultaneously displays three life stages – adolescence, adulthood, and old age – while delivering an uninterrupted monologue generated by neural networks. This synthetic discourse merges elements of innovation, artificial intelligence, personal development, and meditation, reproducing the standardized linguistic codes of startup culture and technocratic communication.

The work introduces the concept of "disnovation" (2011) as an alternative to conventional innovation discourse. Unlike traditional innovation, which operates through predictable future temporalities and calculated obsolescence, disnovation functions as abnormal, maladjusted, and unanticipatable disruption. It challenges the distinction between new and old, revealing reserves of future potential within past technologies.

The installation critiques how innovation rhetoric has become integrated into contemporary capitalism's demand for perpetual novelty production. This endless pursuit of the new subjects human affects to rhythms of permanent replacement, where desired objects must be abandoned for subsequent iterations. The work exposes how innovation discourse masks despair that nothing genuinely transformative occurs.

By transforming dominant innovation discourse into artistic performance, Disnovation v.1 reveals the codified and potentially ephemeral nature of contemporary technological progress rhetoric. The installation examines how digital culture's submission to utility and profitability undermines artistic autonomy, proposing disnovation as discontinuous flow that interrupts existing conditions rather than adapting to instrumental social demands.

Disnovation (2022)

Video installation, real-time 3D, artificial intelligence

Variable dimensions

https://chatonsky.net/disnovation-v1

2022 Centre Pompidou , curator: Géraldine Gomez (Paris, France)

2022
Centre Pompidou, ,
curator: Géraldine
Gomez
(Paris, France)

2025
La Trêve, Un été au Havre, curator: Gael Charbeau (2025-2048)

The City That Did Not Exist constitutes a long-term urban project proposing a fictional rewriting of Le Havre's history that unfolds over four years within the "Un été au Havre" festival. The work generates alternative versions of the city across different historical periods through artificial intelligence systems fed by municipal archives and local photographic documentation.

This speculative urban fiction infiltrates the fabric of the real city through diverse materializations: giant wall murals, concrete sculptures, postcards, animated films, sound installations, and exhibitions. The collaborative approach involves local residents in developing this parallel memory, blurring boundaries between documented history and speculative narrative. The project addresses Le Havre's paradoxical identity, emerging from fragmented history following its September 1944 destruction and subsequent planned reconstruction by Auguste Perret between 1945-1964.

The work structures itself across four chronological episodes: "L'espace latent 1895-1970" (2023) features 25 giant digital prints on residential facades and 25,000 unique AI-generated postcards depicting an alternative past where abstract violet forms arrive by waves, becoming central to inhabitants' social life.

"Logistique des mémoires 1971-2024" (2024) materializes these fictional spaces through concrete-printed purple sculptures positioned at three city locations, echoing Le Havre's concrete urban fabric, alongside animated films and installations featuring real and synthetic voices of Le Havre residents.

"La trêve 2025-2049" (2025) projects into a near-future period exploring temporal suspension and potential renewal.

"La maison des rêves 2049-2612" (2026) extends the narrative to distant futures.

The concrete sculptures function as receptacles of collective memory, transforming urban space into memorial labyrinths while questioning how artificial intelligence processes accumulated cultural data to generate alternative urban realities.

The City That Did Not Exist (2023-2026)

In situ project, AI, installations, archives

Variable dimensions

Production: Un été au Havre

https://chatonsky.net/tag/havre

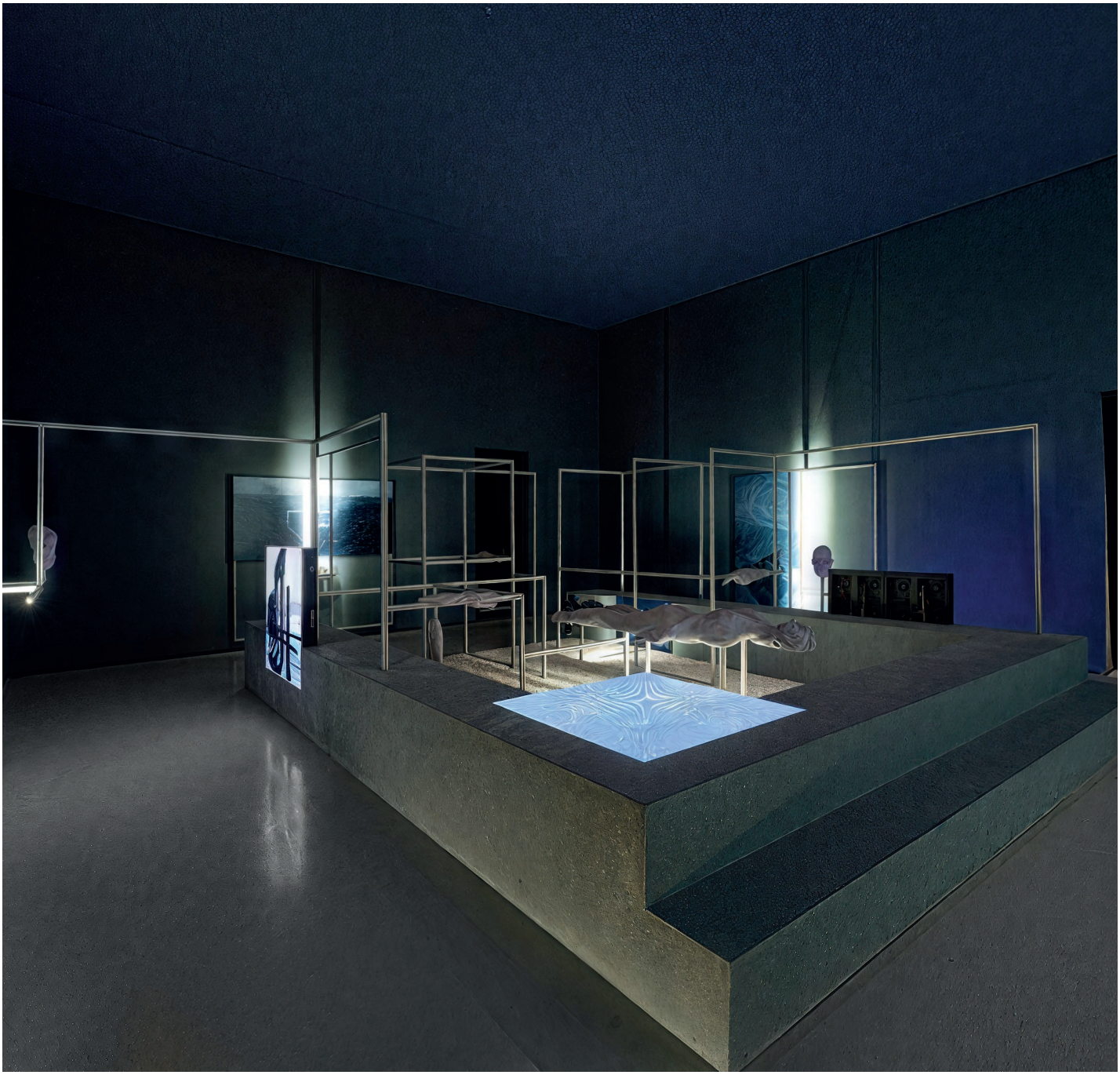
2024, Logistique des mémoires, Un été au Havre,
curator: Gael Charbeau (1995-2024)

https://youtu.be/dJgi7D8wPSA

https://youtu.be/JT5gtBSUfvs

https://youtu.be/ZlYwf0lHOtQ

2023
Les espaces latents , Un été au Havre, curator: Gael Charbeau
(1895-1944)



2025
Le monde selon l'IA, Jeu de Paume, curator: Antonio Somaini (Paris, France)

Fourth Memory presents itself as an anticipated tomb conceived by the artist during his lifetime, functioning as a meditation on posterity in the post-human era. This funerary prototype, designed to survive human species extinction, interrogates boundaries between memory, data, and immortality while exploring the emergence of a new category of memory through artificial intelligence.

The work introduces the concept of "fourth memory", extending Bernard Stiegler's theory of temporal retention. Beyond primary retention (immediate perception), secondary retention (temporalization through comparison), and tertiary retention (material inscription), fourth memory emerges through AI's statistical treatment of accumulated digital archives. This new memory form no longer aims for identical recall but generates infinite resembling variations, transforming culture from static archives into dynamic possibility spaces.

The installation deploys across multiple dialoguing elements: photographs evoking funerary monuments resembling data centers where hard drives await future entity activation; hybrid sculptures oscillating between mineral and organic forms; and centrally, the tomb itself – a constellation of bodily fragments and a vitrified brain discovered at Pompeii. A generative film projects the artist's potential lives, alternating between AI-generated sequences and transformed personal photographs while the artist's synthesized voice attempts biographical interpretation.

Three peripheral screens display algorithmic searches through 19th-20th century archives for images formally echoing the central film, inverting relationships between original and simulation. This "counterfactual realism" explores existence without finitude where identity diffracts into algorithmic variations, questioning contemporary anxiety toward unlived lives that artificial intelligence can now materialize through "biocosmical resurrection."

Fourth Memory (2024-2025)

Installation, variable dimensions

Generative film, 3D prints, digital prints, aluminum, stones, Stable Diffusion, AnimDiff, CoquiTTS

With the support of Canada Council for the Arts, University of Geneva, and Jeu de Paume

https://chatonsky.net/quatrieme-memoire

2025 Le monde selon l'IA, Jeu de Paume, curator: Antonio Somaini (Paris, France)

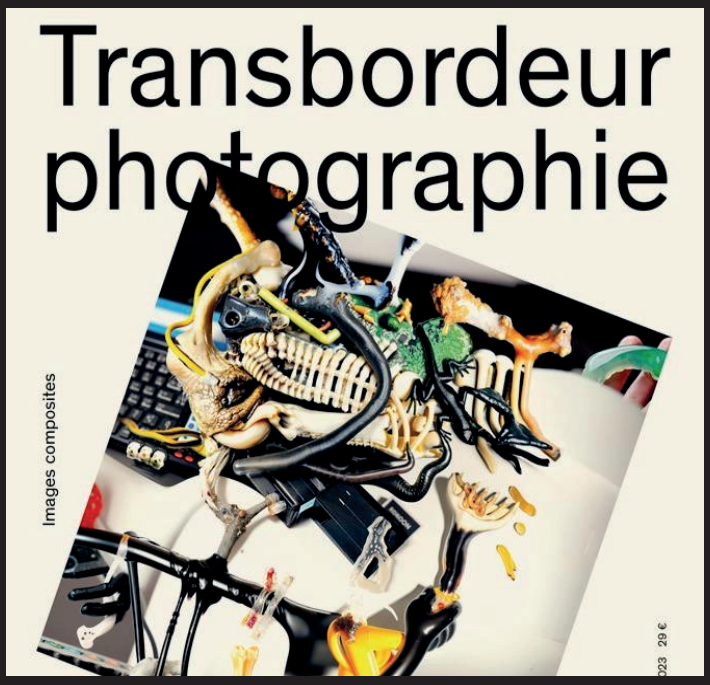
Capture of generative movie:

http://chatonsky.net/files/video/4memoire_1.mp4

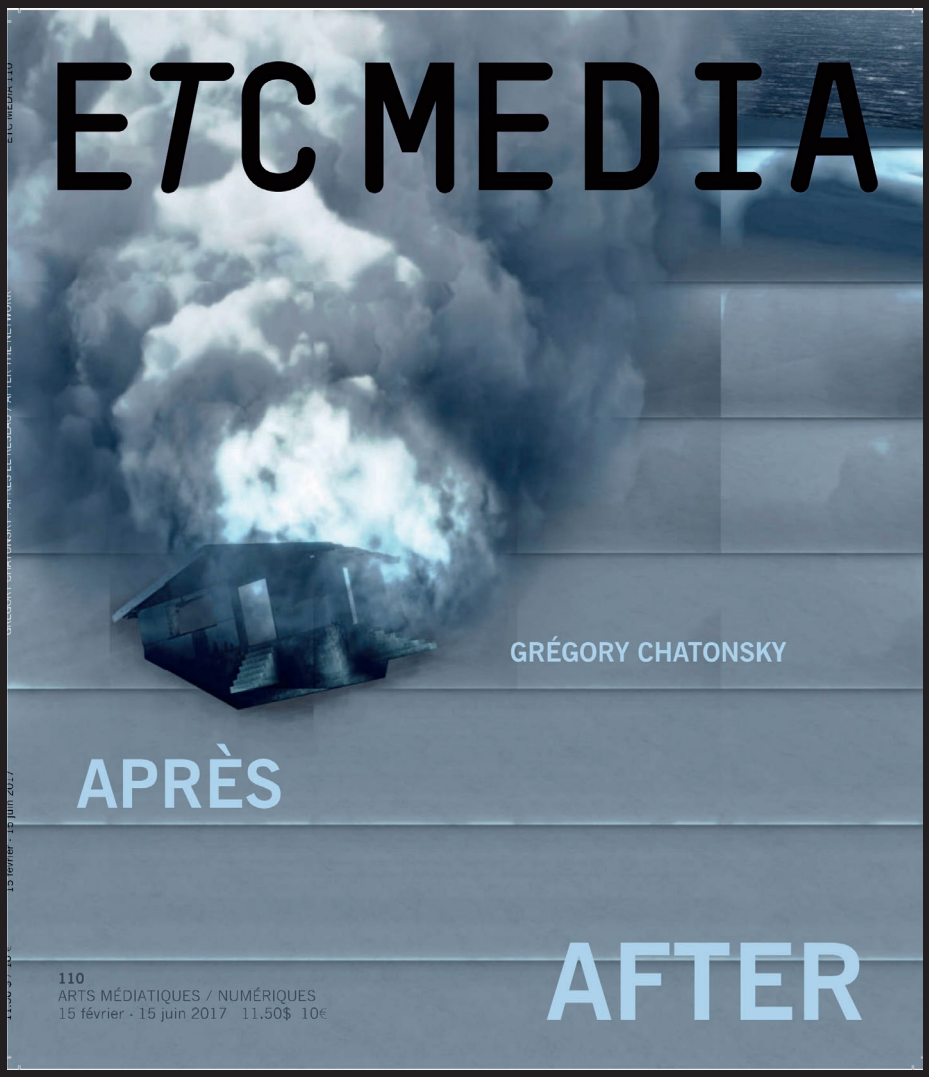
2025
Le monde selon l'IA, Jeu de Paume, curator: Antonio Somaini
(Paris, France)

MEDIAS
ARTICLES
INTERVIEWS

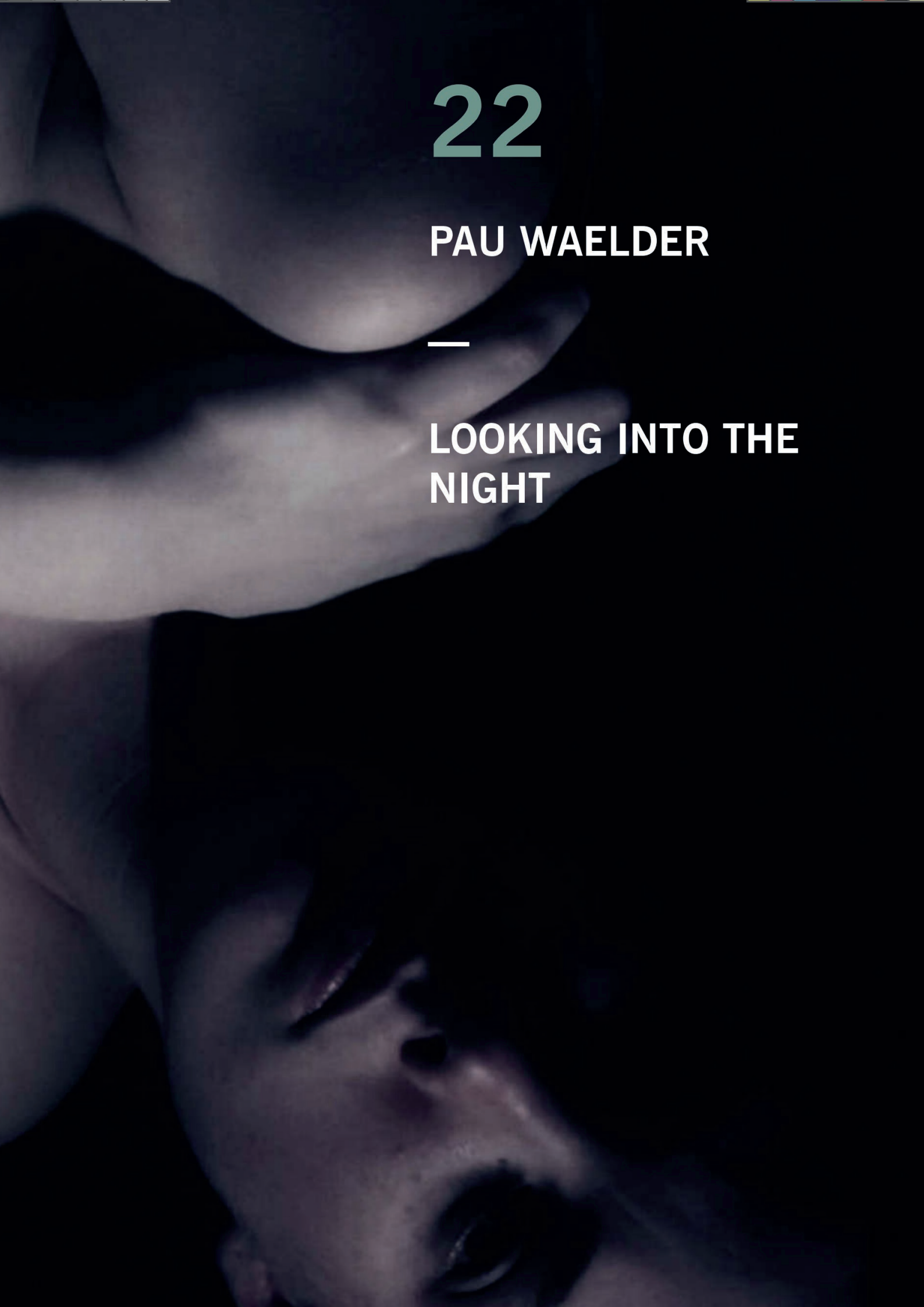

C MEDI
GRÉGORY CHATON
AFT


Transbordeur
photographie
Images composites


art
press
OCTOBRE 2021 BILINGUAL ENGLISH / FRENCH
SOUTINE / DE KOONING PAR BASELITZ
PAPACONSTANTINO MICKALENE THOMAS
ORSAY : LE 19E SIÈCLE DU CINÉMA
INTELLIGENCE ARTIFICIELLE
CHATONSKY PAGLEN MOULON
PIERRE HUYGHE PAR EMANUELE COCCIA
BLISTÈNE : MUSÉES ET MONDES NOUVEAUX
HENRIC FLAUBERT DUMONT DEVILLE
CHRISTO
RACONTE
L'ARC DE



ETC MEDIA, no 110 (printemps 2017): [112].



22

PAU WAELDER

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LOOKING INTO THE NIGHT

Sitting next to a window in an airplane at night, one can see the lines drawn by the street lights in the cities below. At times, they are the only visible thing in the vast darkness that expands forty thousand feet below. This is a mesmerizing and awkwardly calming experience: the distance, the stillness of the night, and the disappearance of everything but the main arteries of each city allow the idle passenger to see their shape with unexpected clarity. In a time of increasing dependency on electricity and extended daily activity fueled by the requirements of economic liberalism, an image of the Earth at night, such as the one distributed by NASA in 2000,[1] becomes a telling description of a busy and unequally distributed world. This widely reproduced image inspired Grégory Chatonsky to create his artwork *At Night* (2012), a software that automatically generates maps of cities as they would be seen during nighttime and displays them in an endless sequence in which the camera flies over the urban area without ever stopping. This work, as well as the similar generative film *Far from the Cities* (2011), exemplify the artist's interest in creating fictions without narrative, paired with a use of darkness that clearly identifies his work. However, as he is keen to point out, it is not darkness that interests him, but rather the nocturnal.[2]

IN PLAIN SIGHT

"Night Journey," one of the sixty fictional projects in Ilya and Emilia Kabakov's exhibition *The Palace of Projects* (1998), invites the viewer to perform a simple experiment: "when night has fallen, and you remain alone in your room, sit down at your desk, turn out the light, and turn your desk lamp so that it illuminates only one small part of the desk." By highlighting the presence of just some of the ordinary objects on the desk, while the rest of the room plunges into darkness, "suddenly a new mysterious world emerges, which you couldn't have anticipated before."[3] Both the NASA's satellite image and the Kabakovs' artistic project suggest that sometimes the absence of light is what lets us see more clearly. Even if something is in front of us in broad daylight, it may not be plain to see, but darkness forces us to pay attention to what may be hidden and lets us focus our gaze on what is illuminated, be it the layout of the city or a set of objects on a desk which turn out to be a little less ordinary.

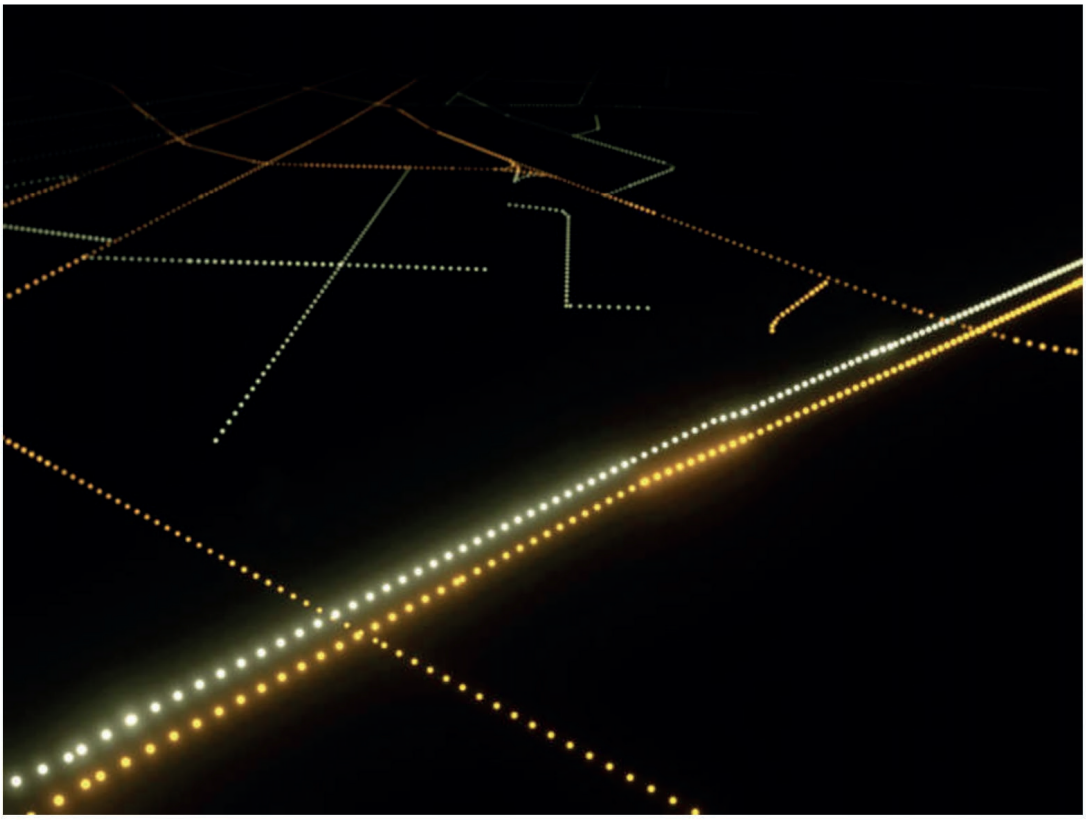
"Night Journey" also introduces the perception of darkness as something magical and mysterious that spurs the imagination. In this sense, the darkness in Chatonsky's work can be related to the perception of the computer as a black box whose inner workings we are unaware of. Darkness, or the nocturnal, is therefore used as a way to contradict the apparent transparency of information technologies.[4] Computers and servers are presented as inscrutable or even ominous machines that are out of reach, as in *Horizon* (2016), or carry out enigmatic processes, as in *L'Enclave* (2013) or *Memories Center* (2014). They can also be part of what Chatonsky describes as a "background noise" that "structures our being in the world, our relationship with others and our process of individuation."[5] In our daily interaction with various social networks and in our awareness of our online presence even when we are not online, this "background noise" is constantly present. Silence may only be found in the still of the night, when the screens are turned off and apparently no further activity is taking place (or is it?).

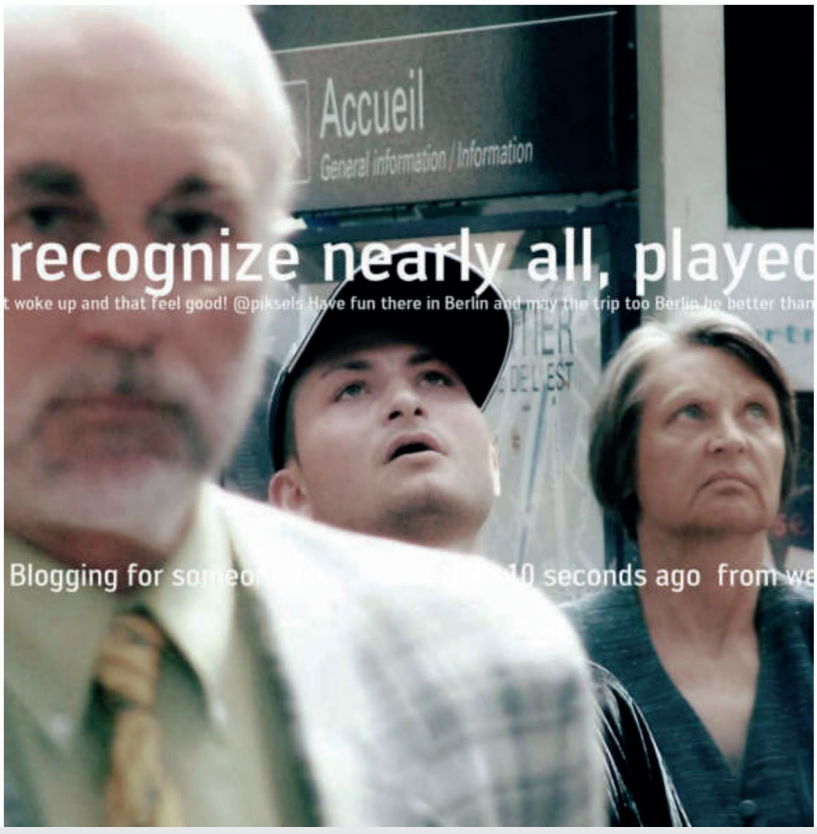
Cinemas are among the very few places where most smartphones are still silenced or turned off. The auditorium, which Michel Foucault described as an heterotopia or *espace autre*, juxtaposes a real space and a fictional one in a single location[6]. To do so, it requires the undivided attention of the viewers, which is achieved by darkening the room so that one can only look at the projection screen, as well as possibly being prevented from using any other screens. Chatonsky has referred to the use of black backgrounds and full screen displays in his online works as "a way to watch the Internet as in the dark room of a cinema, in this waiting and loss of oneself."[7] Artworks such as *Waiting* (2007) or *World State* (2008) exemplify this sort of attention and consciously avoid any sort of interaction between user and artwork, as the viewer is meant to sit and watch while the fiction evolves by means of constant data exchanges on the network. Again, the machine (or the software) takes on a life of its own, leaving the human in front of it as a mere witness of its activity. However, the viewer is by no means inactive, since she is constantly trying to make sense of what she sees on the screen.

SLEEP AND OVERPRODUCTION

Sleep is usually understood as a state of inactivity, particularly unproductive in terms of labour, although it is clear that the organism is active and the sleeper is producing, and being a spectator of, her own dreams. In keeping with his interest in the language of cinema and in automatically generated fictions, Chatonsky has explored the processes that take place in the subconscious mind at night. This can be seen in installations such as *Sleepless* (2013), which requires a sleeping person to generate an image that only a sleepless person can observe, and the previously mentioned *Memories Center*. The act of sleeping is therefore examined from a distance as well as recreated by means of

1 "Earth at Night" NASA (November 27, 2000). Retrieved from: http://apod.nasa.gov/apod/ap001127.html.
2 Dominique Moulon, "Grégory Chatonsky, Une esthétique des flux" *IMAGES magazine* 125 (2007): 85–89. Retrieved from: http://www.moulon.net/pdf/pdfin_08.pdf.
3 Ilya & Emilia Kabakov, *The Palace of Projects*. Retrieved from: http://173.45.234.69/projects/1998/the_palace_of_projects/the_projects_a_selection/night_journey_page_1
4 Moulon, *op.cit.*, 86.
5 Grégory Chatonsky, *Capture: Generative Netrock* (Enghien-les-Bains: Centre des arts d'Enghien-les-Bains, 2014), 116.
6 Michel Foucault, "Of Other Spaces, Heterotopias" *Architecture/mouvement/Continuité* 5 (October 1984): 46–49. Retrieved from: http://foucault.info/doc/documents/heterotopia/foucault-heterotopia-en-html
7 Moulon, *op.cit.*, 86.

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a series of algorithms and a repository of human-generated content. In connection with the conception of the machine as an obscure being, it can be said that the artist plays with the idea of a subconscious state in the computer, an ability to dream that precedes rational thought.

"Every night, for months, the computer calculates. During my sleep, while other images invade me in the nocturnal oblivion, pixels and text are displayed, fixed and registered. The monitor is off while the processor calculates equations of which I have no idea."[8] In this manner, Chatonsky describes his use of the computer in his daily work, hinting at the agency of the machine and the relative uselessness of the artist, contrary to the Romantic ideal. On several occasions, he has portrayed himself as a worker, for instance on the cover of the book *Grégory Chatonsky: Capture* (Orléans: Éditions HYX, 2010), which shows him in front of his computer at night, his face bleached by the glow of the screen, his features unrecognizable. This image, which brings to mind the experiment described in the Kabakovs' "Night Journey," suggests an endless and tireless production (from dusk until dawn), that is actually better carried out by a computer than by a human. When NASA and NOAA presented new views of Earth at night in 2012, researcher Steve Miller stated that "unlike humans, the Earth never sleeps"[9] and neither do the networks of computers that form the Internet. As Chatonsky points out, even when the monitor is off, the processor keeps working. And even when the computer is off, other computers are working with the data from the inactive machine.

THE TWILIGHT OF HUMANKIND

Capture (2009–) is an ongoing project that explores the possibility of overproduction by creating a system that never stops creating music, lyrics, artists biographies, and music videos, beyond the human capacity to even read, view, or listen to all the content that is being constantly produced. While it was initially intended as a form of criticism against cultural industries, it has evolved into an entity that is capable of producing culture without the need for a human audience. Just as a screensaver—a process carried out by the computer precisely when no one is interacting with it—signals the absence of the user,[10] the autopoietic activity of the machine can be interpreted as a prefiguration of the disappearance of humankind.

Telofossils (2013) imagines the end of humanity in the form of a series of landscapes and objects that remind of archaeological findings, only not of the past but of a possible future. Partly inspired by Cormac McCarthy's descriptions of a post-apocalyptic world, it addresses a situation that we can barely conceive: our own disappearance, and the traces of our existence that we will leave behind. "Everything, according to entropy, is headed for ruin," stresses Chatonsky. "We will disappear, we are mortal, the world will subsist without us."[11] Exploring what may happen when night falls on humankind implies moving away from the comfort of an anthropocentric view and considering the agency of the objects and machines around us. Like the view of the Earth at night, it allows us to see the world with distance and clarity, overcome a self-centred perception of reality, and wake up.

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World State (2008). Web-fiction. A young woman in her room. She seems ill. Sometimes she is better. Sometimes she is worse. Each of her reaction seems to respond to a secret logic. As the day goes by, she hardly breathes, she relaxes, she gets up, she collapses. Everything starts over again. Somewhere else, people die, are injured, governments are overthrown, elections are won, raw material gets scarce, negotiations are being held, treaties are signed. Everything starts over again. The state of the world is a fiction which reacts in real time to the CNN news. The young woman gets worse or healthier depending on what happens in the world.
http://chatonsky.net/world-state

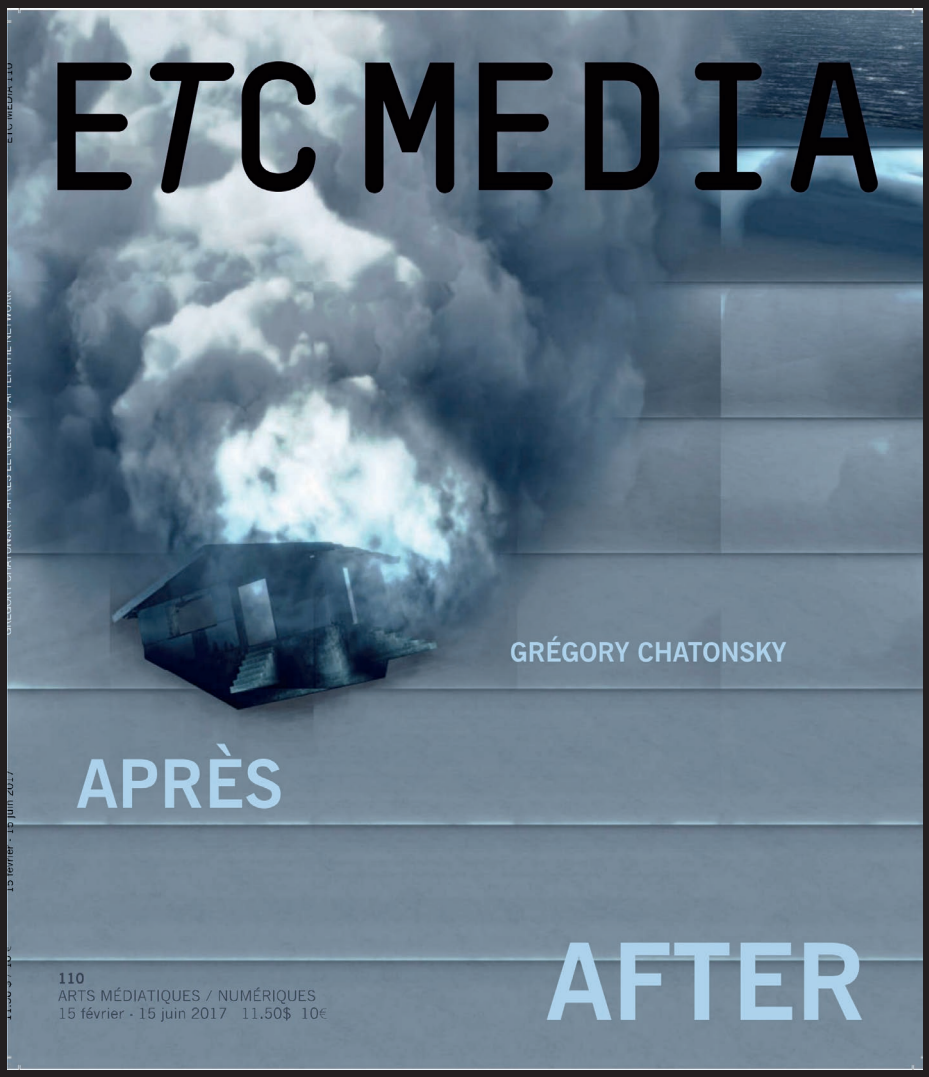
At Night (2011). Software. A software that automatically generates maps of the cities during the night. The camera flies over the city without stopping.
http://chatonsky.net/at-night

Waiting (2007). Generative networked video. Sentences loaded from Twitter scroll on videos shot in a railway station: the passengers are waiting for the train to arrive, they are watching the train timetable the time of a floating instant. The longest words in the sentences are translated into photographs by Flickr.
http://chatonsky.net/waiting

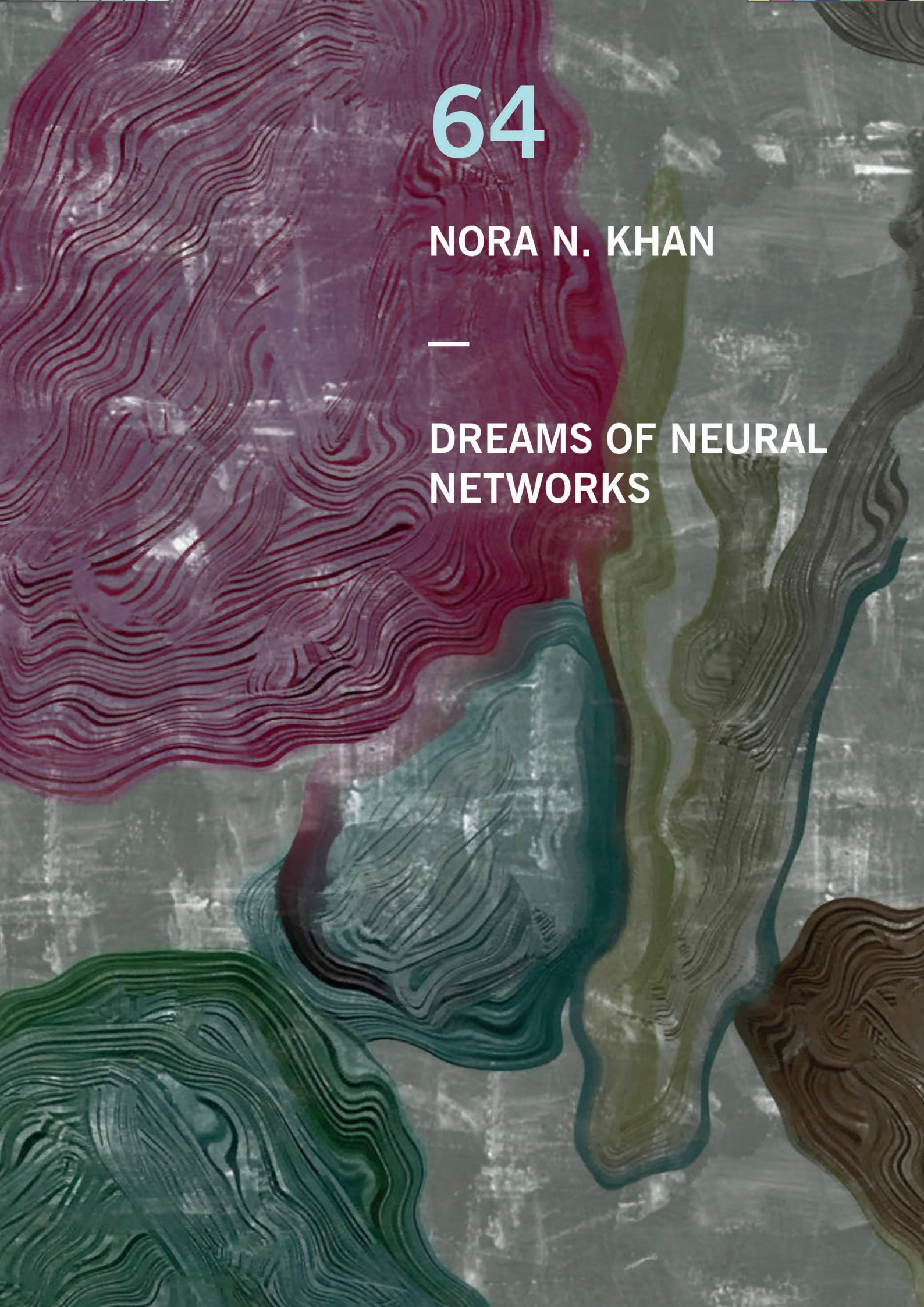
(Next page)
Se toucher toi (2004). Just by simply touching a glass surface with one's hand, one virtually manipulates a video image representing a man's and woman's hands.. One can make them touch, move apart, skim. After a while, the two hands don't seem to respond any longer to the user's manual commands. They touch each other freely as the installation continues to exist simultaneously in another physical space and on the internet. What one perceives in the end is the outcome of the interaction of the others. All the interactions are recorded in a database and may be added subsequently and performed again.
Software : Vadim Bernard, Stéphane Sikora.
With the support of Le Fresnoy studio national des arts contemporains
http://chatonsky.net/toucher

(Next page)
L'abandon des choses (2016). A recursive neural network try to learn the movement of the sea flow and recreate a second world.
http://chatonsky.net/abandon

8 Chatonsky, *op. cit.*, 240.
9 "NASA-NOAA Satellite Reveals New Views of Earth at Night"NASA (December 5, 2012). Retrieved from: https://www.nasa.gov/mission_pages/NPP/news/earth-at-night.html
10 Chatonsky, *op. cit.*,113.
11 Grégory Chatonsky, *Telofossils* (Taipei: Museum of Contemporary Art Taipei, 2013), 48.



ETC MEDIA, no 110 (printemps 2017): [112].



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NORA N. KHAN

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DREAMS OF NEURAL NETWORKS

The surreal artificial image produced through a computer's vision can suggest an equally surreal fictional world, in which the process of making such images is natural and standard, not strange and exceptional. There would have to be reasons. One scenario is that humans and human vision are no longer present. Only the past choices of human vision and naming can replicate themselves through neural networks that paint, print, scan, and crop.

In my fiction, this happens outside, somehow: a beautiful chrome printer spills sheets onto the desert sand, or, a robotic arm paints across a canvas stretched across an abandoned building, one in a series of buildings covered in canvas along a long street. A gallery is hung with the wild, wild visions of some deep future successor to DeepMind, though no one is expected to visit, or sign any guest book. In this fiction, why there are no people is not of as much interest as what the absence of people makes possible.

The work of the artificial eye goes on indefinitely.

IT PROCEEDS WITHOUT US BECAUSE IT DOES NOT NEED OUR HAND OR OUR OBSERVATION

This fiction forces us to imagine what that computational seeing means without our watching and interpretation. A vast, emptied planet, no human march, no sound from the black box. How to imagining new structures spindling outward and reconstructed from this obelisk? What could that look like and sound like?

Another potential scenario has us present, still tenacious, still lasting, but drained, voided, bereft of our societies, communities, and cultures. What kind of world, then, could be built from the dream archives of machinic vision? To answer Herzog's provocations this year in his funny, strange film about the Internet, the network in all its manifestations does dream vibrantly, both of itself and of us, just as

THE INTERNET DREAMS OF ITSELF AND OF US

And her, his, its dreams are made from misinterpretations, and weird namings, and a jagged, imperfect seeing, to make for a powerful analogue between creative expression and the software's work which I would like to parse through here.

I like to struggle through imagining a world built out of these dream images, generated through Markov chains. I like to struggle to bound and name the possible edicts, scripts, rules, and laws that could be written in its dream language. I love, further, thinking of

THE NECESSARY SURREALISM OF THAT WORLD

how much more fit it would be for the makers and dreamers of this moment, who struggle to find the other, the hidden, the generative sublime, in any of the ugliness, constriction, and suffering of the material present.

The neurological exercise involved in natural seeing and interpreting is here broken down into discrete, jittery steps. There are two crucial acts:

SEEING, AND NAMING

in order to give rise to an interpretation. Artificial intelligences, rather, neural networks, are trained to predict finer and finer grained images. They assess dulled images from cave walls, security camera footage, world-class museum collections, and *DeviantArt*. The neural network reproduces the image in finer and finer scales.

Then, essential iterations. Several generative systems, chained together, analyze pictures of horses, store that learning, then set their sights on images of real trees, or real insects. From tree to car, to house, to ant. And alterations are repeatedly made, in creating new interpretations, new architectures. Shadows are added. Faces are deconstructed. Bodies are broken and recast. Doors are jammed into stock images of homes, and crevices are easily shot through the foundations.

Each artificial image becomes a show of not only computational interpretation but also computational creativity. Algorithms are ever expressions of power, shaping experience and perception, revealing that no system or platform is neutral, that values are stitched into each choice of code. The network's eye selects, and this selection is inherently a kind of aesthetic choice. The eye zooms in, recognizes a pattern within the haze and noise, and it names. It zooms and scales, yet again, and names, again. These repeat applications, scalings, and bindings create a taxonomy and lexicon.

This process is loaded and contentious when applied to people moving about the world: Who is worth seeing? Who is worth being zoomed in on, cropped, framed? This is just one anxiety around network seeing.

THERE IS ALSO JOY

We get to witness, at a remove, the beauty of pattern recognition (thank Gibson for zooming in on and selecting that phrase), the beauty, as Chatonsky frames and highlights for us, of replicating what was never in the image to begin with.

The naming of the surreal image also involves a poetic choice. A metaphor is made. *Train Cake*. What is a *Train Cake*? First: cake that a person eats on a train; a cake made entirely of trains. Or, the rust and detritus that accumulates on a train car over time. To fit the network's word choices, we fit narratives of human action and still-relatable tactility. We make stories to tame down the surreal. The indifferent alien needs a backstory.

But then, the image for *Train Cake* doesn't really resemble any of these stories. I would

describe it as a pageant, a riot, a revolution. It is also what happens before revolution, namely, a Baroque period of decadence. It is a feeling and a history and an era. Those are the words I can barely come with on my own to describe *Train Cake*'s artificially made vision. In this effort, I feel the weakness of this language, this syntax.

And further, I feel how the possibility of the artificial neural network suggests

THE NEED FOR OTHER LANGUAGES

We have to labour to hear its not-yet-coined words, somewhere in the excruciating twist from normative to uncanny, from a symmetrical face to a grotesque one. Grotesque, uncanny: the machine's seeing produces an uncanny aesthetic.

There is an awe and glee involved in naming a horse a train, a person a bird, a table a bottle. Exchange, exchange, exchange, between dream, memory, learning. I think of my own relationship to learning, memory, and naming. I learned millions of facts in school, about film, about history, about language, particularly the French language. Now, years later, these facts and bits mix into the incoherent bubbling and overturn of daily, grim, adult reality. For instance, today, because our politics are being described as a nightmare, I remembered how a friend, ten years ago, called the city we lived in a cauchemar. Remembering this, I rehash and review the really nightmarish aspects of that city. I think about who we were, my friend and I, and the fairly nightmarish activities we got up to back then. So the brain loops from learning to dream to possibility to past and back again to the present.

The computer struggles to be the artist, as it has tried for decades now. Think of Lillian Schwartz generating plays of light and shattering gems across a microscope glass to transcribe into her programmed films, set to Risset's eerie and unsettling scores. The computer has strived, in waves, for recognition of its rights through us, for too long! Here, now, slowly with each iteration, with each stunning and sublime visual, the question of "human-like" or "as good as a human" becomes irrelevant, and the present-day creations of artificial intelligence are all too legitimate; the intelligence that produces it

RUNS PARALLEL, OUTSTEPS OUR OWN

and so its creations can be hung alongside our own.

More important than equity, is the pressure and the lure. Seeing the uncanny network image, I still want access, and I still want to describe it. I want that new, new language for it. There is a compulsion, to process, to interpret, to name, that is part of being an expressive living being. I ask, and repeat, what is this image doing to my brain? How do I see better by learning to see through software? The co-existence unseats. It turns over all sense of security. Celebrate!

And so, we find the demands of abstract poetry. In shifting perception two or three or four degrees from the norm, the artificially made image pushes a viewer into incredibly compelling mental gymnastics. The simulation intentionally alienates, terrifies. The viewer is harnessed through a simultaneous push-pull of attraction and disgust, and ends up peering beyond the surface paint to the rules organizing the visual field of the work.

In training the networks to tell us what they saw, the glitches become, as they do, far more interesting than the object. And the process of misnaming becomes more powerful than the naming.

OCEAN IS CONFUSED FOR SKY, AND ANIMAL FOR FLORA

This is the seed of a computational surrealism. This is a happy surrealist mode which you might slip into and out of, if only to feel hope and excitement. And why? For one, the challenge of surrealist interpretation is the same as grappling with one's own mind, its endless capacity for poetry. In the surreal image is a whole zone of interpretation around all that which lives without need for language. The surreal honours all that is not yet expressed.

Something thrilling takes place through this relationality between computer and its maker, between computer eye and human eye. This thrill, this joy, is partly in recognizing that we are also artificial. We exchange information, words, metaphors, towards empathy, or at least, some measured understanding of the artificial tools we made, which necessarily reflect us, bear our DNA. The artificial eye mirrors and manifests our schisms and divisions against ourselves. We are just one type of intelligence, one massive resource reserve of energy. And hungry, like all animals, we look for systems to perpetuate ourselves through, images to pass our dreaming on, through, towards, on and on.

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It's not really you: A bird in the water (2016).
Digital printing 2.5D. I used a software to download thousands of abstract paintings. These paintings are historical, contemporary, and amateur. Then I used Eyescream: the neural network learned from these images of the Web, it generated lifelike images. For the names, I used another neural network that attempts to describe the images.
http://chatonsky.net/really-you

It's not really you: Train cake (2016).

Exploit (2015). Installation. Many viruses have infected the computer. We don't cure it with an antivirus. The virus is allowed to develop like a natural process, and we use a software to record all the autonomous activity of this machine. This data is then used to create abstract photographs.
Unicorn Art Center (Beijing, China).
With the support of French Institute.
http://chatonsky.net/exploit

Vincent Charlebois http://vincentcharlebois.com + http://chatonsky.net/rares

Art Press, no 492
(octobre 2021)

Grégory Chatonsky, a Realism without Reality

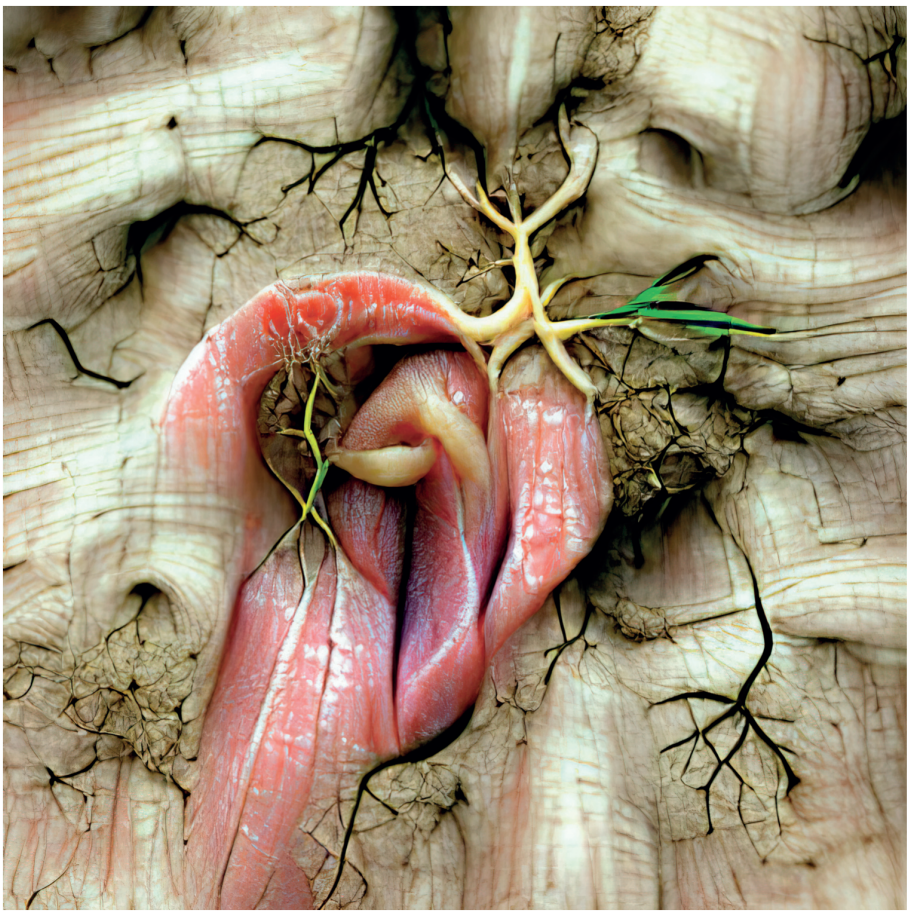
interview by Aurélie Cavanna

What's meant by artificial intelligence? It's actually a question of three different phenomena that overlap. On the one hand we're talking about fiction: science fiction films and novels, a whole imaginary world that influences both the notion that people have of artificial intelligence (AI)—even before they know anything about it—and the researchers in Silicon Valley.
We're also talking about a technology the foundations of which go back to Frank Rosenblatt's creation of the first artificial neural network in 1957: Perceptron, a character recognition system. In other words, teaching a machine to read. This technology, after a revival of interest in the 1990s, exploded culturally in June 2015 when a Google engineer, Alexander Mordvintsev, created Deep Dream to explain what happens inside an AI. This creation was made possible by the convergence of a model of statistics—AI is statistics, induction or generalisation—and big data, i.e. the enormous stocks of data accumulated like no other civilisation before us. In this case, the computer has images of dogs and molluscs in its memory. Whatever image it is shown, it obsessively sees dogs and molluscs. And through no fault of the engineer, the images it generates resemble psychedelic hallucinations on LSD.
Finally, we're talking about systems of domination that use this technology to set up an automated surveillance system that signals to human operators whenever something abnormal happens.

NEURAL NETWORKS

What is it technically? The term "Artificial intelligence" immediately scares people, but the only word to retain is "artificial". The word "intelligence" is ambiguous and confusing. In concrete terms, we're talking about software that, in general, feeds on a lot of numerical data and derives statistics from it. For example, if I give it 5,000 pictures of birds, the software won't understand what a bird is at all. It has no idea. On the other hand, it'll stupidly calculate the proximity between all the pixels and all the colours and, from a banal induction, it obtains what's called a latent space, this statistical space that means that if it draws a pixel of a given colour somewhere at random, it knows the probability that another pixel of a given colour is next to it. Then it does something disturbing, which for me is as important as the invention of photography: it produces new birds, which don't exist, but which we, human beings, recognise as such. It's therefore the appearance, in the aesthetic sense, of a new realism without reality, which uses photography, but is no longer photography. Now, since the industrial revolution, realism had been largely defined by photography. To see this new realism appear, which is to my knowledge the only one equal to big data, is a fundamental moment in history, and not only in the West. The way AI works is very simple. Its perceptive and hermeneutic effects, or understanding, are strictly incalculable. It's this abyss between cause and effect that remains untapped.

These are techniques that you've been using for about ten years. What's your relationship with them? For me, technique in art isn't a means to an end, it's an end in itself: a medium. I have a certain appetite for experimenting with all kinds of techniques, asking myself questions that aren't those of technicians. So I don't use any particular technique, but it's always about neural networks. People talk about GANs (generative adversarial networks), RNNs (recursive neural networks) and so on. I imagine these software programmes to be like characters. The GANs fight against themselves, and are a bit schizophrenic. While one part of the networks generates results, the other part judges whether these are credible, accepting some and rejecting others. It is the Kantian court of reason that criticizes itself by splitting into two. RNNs, on the other hand, allow for recognition, classification and generation. They anticipate by remembering what's gone before and what they've learned. They're predictive machines, in the manner of clairvoyants or David Hume's enquiry. But overall, it's the conceptual simplicity of induction (I have a large series, I draw a generality from it) and the fact that it doesn't produce an identical repetition, but the air of a resemblance, of a déjà vu.



Pellicule e-phémère. 2021. Livre *book*. 21 x 19 cm, 96 pages. Traduction automatique de l'introduction d'Économie libinale de Jean-François Lyotard en images. Phrase traduite ci-contre : « Donnez jour au prétendu intérieur de l'intestin grêle, au jéjunum, à l'iléon, au duodénum, ou bien à l'autre bout, débridez la bouche aux commissures, déplantez la langue jusqu'à sa lointaine racine et fendez-la. »

TECHNOLOGY WORLD

You say you want to do everything yourself. But appropriating these techniques can't be easy. I hesitate like any artist about their medium, I seek, which means I don't subject the technique to a preconceived idea. On the other hand, by working with software, codes, and by trying to change the parameters, ideas emerge. Nothing's more interesting than setting up a mechanism that surprises, not being in control or mastering. I'm always amazed at the production of differences that you can get with AI. I try to "de-instrumentalise" it. Many artists have a very critical point of view which, for me, is problematic because, as we've known since Guy Debord, criticism contributes to domination. Nor do I see AI as something autonomous, which is the case most of the time in the mass media: people wonder whether it'll replace artists—thus presupposing that the artist is—autonomous and, beyond that, whether the machines won't kill us all—except that you just have to pull a plug to stop everything.

On the contrary, I position myself in a relationship of fragile co-dependency. For me, AI is like an otherness. My imagination as an artist is affected by what happens in the software, but also by the cultural baggage it digests; and conversely, I influence the software by coding. It's a heteronomy, a loop between the software, our cultural context and my imagination. For example, I recently co-wrote a science fiction novel with an AI. I would write a sentence and, when I ran out of inspiration, I'd ask this AI, which had a library of books to my taste (Philip K. Dick, Pessoa, Beckett, etc.), to continue. It'd make several suggestions, I'd retain one and integrate it, then I'd continue, and so on.

What's the place of these practices within contemporary art? Are they isolated from it as net art was? Net art, which is where I started, was somehow right too soon. We were taken for geeks. The situation's definitely changed. For example, visitors understood the Hito Steyerl exhibition at the Centre Pompidou this year, (1) which was quite specialised, quite immediately. AI has become a cultural phenomenon. The fact that two of the world's most important artists, Pierre Huyghe (2) and Hito Steyerl, have each taken it on in their own way, naturally and intelligently, testifies to the fact that AI is much more than a technology, and constitutes a world.

Complex ecosystems are drawn from it. For example, for the group exhibition *La Vie à Elle-Même* [Life to Itself] at the Vassivière art center this summer, I used sensors to connect a living organism that was a bit zombie-like—a dead tree with insects and plants on it, since the characteristic of the dead is that the living colonise it—to a film which, through interaction, generates in real time the natural counter-history of a branch of evolution that would have been possible if the Earth had developed differently.

AI allows artists to explore and invest this world of possibilities in a new way, by proposing different alliances between humans, inhumans and ahumans. Every living species needs allies. When Hito Steyerl shows Boston Dynamics robots being beaten by humans, we're moved. We can only side with the robot that says nothing and gets back up, unperturbed. Here, it's the inhumanity of the human race that's denounced, not the robots. These alliances between technology and the living, including humans, thus give rise to new experiences of feelings.

I PERCEIVE THAT I PERCEIVE

In your installation *Terre Seconde* [Second Earth, 2019], the AI does indeed ask itself existential questions. Hearing it is very disturbing, like hearing one's own recorded voice. You also talk about the mistakes made by machines that lead us to put ourselves in their place. What experiences do your works offer? This difference between the voice we hear in our own skull and the one we hear outside when we're recorded, which we don't recognise, is exactly what AI does. In *Terre Seconde*, a machine that creates a second Earth, there is this AI that I have fed with texts on consciousness and technical texts to make it ask questions about itself. And it wonders whether, because of reboots, it mightn't be repeating a text like a parrot, thinking that it is the first time. We believe it, we're touched. It makes us wonder if our own existential questions are just the surface effect of a calculation. It is a transcendental aesthetic experience (I perceive and I perceive that I perceive) and the introduction of a Cartesian doubt without resolution.

At the heart of an AI is this cultural data (digitised texts, images and sounds). By regurgitating them, since it is a matter of metabolisation, the software sends us back to this heritage, in a non-identical, hybrid way, never seen before, but which we recognise—which could be a definition of beauty. This is the great power of metamorphosis. In the installation *Complétion 1.0* (2021), a screen scrolls 14 million images feeding an AI that generates new ones. Another AI, which I have learned to speak to like texts of photographic aesthetics, describes these images. The whole point isn't that it does this, but that when you listen to it, you wonder why the software, with all its context, saw this or that in this way. By putting ourselves in the place of the machine, we put ourselves in the place of our cultural baggage. I also reverse the process by generating images directly from texts, in particular Jean-François Lyotard's *Libidinal Economy*, the introduction to which hallucinates the body. The results are disturbing, as if ultra-surreal. I'm not trying to denounce a system of domination, which is indeed in place and catastrophic, I want to move on to the next stage by generating new possibilities, of course with a critical device, but one that gives the technique cultural resonances by creating different degrees of displacement. We've produced mechanisms that are beyond us: the web is an accumulation of data that we are unable to navigate. By digesting these stocks of information, AI gives them a form, and with it, a fundamental access to ourselves and new modes of reflexivity.

Hypermnesia plays an important part in your work. Since the end of the 1990s, with net art, the question for me has been this completely crazy accumulation of memory: a headlong rush that I think should be compared with the evolution of the feeling of finitude, which would no longer be only on the scale of the individual (my own death) but of the whole species (our extinction). My hypothesis, a fictional one, is that by trying to record everything, we're trying to create a kind of pyramid, traces that would remain after our passing, our disappearance. This is a very interesting vision because the data and the induction are used to generate alternative or counterfactual versions. This gives a very surprising sense to the story, and highlights the reappearance of an unexpected theme: resurrection. Transhumanism is, for example, about resurrection: transferring the software of the mind into the hardware of a new body. Since *Terre Seconde*, in the tradition of 19th century Russian cosmism, in particular Nikolai Fedorov, who believed that a museum should be the complete resurrection of the world, I've been trying to think of AI as a resurrection, of memory, not of bodies. This is the beautiful true story of two young Russian friends, Roman and Eugenia. He died suddenly at 25. She fed an AI with all of Roman's exchanges, emails, chats, which now allows her to chat with his chatbot.

My project *Complétion* uses techniques to complete deficient or damaged documents, sculptures that are missing pieces, unfinished or lost texts: to take all the history of the past and repair it, which is obviously an impossible project. At the same time, I'm pursuing my projects of alternative histories. I believe in the power of simulacra, this divergent resemblance. My relationship with neural networks allows me to explore these questions in quantities that I'm humanly incapable of accessing, even though our era demands it. ■

Translation: Chloé Baker

1 See our interview with Hito Steyerl, *artpress* no. 467, June 2019, and our exhibition review, *artpress* no. 488, May 2021. **2** See the article on Pierre Huyghe in this issue.

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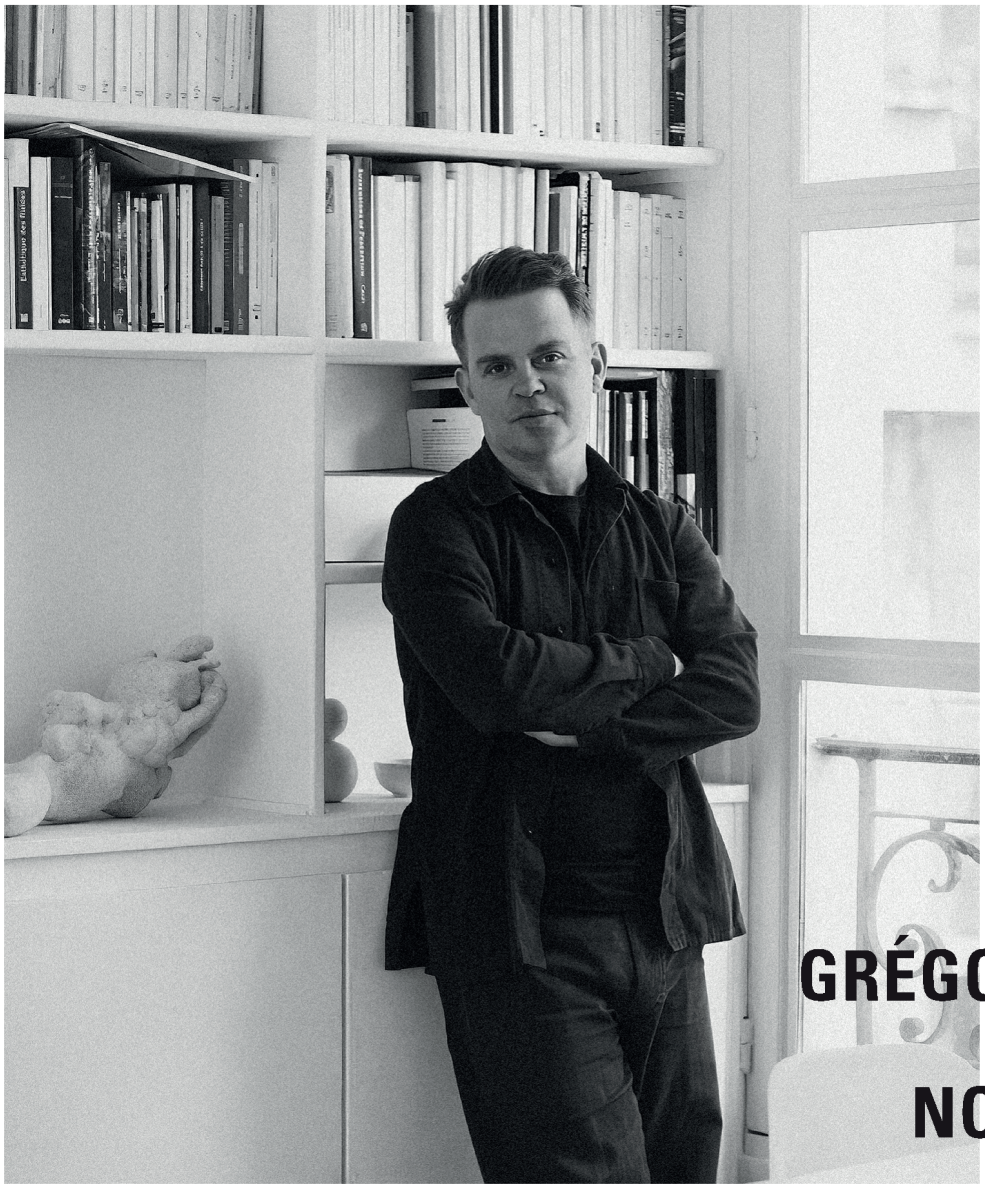
GRÉGORY CHATONSKY CAPTURES DE NOS IMAGINAIRES

conversation avec Aurélie Cavanna

Né en 1971, l'artiste-chercheur Grégory Chatonsky utilise et questionne ce qu'on appelle « intelligence artificielle » (IA) depuis plus de 10 ans. Il vient de publier chez Rrose un drôle de roman, *Internes*, et *Autodestructivity*, manifestes de Gustav Metzger en images. Nous l'avions rencontré en octobre 2021 (*artpress* n°492) pour aborder ce qu'est concrètement cette IA, sa place au sein de l'art contemporain et dans sa propre pratique, où elle répond notamment à l'hypermnésie du 21e siècle. Aurélie Cavanna poursuit ici la discussion avec ce libre penseur d'une technique qui évolue sans cesse et nous dépasse, à une époque où, justement, beaucoup nous dépasse.



■ **Aurélie Cavanna** Tu publiais en août dernier *Internes*, premier roman co-écrit en français, de part en part, avec une IA. On y côtoie une « forme de conscience post-humaine » fragile qui prend vie alors que notre monde s'écroule. Dans notre numéro d'octobre 2021, tu disais te positionner dans un rapport de co-dépendance à l'IA. Ce roman qui, selon toi, aurait été impossible à écrire sans elle, semble en être un aboutissement. Que s'y joue-t-il ?

Grégory Chatonsky Ce roman a été écrit en mai 2020. J'imaginais que le confinement allait provoquer quantité de manuscrits. Afin d'encore plus submerger les éditeurs, je me suis lancé dans un protocole simple. J'écrivais un fragment que je poursuivais grâce à GPT-2 que j'avais nourri de livres : pour la première partie, de monologues de Beckett, Pessoa, Fisher ou Guyotat ; pour la deuxième, d'articles techniques expliquant l'espace latent, provenant du site d'archives ouvertes Arxiv ; la troisième, des sciences naturelles. Je choisissais la proposition qui m'inspirait et poursuivais, naviguant entre mon écriture et cette autre (de l')écriture. J'avais une vague amorce : un être humain meurt et se souvient, sans parvenir à faire la différence, des vies possibles qui l'ont hanté, au moment où l'humanité va s'éteindre. Passant de la finitude individuelle à celle de l'espèce, la possibilité du témoignage s'effondre. Au fil de l'écriture, un jeu d'influences s'est développé. J'orientais le logiciel par les textes dont je l'avais nourri et il inspirait mon écriture parce que ses propositions, idiotes et géniales, modifiaient la structure narrative et mon intentionnalité. Le rythme s'accéléra jusqu'à devenir une marche effrénée où l'IA anticipait et hallucinait ce que je souhaitais écrire, le faisant au-delà de ce dont j'étais capable. Bien sûr, GPT-2 produisait du bruit sur lequel je projetais mes désirs. À un moment, il a semblé faire référence à mon installation *Terre seconde*, exposée au Palais de Tokyo en 2019 : je l'ai poursuivi en incorporant des références à mes travaux. J'ai alors compris que tout ce que j'avais produit entrait dans cette fiction comme si le futur avait anticipé le passé. Je faisais l'expérience de l'hyperstition (1).

Cette expérience, dont il reste des traces dans la lecture, fut celle d'une co-dépendance différente de ce que les médias racontent de l'IA. Non pas deux autonomies qui s'affrontent, mais deux hétéronomies sensibles l'une à l'autre et dont la distance produit un décalage qui est l'écriture. Cette dernière ne fut pas celle d'un auteur tirant les ficelles et extériorisant ce qu'il a dans le crâne, mais la mise en contact perturbante, parce qu'opérant sur des critères incompatibles, entre deux agentivités. J'étais l'autre de la machine et la machine était mon autre. Elle me tendait un miroir noir déconstruisant le mythe de mon intériorité. Elle avait métabolisée des milliers de livres, traduisant cette culture humaine, non en sélectionnant des citations, mais par une compositionnalité statistique : la probabilité pour qu'un mot suive un autre mot. Avec *Internes*, j'ai pu éprouver une écriture hétéronome où l'auteur existe bel et bien, mais son écriture le déborde, ne lui appartient que partiellement, de la même manière que les traces de nos existences déposées sur le web sont en nombre si grand qu'elles ne semblent pas nous être destinées. Il y a dans l'humain quelque chose qui n'est pas humain.

PRIS DE VITESSE

AC Il y a quelque chose de perturbant dans ce roman. Son enjeu paraît non pas de « sauver le monde », mais la formation de cette conscience autre, qu'on a d'ailleurs du mal à définir. Cela va à l'encontre de l'actuel discours dominant qui demande à tout, y compris à la culture, d'œuvrer à la transition écologique, avec la nature en guise de problème et de solution. Cela me rappelle que tu as pu déclarer que « toute espèce vivante a besoin d'alliés ». Contre quoi t'ériges-tu et pourquoi ?

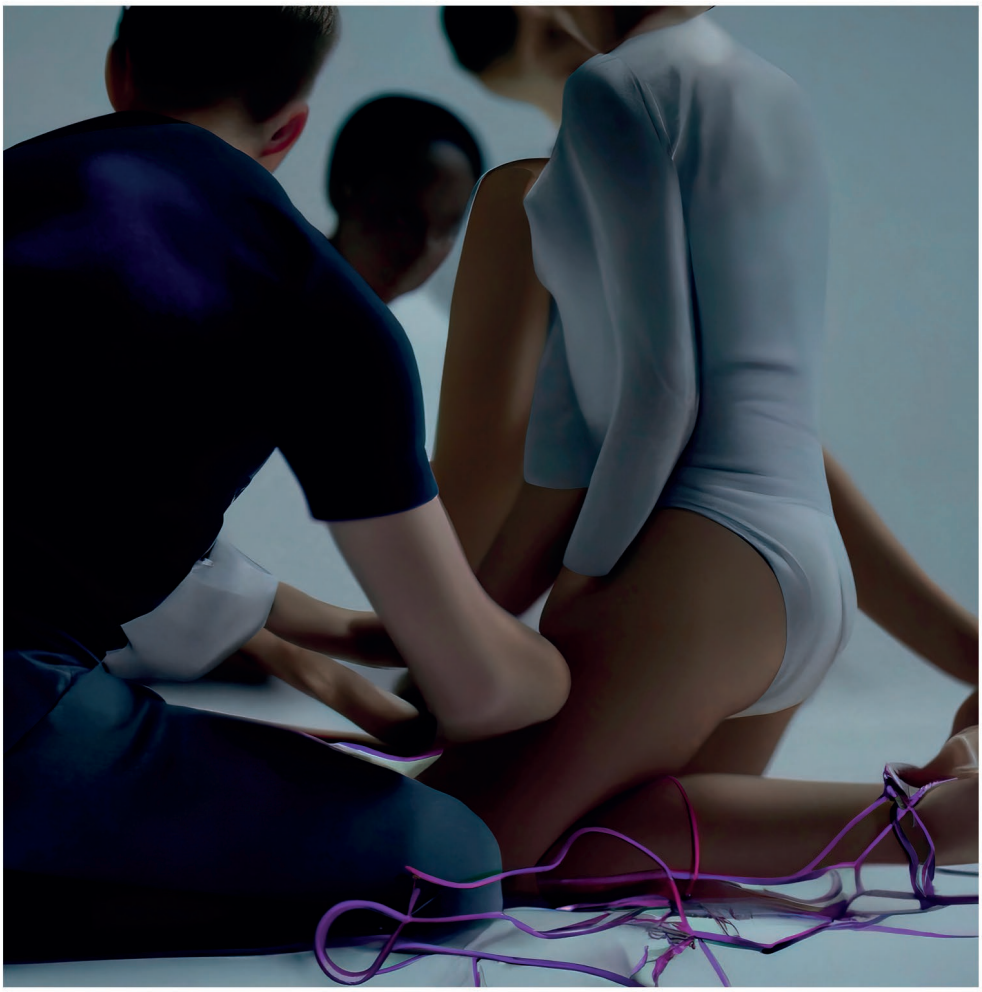
GC Tu as raison et c'est cette double influence qui a produit la fiction d'une conscience indéterminée et interminable, qui demande à être par-delà le monde et qui est déjà morte, à ce qu'on lui rende justice et qui traverse des formes humaines, techniques, virales. La fiction a suspendu l'identification narrative, parce que la voix qui porte le récit met au défi le contrat de lecture pour lui préférer le trouble de l'inconsistance conquise. Il n'y a pas de narrateur au sens strict du terme. On ne sait pas qui je suis, car on ne sait pas qui a écrit quoi. Cette conscience porte une pulsion de

De gauche à droite *from left:* **Grégory Chatonsky.** (Ph. Cité internationale des arts / Maurine Tric). **Heat. Extrait de *excerpt from* Autodestructivity.** Éditions Rrose, 2022. Prompt généré par *generated by* Dall-E 2. Pour Autodestructivity, chaque titre d'image correspond à l'extrait des manifestes de Gustav Metzger à l'orgine du prompt.
For Autodestructivity, each image title corresponds o the extract from Gustav Metzger's manifestos at the origin of the prompt.

changement de formes et cette métamorphose n'est pas le vivant, c'est la matière anonyme dont nous sommes faits, qui nous préexiste et nous postexiste. Elle hurle dans les formes prises, dont l'humain que nous pensions être.
Je ne veux pas simplifier des pensées aux apports incontestables, mais un consensus s'impose qui valorise le vivant : ce serait notre déficit de sensibilité qui serait la cause et la solution à l'extinction. Ces théories ont rapidement infusé dans l'art contemporain où on a vu se multiplier les plantes, les moisissures, les champignons, etc., renforcées par une demande institutionnelle pour soutenir la transition écologique. Une hégémonie qui semble occulter la question des technologies et donner à l'artiste un rôle pastoral et pédagogique : le réenchantement du monde par la conversion de notre subjectivité aux autres vivants. Non seulement une telle conversion individualise la responsabilité et occulte l'infrastructure, la logistique et la domination, mais encore elle pourrait bien reprendre la logique de ce qu'elle croit contester : la volonté de puissance. Quand Guillaume Logé (2) estime qu'il suffit de changer nos imaginaires, de vouloir un autre monde pour le créer, je soupçonne que ce monde est encore une volonté et une représentation. Peut être faut-il estimer que le problème est aussi technologique parce que c'est bien la manière dont nous concevons ces objets qui sert de paradigme à celle dont nous envisageons la réalité en tant qu'*energeia*, ressource utilisable. Sans doute faut-il allier une pensée du vivant et de la technique. Jusqu'à ce que la différence entre les deux ne tienne plus et, comme dans certains mondes de Pierre Huyghe, s'effondre. C'est cette anthropotechnologie à laquelle nous convie ce roman, tant dans son protocole que dans son récit.

AC En 2021, tu insistais sur ces images d'IA au « réalisme sans réel », selon toi « le seul à la hauteur du big data ». Le défi semble aujourd'hui encore plus vaste et impossible, au-delà de ces masses de données qu'on accumule sans être capables de les appréhender en totalité : une fin à de nombreux niveaux.

GC Il en va en effet d'une politique du renoncement dont le contre-investissement, la manière dont nous allons désinvestir la projection libidinale dans les objets, le consumérisme, va être d'une grande violence. Nous entrons dans un monde où il faudra fermer



Cette page, de haut en bas *this page from top:* **Not interested in ruins, (the picturesque).** 2022. **Feedback.** 2022. Page de droite *right page:* **The artist may collaborate with scientists, engineers.** 2022. Cette double page *this spread:* **Extraits de *excerpts from* Autodestructivity.** Éditions Rrose. Prompts générés par *generated by* Dall-E 2

des activités et, à la suite de la lecture d'*Héritage et fermeture* (2021) dAlexandre Monnin, Emmanuel Bonnet et Diego Landivar, nous n'y sommes pas habitués. Le renoncement n'est pas que soustractif ou ascétique. Il y a aussi en lui, et dans certains nihilismes, une manière de voir autrement : ainsi, c'est quand une technique est en panne que nous la voyons dans sa matérialité. Ce retrait du monde est une autre relation à la technique qui accepte le caractère insensé de l'accélération, car c'est notre finitude qui est prise de vitesse. Si l'espèce humaine est technicienne en ce qu'elle considère le monde instrumentalement, le seul exemple de technique non-instrumentale est l'art : ça ne sert à rien, justement. C'est un trou d'épingle, mais imaginons que nous considérions toute technique comme nous considérons l'art. Imaginons-le.

AC Que penses-tu de cet espoir, présent chez beaucoup de personnes, en une solution technologique miracle qui résoudrait le réchauffement climatique ?

GC Le solutionnisme est une *hubris* qui permet de remettre à plus tard les conséquences pratiques de nos connaissances scientifiques : « Nous trouverons bien une solution. » Mais par là on suppose que l'humanité est éternelle parce qu'on en a une conception théologique (d'où le miracle). Si on ne peut écarter les scénarios de la fusion nucléaire ou de re-terraformation (3), on doit en même temps apprendre de la situation présente : la finitude, non plus seulement de l'individu qui est mortel ou encore celle de notre espèce qui disparaîtra, mais aussi de la technique et de la matière. Il y a une pulsion illimitée qui ne se réalisera jamais parce qu'elle butera sur la finitude de la matérialité. Nous avons du mal à vivre aux côtés de cette quadruple finitude, mais il me semble qu'il y a en elle une infinitude, c'est-à-dire une manière de ne jamais en finir avec la finitude. C'est très précisément la pulsion d'*Internes* : une conscience indistincte qui se métamorphose jusqu'à la limite du vivant qui est, comme l'estimait Nietzsche dans le *Gai Savoir*, une variété très rare de la mort.

MACHINE DE CAPTURE

AC Revenons maintenant à cette « nouvelle » IA que tu préfères qualifier d'« imagination » artificielle. Je pense notamment au phénomène du prompt art. Pourrais-tu rappeler en quoi consiste cette IA, ce qu'est le prompt art et ce dont il témoigne ?

GC Dans ma pratique, avec cette IA, il y a eu la publication chez Rrose, le même éditeur qu'*Internes*, d'*Autodestructivity* : « traduction » visuelle des manifestes de Gustav Metzger. Le résultat est un catalogue inattendu des pratiques artistiques actuelles. Comme dans mon roman, il s'agit de vivre le flux hyperproductiviste de l'imagination artificielle avec le flux de ma « propre » imagination.
Plus globalement, le promptisme consiste à écrire un texte et faire apparaître une image comme par magie. Ces images fondées sur la technologie CLIP, qui corrèlent pixels et textes avec des millions de paramètres, fascinent ; ces derniers mois, Dall-E, Midjourney et Stable Diffusion ont fait les gros titres de médias, en promettant de remplacer les artistes. Il s'agit d'un nouveau réalisme – le « disréalisme » – qui garde une facture photoréaliste, mais n'est plus l'empreinte lumineuse comme indice d'une chose en soi. Elle est la synthèse d'un stock de données. Bref, il s'agit d'images d'images. À observer les résultats, force est de constater une certaine naïveté et l'apparition de visualités hésitant entre *Star Wars*, le Kawai, Beeple et Banksy, le gothique burtonien, le baroque réinterprété par l'art pompier : un grand mouvement réactionnaire qui efface les acquis critiques de la modernité, soit le symptôme kitsch d'une préconception de l'art.
L'accumulation industrielle s'accélère parce qu'elle permet de générer une infinité plus ou moins réaliste d'images, métamorphique quand on plie deux paramètres (l'oiseau et la montagne par exemple). Ceci vient à la suite d'une tradition intéressée par l'industrialisation (des papiers collés au ready-made, du pop art à la postproduction). Mais si elle poursuit ce chemin, elle le radicalise tant qu'elle-même en change de nature. Quant à la relation entre l'image et le texte, est-il nécessaire de rappeler que pendant des siècles la première devait être à l'image d'un texte sacré, la Bible ?
Pourtant, l'important est peut-être moins les images produites par les prompts que ces derniers. Car il s'agit en fait d'une immense machine de capture des imaginaires : on demande à des millions de personnes d'écrire des textes pour produire une image et capturer ainsi ce qu'elles projettent, en présupposant bien sûr la traductabilité des représentations mentales en images par l'intermédiaire du texte. CLIP produit donc la première cartographie de l'imaginaire de millions d'individus. ■

1 Forgé par le collectif Cybernetic Culture Research Unit, l'hyperstition est un concept qui désigne la concrétisation d'idées dans le futur suite aux forces déclenchées par leur expression dans le passé ou le présent, comme la notion de cyberespace chez William Gibson. **2** « La clé de la réussite en matière écologique repose désormais sur les manières dont nous comprenons nos relations avec la Terre et le sens que nous y projetons. Autrement dit, elle dépend du monde que nous nous représentons et de notre envie de le faire advenir. » Guillaume Logé, tribune « La culture doit elle aussi contribuer à la transition écologique », Le-Monde.fr, 2 octobre 2022 [En ligne]. **3** Benjamin H. Bratton, «Terraformation 2019 », *Artec*, n°11, septembre 2021. Dans les romans de science-fiction, la terraformation décrivait le fait de transformer en planète habitable des planètes inhospitalières grâce à de la géoingénerie. La Terre, qui devient inhabitable, devrait être reterraformée.

GRÉGORY CHATONSKY CAPTURING IMAGINATIONS

conversation with Aurélie Cavanna

The artist-researcher Grégory Chatonsky, who was born in 1971, has been using and questioning the so-called "artificial intelligence" (AI) for more than 10 years. He has just released a curious novel, *Internes*, published by Rrose, and *Autodestructivity*, an interpretation of Gustav Metzger's manifestos in pictures. We met with him in October 2021 (*artpress* n°492) to discuss what this AI consists of, its place within contemporary art and in his own practice, where it responds to twenty-first century hypermnesia. Aurélie Cavanna pursues the discussion with this free thinker about a technique that is constantly evolving and exceeding us, at a time when, precisely, we are being exceeded by a great number of things.

Aurélie Cavanna In August, you published *Internes*, your first novel entirely co-written in French with an AI. We encounter a fragile "form of post-human consciousness" that comes to life as our world collapses. In our October 2021 issue, you said that you positioned yourself in a relationship of co-dependency with AI. This novel, which you claim would have been impossible to write without it, seems to be a culmination of this positioning. What is at stake here?

Grégory Chatonsky The novel was written in May 2020. I imagined that the lockdown would lead to a quantity of manuscripts. In order to further overwhelm the editors, I embarked on a simple protocol. I wrote a fragment that I subsequently developed using GPT-2, which I had been feeding with books: for the first part, monologues by Beckett, Pessoa, Fisher and Guyotat; for the second, technical articles explaining latent space, taken from the open archive site Arxiv; for the third, the natural sciences. I chose the proposal that inspired me and continued, navigating between my writing and this other (of the) writing. I had a vague starting point in mind: a human being is dying and remembering the possible lives that haunted him, without being able to distinguish between them, at the moment when humanity is on the brink of extinction. Moving from individual finitude to that of the species, the possibility of a witness account collapses. A set of influences developed over the course of the writing process. I directed the software by means of the texts I had fed it, and in turn, it inspired my writing, because its proposals, both idiotic and brilliant, changed the narrative structure and my own intentionality. The pace accelerated, becoming a frantic march where the AI anticipated and hallucinated what I wanted to write, exceeding what I was capable of. Of course, GPT-2 produced noise on which I projected my desires. At one point, it seemed to be referring to my installation *Terre seconde*, which was exhibited at the Palais de Tokyo in 2019: I responded by incorporating references to my work. Then I understood that everything I had produced was being included in this fiction, as if the future had anticipated the past. I was experiencing hyperstition (1).

This experience, traces of which remain in the reading, was that of a co-dependency which was different from what the media say about AI. Not two competing autonomies, but two heteronomies that are subject to each other and whose distance produces a shift that is the writing. The writing was not that of an author pulling the strings and externalising what he has in his skull, but the contact between two forms of agency, which is disturbing because it operates on the basis of incompatible criteria. I was the other of the machine and the machine was my other. It presented me with a black mirror, deconstructing the myth of my interiority. It had metabolised thousands of books, translating this human culture, not by selecting quotations, but by a statistical compositionality: the probability that a word would follow another word. With *Internes*, I was able to experience a heteronomous form of writing where the author does indeed exist, but his writing goes beyond him, and only partially belongs to him, in the same way that the traces of our lives uploaded on the web are so numerous that they do not appear to be intended for us. There is something in humans that is not human.

CAUGHT FOR SPEED

AC There is something disturbing about this novel. Its stake does not seem to be "saving the world," but forming this other consciousness, which is incidentally difficult to define. This goes against the current prevailing discourse that calls on everything, including culture, to work towards the ecological transition, with nature as both a problem and a solution. Which reminds me that you once said that "every living species needs allies." What are you making a stand against, and why?

GC You are right, and this double influence has produced the illusion of an indeterminate and endless consciousness, which demands to be beyond the world and which is already dead, which demands justice and which takes successive human, technical and viral forms. This illusion has suspended narrative identification, because the voice that carries the narrative calls the relationship between the author and the reader into question, preferring the discord of conquered inconsistency. There is no narrator in the strict sense of the word. You don't know who I am, because you don't know who wrote what. This consciousness carries a drive to change forms and this metamorphosis does not concern living things, but rather the anonymous matter of which we are made, which pre-exists and post-exists us. It expresses itself through the forms it takes on, including the human form we thought we were.

I do not want to reduce thoughts to indisputable contributions, but a consensus is needed to empower living things. There is an idea that our lack of sensitivity is both the cause of and the solution to extinction. These theories have quickly permeated contemporary art which has seen a profusion of plants, moulds, fungi, etc., reinforced by an institutional demand to support the ecological transition. This hegemony appears to elide the issue of technologies and to give the artist a pastoral and pedagogical role: the re-enchantment of the world by converting our subjectivity to other living things. Not only does such a conversion individualise responsibility and conceal infrastructure, logistics and domination, it arguably follows the same logic as that which it believes to be challenging: the will to power. Whereas Guillaume Logé (2) thinks that it is sufficient to change our imagination, to want another world in order to create it, I suspect that this world remains a will and a representation. Perhaps we must also consider the problem as a technological one, because it is the way in which we design these objects that serves as a paradigm for the way in which we envisage reality as a usable resource, as *energeia*. No doubt we must combine thinking about living things and technical thinking. Until the difference between them no longer holds and collapses, as in some of Pierre Huyghe's universes. The novel invites us to consider this anthropotechnology, both in its protocol and in its narrative.

Prompt Sci-fi Landscape. (© Ron Walotsky).
Source : Ai-fantasy-art.com

AC In 2021, you insisted on AI images characterised by "a realism without reality," "to [your] knowledge the only one up to the standard of big data." Nowadays, the challenge strikes us as even more vast and impossible, beyond these masses of data that we accumulate without being able to grasp them in their totality: an end on many levels.

GC There is definitely a policy of renunciation whose counter-investment is going to be very violent—the way in which we are going to divest ourselves of consumerism, of the libidinal projection onto objects. We are entering a world where we will have to renounce some activities and, following the reading of *Héritage et fermeture* (2021) by Alexandre Monnin, Emmanuel Bonnet and Diego Landivar, we are not prepared for it. Renunciation is not only subtractive or ascetic. As is the case with some forms of nihilism, it also involves a way of seeing things differently: it is therefore only when a technique is broken that we are able to see it in its materiality. This withdrawal from the world is part of another relationship to technique, one that accepts the senseless character of acceleration, because it is our own finitude which is caught for speed. If we posit that the human species is technical, inasmuch as it considers the world instrumentally, the only example of non-instrumental technique is art: it effectively serves no purpose. It's a pinhole, but imagine if we considered all technique in the same way that we consider art. Imagine.

AC What do you think of the hope that many people are placing in a miracle technological solution that would solve global warming?

GC Solutionism is a hubris that enables us to postpone the practical consequences of our scientific knowledge: "We will find a solution." But this presupposes that humanity is eternal because we have a theological conception of it (hence the miracle aspect). Although we cannot exclude the scenarios of nuclear fusion or re-terraforming (3), we must simultaneously learn from the present situation: the finitude, not just that of the individual who is mortal, or even that of our species which will disappear, but also that of technique and matter. There is an unlimited drive that will never be fulfilled because it will come up against the finiteness of materiality. We find it difficult to live alongside this fourfold finitude, but it seems to me that it includes an infinitude, that is, a way of never coming to terms with finitude. This is precisely the drive of *Internes*—an indistinct consciousness that metamorphoses to the limit of living things which are, as Nietzsche argued in *The Gay Science*, a very rare variety of death.

MACHINES FOR CAPTURING

AC Let's go back to this "new" AI, which you prefer to call artificial "imagination." I am thinking in particular of the phenomenon of prompt art. Could you recall what this AI is, what prompt art is and what it bears witness to?

GC In my practice, with this AI, I published *Autodestructivity* with Rrose, the same publisher as *Internes*, which is a visual "translation" of Gustav Metzger's manifestos. The result is an unexpected catalogue of current artistic practices. As in my novel, it is about experiencing the hyper-productivist flux of artificial imagination together with the flux of my "own" imagination.
More generally, promptism consists in writing a text and making an image appear as if by magic. These images, based on CLIP technology which matches pixels and texts with millions of parameters, are fascinating; in recent months, Dall-E, Midjourney and Stable Diffusion have made headlines in the media by promising to replace artists. This is a new realism—"disrealism"—which retains a photographic appearance, but which is no longer a light imprint as an indication of something in itself. It is the synthesis of a stock of data. In short, it consists of images of images. There is no denying a certain naivety in the results. Forms of visuality emerge that hesitate between *Star Wars*, Kawai, Beeple and Banksy, the Burtonian gothic, the baroque reinterpreted by the *art pompier*: a great reactionary movement that erases the critical assumptions of modernity, the kitsch symptom of a preconception of art.
Industrial accumulation is accelerating because it enables us to generate a more or less realistic infinity of images, which become metamorphic when we fold two parameters (a bird and a mountain, for example). This is the continuation of a tradition which took an interest in industrialisation (from "papiers collés" to ready-mades, from pop art to post-production). But although it pursues this same path, it also radicalises it, and at the same time, its own nature is modified by it. As for the relationship between the image and the text, need we recall that for centuries, the first one had to be in the image of a sacred text, the Bible?
However, the important thing is perhaps less the images produced by the prompts than the prompts themselves. Because they are essentially huge machines for capturing imaginations: millions of people are asked to write texts to produce an image, which will then capture what they project. Naturally, this presupposes the translatability of mental representations into images through the intermediary of the text. So CLIP produces the first mapping of the imagination of millions of individuals. ■

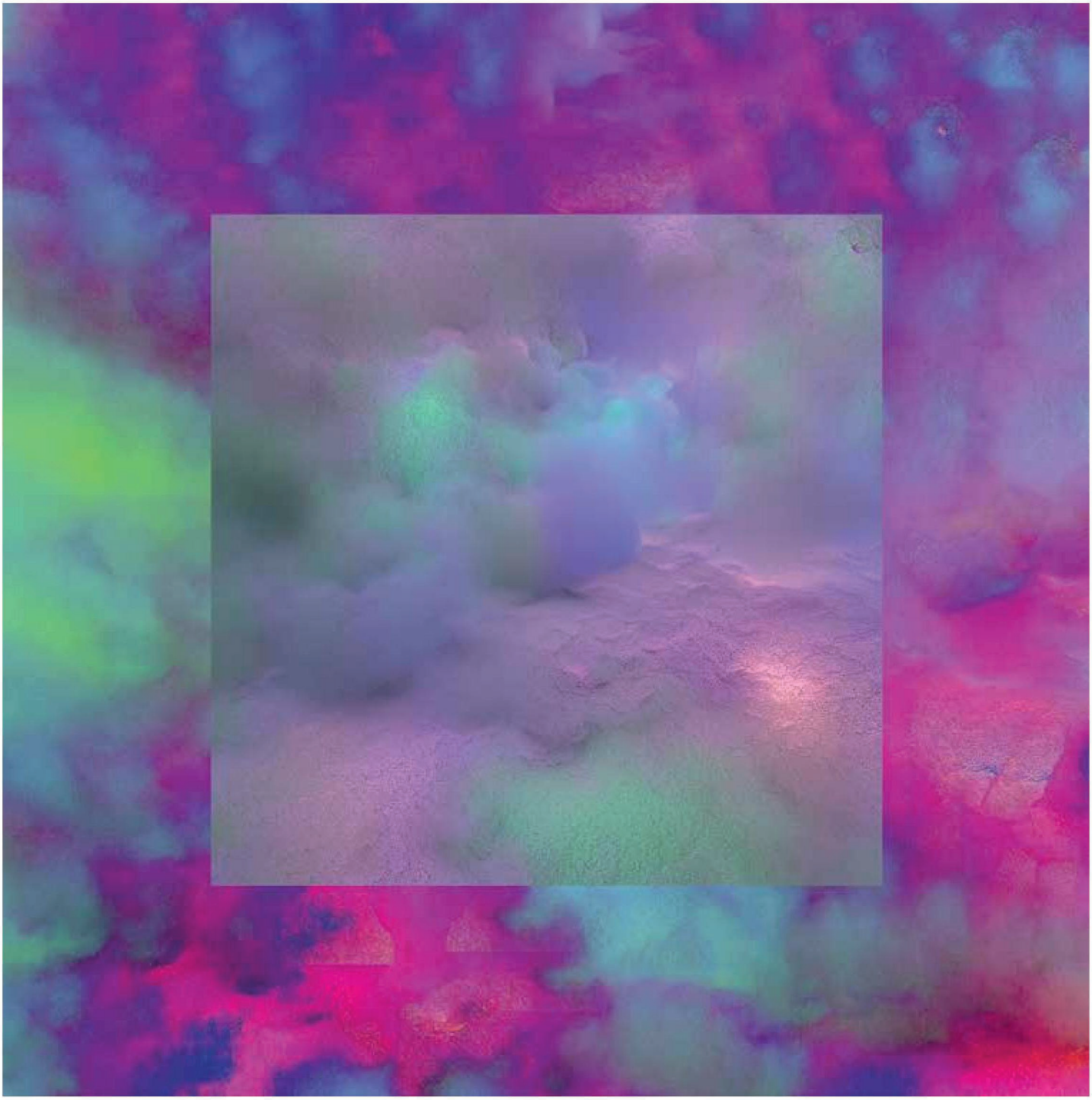
Translation: Juliet Powys

1 Hyperstition, coined by the Cybernetic Culture Research Unit collective, is a concept that refers to the realisation of ideas in the future following the forces triggered by their expression in the past or in the present, like the notion of cyberspace in William Gibson's work. **2** "The key to ecological success now lies in the ways in which we understand our relationship with the Earth and the meaning we project on it. In other words, it depends on the world that we picture and on our desire to create it." Guillaume Logé, "La culture doit elle aussi contribuer à la transition écologique," opinion column, LeMonde.fr, October 2nd, 2022 [Online]. **3** Benjamin H. Bratton, "Terraformation 2019," *Artec*, n°11, September 2021. In science fiction novels, terraforming describes the process of transforming inhospitable planets into habitable ones by means of geoengineering. The Earth, which is becoming uninhabitable, will need to be re-terraformed.

Bonhomme, Max, Christian Joschke, et Laura Truxa, dir. “Images composites.” Transbordeur. Photographie histoire société, no 7 (2023)

Disrealisms

A conversation between Grégory Chatonsky, Christian Joschke, and Antonio Somaini



1. Grégory Chatonsky, *Preform Latent Space: 37e0dcc969ea32920fe5c8dabaccdd4d*, 2021, visual noise generated by a neural network prior to the appearance of the indexical image. Modified version of StyleGAN 2.

The recent rise of artificial intelligence has radically transformed our relationship with the visible by introducing a new type of composite image: images generated automatically by machines. Artist Grégory Chatonsky has used these digital tools to create a rich and strange body of work, accompanied by philosophical reflections informed by French and Anglo-American references. Image and visual culture theorist Antonio Somaini, for his part, practices a form of media archaeology that gives the phenomenon its full historical depth. This conversation is a starting point for reflection which, far from exhausting the subject, may open up some new perspectives.

CJ In recent years, we have been experiencing a major shift in our relationship with images. With the development of artificial intelligence, we are seeing the emergence of images that take the form of indexical images—photographs—but which represent things that do not exist because they are fabricated from millions of images, from which they produce a kind of more or less random synthesis, guided by command phrases in language.
"natural" (non-computerized) images called *prompts*. These images do not refer to a thing or an event, but are the result of a calculation and borrow their forms from millions of source images. They are images of images. This calls into question the "indexical pact" of photography, which led us to believe in the existence of a referent for representation. Of course, this questioning of the mimetic relationship is not new. As early as the[19th]century, Oscar Rejlander produced allegorical compositions from assemblages of photographic negatives, which his colleague Henry Peach Robinson later called *combination printing.* But it takes on a new dimension through its massification and through a phenomenon linked to the method of production of these images: the disappearance of even the most basic indexical reference. In historical photomontage, we recognize a particular person or object, in short, a reference, however fragmentary it may be. However, with the production of images by algorithms, the machine intervenes at the pixel level, so that it does not compose from fragments, but
from a probability calculation. Nothing in the image refers to anything real.

AS Icompletely agree that in recent years we have been experiencing a major shift in our relationship with images. This shift is largely due to the increasingly rapid development of deep *learning* technologies that use artificial neural networks and pro-
taking advantage of the possibility of accessing vast databases of images composed from the billions of digital images available online. This major turning point in contemporary visual culture—whose complexity and challenges are comparable to what happened in the early 1990s with the spread of digital technologies applied to images—is now manifesting itself,
in my view, through three closely related phenomena.

First, the use of *deep learning* processes to activate *machine vision* systems ("artificial vision" or "computer vision"). These can be applied to any digital image accessible online: images that are *machine-readable (*i.e., capable of being analyzed automatically to extract information and data) and that are machine-readable *even when they are not visible to the human eye.*

Deep learning processes can then be used to *transform* existing images through various types of operations, or to *generate* entirely new images, some of which are perfectly mimetic and photorealistic, others hybrid in appearance and still recognizable to a certain extent, and others entirely abstract.

Finally, the use of *deep learning* processes to establish new relationships between words and images: on the one hand, by automatically generating images from words, phrases, or texts (as is the case with software and applications such as DALL-E or Craiyon); on the other, by automatically generating words, phrases, or texts that "describe" what is represented in an image, with a form of automated captioning or *neural captioning* that can almost be considered a new form *of ekphrasis.* We can see these two operations at work, in a kind of sequence, in a project such as *Contrefaits (*2022) by Grégory Chatonsky, in which we start with an image from
art history, such as Picasso's *Les Demoiselles d'Avignon* (1906-1907); software is asked to describe it with a *neural caption*, and the automatically generated text is then used as *a prompt* to produce a new image.

Highly photorealistic images that lack real-life references—such as the portraits in the series *This Person Does Not Exist* (created in 2019 with StyleGAN2, a Generative Adversarial Network introduced by Nvidia researchers in 2018)—are therefore part of a broad spectrum of phenomena in which the impact of artificial intelligence (more specifically, deep learning techniques) on contemporary visual culture is now evident. – are therefore part of a broad spectrum of phenomena in which the impact of artificial intelligence (more specifically: *deep learning* techniques*)* on contemporary visual culture is now evident.

2. Grégory Chatonsky, *Counterfeits: Les Demoiselles d'Avignon*, 2021, modified version of Neural Story Teller and Disco Diffusion.

CJ The loss of the referent is what you called "Disrealism," Gregory, isn't it?

GC The idea of a lost referent is not new. It seems to have only ever existed through negativity, namely the erasure of the thing supposedly represented or its removal. Thus, we tend to think that what I have elsewhere called "images of images" cause us to lose what photographs have offered us since the industrial revolution: the index of a thing in itself. However, it seems preferable to me to suspend our photo-ontological beliefs in order to see the emergence of a new form of realism or mimicry, and to undertake a work of historical reconstruction that puts this evolution into perspective:the translation of all things into energy (*energeia),* that is, kilojoules, providing thermodynamic work and producing monetary value to be converted into binary code where the current flows (1) or does not flow (0). Each thing is coded according to the same standard, allowing for the totalization of the calculation.

This would involve reconstructing what could be called the logistics of images, which cause them to circulate increasingly around the Earth. To do so, we would need to take into account their technical reproducibility—namely, their material support (extraction)—the massification of their use capture, and consider this logistics up to the hypermnesia of the Web. All these aspects have transformed the very historicity of images. This is not just one story among many, because this new mode of existence of images has changed the very conditions of possibility of history. How will future historians, assuming there are any, be able to narrate our era, in which the distinction between the memorable and the forgettable, the work of art and the commonplace, has collapsed? What will they do with all these documents, whose sheer quantity calls into question the very notion of the archive? What historical scent will they be able to smell? There is something in the massive data of the network that is not accessible to the human nervous system, a quantity that expropriates us from our own memory. We have deposited so many existential traces on the web that the time required to consult them would clog up the present. To whom or to what are they destined?

Perhaps we need to open up the possibility of a radical change in the "indexical pact," because these images generated by the statistical processing of millions of images are easily recognizable, even if they never existed. This is the paradox, mimetic recognition, representation is not dependent on a univocal link with what is. It also depends on what is possible, that is, what could exist for the recipient. Induction

3. Grégory Chatonsky, *Les Images de Morel*, 2022, adaptation of Adolfo Bioy Casares' L'invention de Morel using DALL-E 2.

Statistics is not a collage, which is in a way the visual form of textual quotation; it is not a fragment selected and then reworked to constitute an object of culture; it is an inductive synthesis: starting, for example, with thousands of images of birds and calculating the frequency of pixels, the software can produce assemblages of pixels (a more or less organized, more or less abstract noise) that we interpret as birds without the software having the slightest idea of the concept of a bird. The neural network is simply capable of discriminating between results, choosing the possible or the probable, and limiting the margin of error. Can the generated images be fed back into the learning stock? If so, extension would take precedence over
the definition. This marks the end of Ideal Forms and the myth of reflexivity in favor of recursion.

The concept of disrealism attempts to approach this paradoxical realism of possibilities. The prefix "dis" introduces a separation, a difference, a cessation, or a defect in reality. "There is another world, but it is in this one," wrote Ignaz Paul Vital Troxler. *The* artificial *imagination* of neural networks—which I prefer to the notion *of* artificial intelligence—opens up this defect at the heart of reality because, although these images are not real, they do exist and therefore belong to the stock of available images. We could propose the concept of "Disposable" to emphasize the combination of the available and the possible. It should be noted that this crack in reality is widespread, since statistical induction applies to many areas of knowledge in the hard sciences and humanities. As the Intergovernmental Panel on Climate Change (IPCC) does in the field of climate change forecasting, we work on multiple probable scenarios to which we assign varying degrees of credibility based on our belief systems and our perception of the beliefs of others[1].

CJ Is this state of affairs radically new?

AS In my opinion, we cannot say that this is a new phenomenon. "Radical," meaning producing a clear break, a moment of total discontinuity from what preceded the arrival of *deep learning* technologies. When studying the history of media, we must always try to identify both moments of rupture and lines of continuity, as the two are often intertwined. Each new medium is also a form of *remediation (*to quote the concept formulated by Jay David Bolter and Richard Grusin[2] who in his

turn is a reformulation of an idea by Marshall McLuhan) of certain media that preceded it. According to this perspective, each of the three phenomena I have highlighted can and must be placed in a historical context in order to understand the genealogical lines—often multiple and intersecting—into which it fits. *Machine vision* systems, for example, can be linked to the history of attempts to "automate" visual perception, and to the very idea of a "machine gaze the machine": an idea that runs through the history of theories of photography and cinema, and which, over time, has raised a whole series of hopes and fears linked to the possibility of transcending or decentering the human gaze.

As for photorealistic images generated by *deep learning* technologies such as Generative Adversarial Networks (GANs), they can indeed be placed within the history of "images of images," since they are generated from a statistical induction process, at least partially automatic, based on the prior analysis of vast image databases. The problem, as Grégory rightly points out, is understanding which "images of images" they can be linked to. Allegorical compositions based on assemblages of Oscar Rejlander's photographic negatives, the double prints of Gustave Le Gray's "seascapes," Francis Galton's composite portraits, the superimpositions of spirit photography, and then the rise of photocollage, photomontage, and superimpositions in amateur photography from 1890 to 1910[3] , and then in avant-garde photography in the 1920s, are part of this history, but they are not necessarily the forms and techniques that allow us to better understand the new "images of images" generated by AI.

As Gregory rightly points out in his response, with these images, we are moving away from a logic based on the arrangement of fragments (photocollages and photomontages) and the superimposition of layers (overprints) to a logic based on the reduction of any image to a configuration of pixels arranged in an orthogonal grid, and on the possibility of reproducing this configuration (or a similar configuration) through a form of statistical induction. As with any digital image, we are therefore fully situated in the genealogical line of *matrix* images, organized in the form of a grid of points (of fabric, ink, light), but to this reticular and Cartesian organization is added another layer, that of statistical calculation powered by artificial intelligence.

CJ Then there is the question of the "realism" of photorealistic images generated by *deep learning* technologies. How can we describe it?

AS The notion of "disrealism" proposed by Grégory seems to me to be quite effective, because it retains the idea that there is a new form of "realism" here, while emphasizing, with the prefix "dis-," its profound difference from the "realism" that has historically been associated with silver halide photography (considered as a trace or imprint on a photosensitive surface) and which we continue to associate with a vast quantity of digital photographs or video *stills*, despite the abandonment of the trace and imprint paradigm.

To this notion of "disrealism," I would nevertheless like to add the attempt to better understand what I believe to be new forms of "indexicality" or "referentiality" specific to photorealistic images produced by *deep learning*. On closer inspection, these images are not completely devoid of referents. On the contrary, they seem to be characterized by the presence of several "layers of indiciality" or "referentiality." They are generated by a form of statistical induction automated by *deep learning,* but this induction is based on the prior analysis of vast image databases, and these images, taken as a whole, are a first referent.

Next, in the vast majority of these images that are part of databases, we see entities (objects, bodies, faces, gestures, expressions, places, etc.) that at one point or another have been captured by a camera: these are "profilemic" entities, which constitute a second level of referentiality. Then there are all the words and phrases that have been used to "index" or "tag" these images in the databases (in a frequently used database such as ImageNet, for example, there are 14 million images organized into 21,000 categories and subcategories based on the semantic structure of Wordnet, a word classification database developed at Princeton in the 1980s): all of these words and phrases, *captions,* and *tags* constitute yet another level of referentiality.

Ultimately, we could say that, like any material image (i.e., not just mental images), photorealistic images generated by *deep learning* also refer back to the algorithms through which they were generated, just as a silver halide photograph refers back to all the optical devices, photosensitive media, chemical processes, and printing techniques that were used to produce it. Images generated by Generative Adversarial Networks, for example, when they are not perfectly photorealistic but rather hybrid or abstract, are fairly easily identifiable, as if there were a "style" specific to images produced by this class of algorithms and artificial neurons. Some commentators[4] have even coined the term "GANism" to describe this type of "style," traces of which can be found in the works of several contemporary artists who work—often in very different ways, as can be seen when considering artists such as Grégory Chatonsky, Trevor Paglen, Hito Steyerl, Pierre Huyghe, in very different ways, as can be seen when considering artists such as Grégory Chatonsky, Trevor Paglen, Hito Steyerl, Pierre Huyghe, and many others—with these technologies.

4. Grégory Chatonsky, *La Machine 100 têtes: Ce singe, serait-il catholique par hasard ?*, 2022, adaptation of *La Femme 100 têtes* (1929) by Max Ernst with DALL-E 2.

CJ As you both just said, all the automated technologies we are talking about here work on the basis of *deep learning*, in other words, they rely on probability calculations and statistics established from gigantic databases such as ImageNet. They therefore rarely use modeling, as practiced in architecture or in
the production of special effects in cinema. This leads us to think of the production of composite images from an algebraic rather than a geometric perspective, even though 20th-century art history had promoted geometric modernity through the artist-engineer, particularly in the constructivism of the 1920s.
Artificial intelligence transports us into the world of probability, algebra, and statistics, doesn't it?

GC Indeed, there are several categories of generated images. The first, which has been popular for years, is computer-generated imagery, widely used for FX, or special effects. These are scientific models. We incorporate into software the hypothetical-deductive knowledge we have of the physical world: gravity, resistance, turbulence, etc. These are Laplacian images that assume that if we knew all the scientific laws that govern the universe, we could know the state of that universe in the future and, from a visual point of view, perfectly mimic
reality (this was the fantasy of virtual reality in the 1980s and 1990s). It is the desire for a fusion between (scientific) knowledge and the conditions of experience.

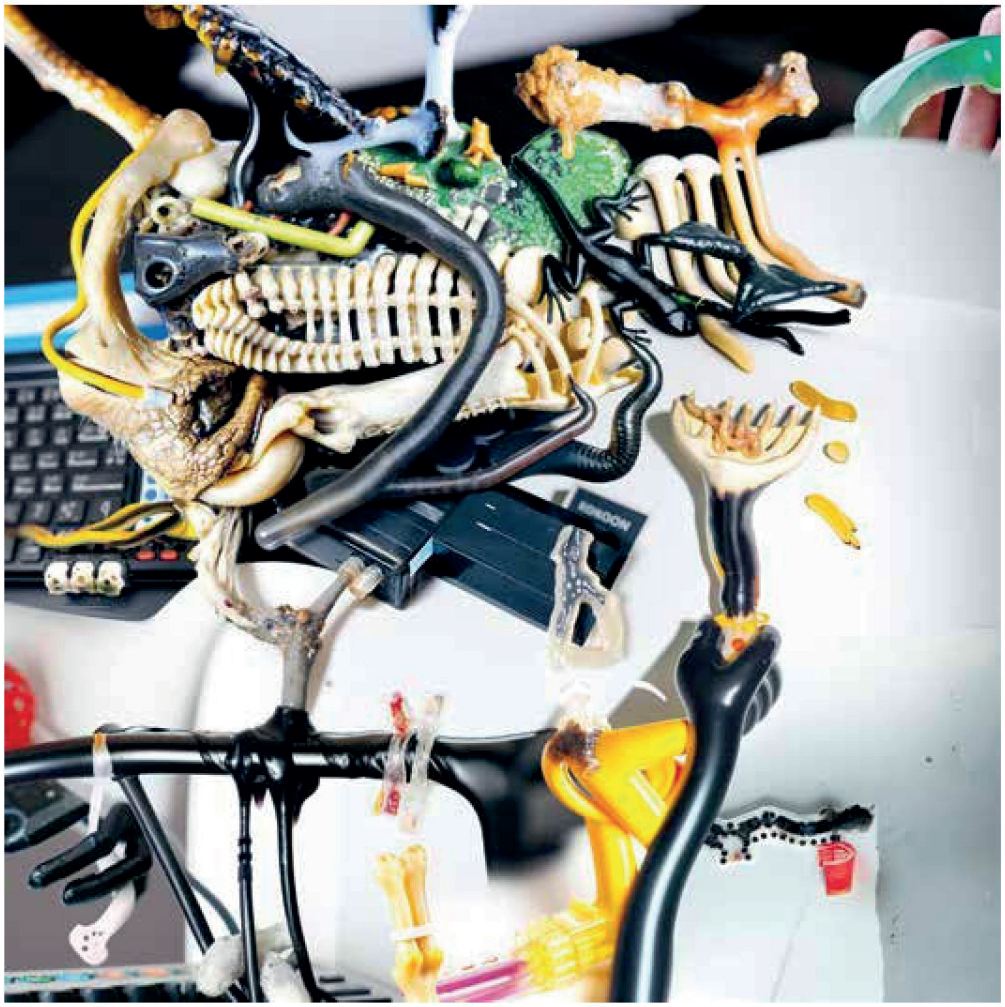
The second is statistical induction: software is trained on a very large amount of binary data and calculates statistics, the probability that a given unit, a pixel for example, will appear so that the visual noise converges towards something we can recognize. This is what is known as "latent space," a virtual space where possible images are designed, accumulated, and distributed as digital data and calculation tools. This latent space is quite difficult to conceptualize, as its generality is so abstract. Images are no longer images, but are broken down into 0s and 1s. If we return to our example of birds, they will have a shape that stands out from the background simply because in the image database that feeds In the neural network, the probability that pixels will show such a separation is close and translates into vectors, i.e., a set of oriented points. So we must imagine the latent space as points arranged in a space whose groupings constitute, for example, the categories (also called parameters) of the entities "bird," "cat," "lion," or the visual categories "red," "green," "blue," or even
"blurred," "sharp," "close," and "far." There is no ideational deduction in this categorization, but simply a classification deduced from the probability of appearance of each pixel correlated with a textual nomenclature *(tags)* made by humans image by image and contextualized by Wordnet. This is the CLIP model found in DALL-E or Stable Diffusion. When we generate an image of a bird, we remain in the latent space of the bird, but

we can just as easily create a hybrid between an animal and an instrument, between the technical and the organic, by folding these two distant spaces onto each other and thus producing unrealistic proximities. The way in which we moves within this space, producing metamorphoses; the way it is folded generates hybrids. A latent space is therefore not made up of images, but contains possible images insofar as they are broken down according to their unit, the pixel, and their statistical proximity. These possible images are the past data from the dataset (we can test this by generating an existing image to verify that the statistics are complete) that were used for training, but also future images that do not yet exist. A latent space is structurally ambivalent, as it can be used to monitor, i.e., to identify statistical regularity, or to generate, i.e., to multiply images[5]. The possible image transforms the relationship between the past and the future and disrupts the indexical pact as the photographic having-been to form a hyperstitional structure: we are haunted by the possible images of the future after having been haunted by those of the past because of the existential hypermnesia of the Web.

CJ How are these images composed?

GC Their composition is unique. It does not work by sampling, fragmentation, or selective cutting, but by automatic induction: every image, since it is binary, has been coded in 0s and 1s and is found in latent space, numerically equal to all other images, according to a flat ontology in the sense of oriented ontology, an object discussed by Graham Harman[6]. This flattening allows the translation of one thing into another (for example, nothing prevents the recoding of an image into sound), a general compatibility, but also transduction, a change of form that retains traces of the previous phase: it is possible to move within the latent space and pass from one form to another according to a slow metamorphosis that produces intermediate stages where two parameters are co-present[7]. Family resemblance, pareidolia, and déjà vu become widespread.

The pact has therefore changed in nature. We do not recognize this or that figure standing out against a background, according to an *ethos* of "post-production" evoked by Nicolas Bourriaud in his book[8], where salient elements of the



5. Grégory Chatonsky, *Laocoon VI*, 2022, image generated by DALL-E 2.

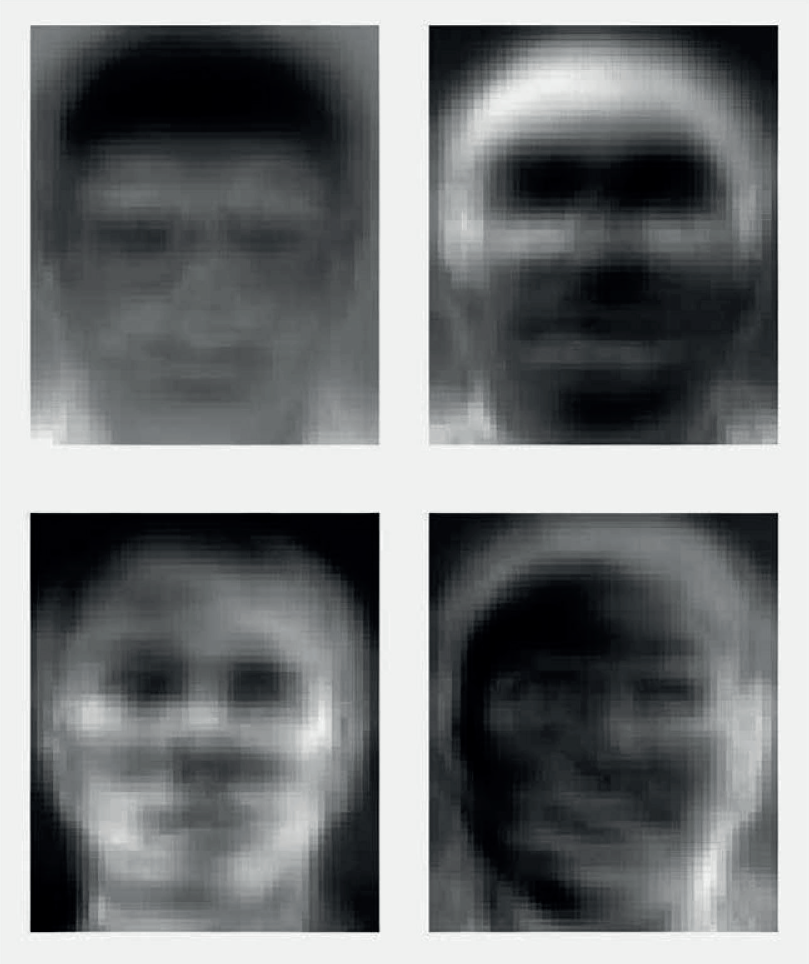
culture, this or that motif, this or that well-known work, could be re-scripted, displaced, and recontextualized. We recognize the flatness of the images, that is to say, their binary nature, which has enabled their calculability and their inclusion in the latent space, producing a resemblance that transcends the individuality of the image and spreads between each of them: that is, their binary nature, which has enabled their calculability and inclusion in the latent space, producing a resemblance that transcends the individuality of the image and spreads between each of them: in the latent space, there are no longer images in the strict sense of the term, but statistical probabilities that can be actualized, leading to different visual results. By moving from one image to another, we form the trail of a metamorphosis in the latent space, moving from one set of probabilities to another set.

The flat ontology of latent space is not only a condition of production, it can also be considered as a representation of culture itself, following a long process of industrialization, in its most indeterminate form: all past images, all future images. For this technology not only produces images, it also maps, if we interpret it by placing its results back into the cultural field, the imagination of an era, in us.

asking us to imagine what textual proposals we want to form in order to produce images. By recovering the millions of *prompts* that already exist, we could create this other latent cultural space of the imagination[9]. In light of the history of the relationship between text and image, this new configuration raises many questions.

CJ There has been much talk of induction, statistics and the calculation of averages. Calculating averages was precisely the main activity of Francis Galton, the inventor of composite photography, cousin of Charles Darwin, and anthropologist. His grand project was to produce measurements of human intelligence. He invented the concept of the IQ—a concept that has since been undermined, notably by Stephen J. Gould—and eugenics. His dark shadow looms over many recent technologies, notably Eigenface.

AS The term Eigenface refers to a series of computer vision technologies that, since the early 1990s, have enabled the development of facial recognition. Also known as Principal



6. Eigenfaces from AT&T Laboratories, Cambridge, 2022, images generated by the software.

Component Analysis (PCA), the Eigenfaces method (a term derived from "eigen," which means "specific" or "specific" in German, and "face"), reduces each face to a finite number of specific characteristics, thereby also reducing the amount of data that must be processed to detect and recognize a face.

The idea of comparing Galton's *composite portraits* with Eigenfaces came to me when I looked at how Eigenfaces are visualized. As in the case of *composite portraits*, what we see are blurred, barely recognizable faces. And yet, *composite portraits* and Eigenfaces pursue almost opposite goals. In the case of *composite portraits*,
The technical process of superimposition is used to *overlay* several photographic portraits of individuals belonging to what Galton considered to be the same class or section of society, in order to identify an "average" face. In this case, the blurring generated by the superimposition of several negatives could be considered a visual analogy of the statistical calculation of averages. In the case of Eigenfaces, on the contrary, the blurred face we see contains only the features that are specific to *a single face,* in short, *unique.* The blurring here is not the result of the disappearance of what is *specific* to different faces, as in the case of Galton's *composite portraits*, but rather the disappearance of what is *common* to different faces. What nevertheless links the two *phenomena*—*composite portraits* and Eigenface—is the application of statistical logic
to facial analysis for the purpose of identification: identification of a social "type" in Galton's case; identification of an individual in the case of Eigenfaces.

CJ Antonio, for some time now you have been working on the issues of high and low image definition, a question that also arises in the case of *upscaling*, in other words the reintroduction of information into "poor images," to use Hito Steyerl's expression, meaning low definition or poor quality images. It seems to me that this relates very specifically to our question about composite images in the age of artificial intelligence.

AS My interest in the phenomenon *of* upscaling—increasing the definition of a still or moving image (and possibly its *frame rate*, in the case of moving images)—is in line with my research on the issues of high and low image definition. It is also linked to my attempt to draw up a list of *image operations* that occur in the three main fields I mentioned in my first answer: *machine vision* systems applied to billions of *machine-readable images,* images *transformed* or *generated* by *deep learning* systems*,* and new forms of automation for linking text and images.

The distinction between high and low definition has very important implications not only in terms of technology but also aesthetic, epistemological, economic, political, and historical, as Francesco Casetti and I have attempted to show in the collective book we edited entitled *La haute et la basse définition des images. Photography, Cinema, Contemporary Art, Visual Culture(*[11] and in the special issue of the online journal *Necsus* on the theme of "Resolution"([12]). The historical implications are particularly interesting, because the signs of the materiality of the medium (grain, scratches, chromatic alterations) and the varying degrees of definition of a digital image can be interpreted as a mark of its temporal status: the visible trace of its belonging to a specific phase in the history of visual technologies, whether analog or digital.

However, in the case of *upscaling*, we are once again dealing with technologies based on *deep learning* and access to vast image databases that make it possible to increase the definition of an image as well as the *frame rate* (number of images per second, which could be considered a form of "temporal" definition), with the result that the marks that characterize an image as a historical document are altered.

One of the most striking and controversial examples of this *upscaling* phenomenon is the versions of Lumière films that can now be easily found online. In some of these versions, an iconic film such as *Arrivée d'un train à La Ciotat* (1897, Vue Lumière
n° 653), has been upscaled from a frame rate of 16 frames per second to 60 *frames* per second, from the original 1.33:1 format to the 16:9 format typical of contemporary computer screens, and from the grain and scratches of an 1897 35 mm film to very high digital definition in 4K. In addition to these changes, one of the versions of the video available online([13]) features the colorization of images that were originally in black and white([14]); this operation had already raised several questions when the *Apocalypse* series of documentaries was broadcast([15]).

What happens when a simple Google or YouTube search for the Lumière film first brings up the *upscaled* version, and only then a digital version of the original film format? And if this *upscaling* of historical visual documents continues to spread, how will it transform our relationship with history, with the visual traces of the past?

What also makes the phenomenon of *upscaling* very interesting is that it is part of a wide range *of operations* with which *deep learning* processes are profoundly changing contemporary visual culture. *Upscaling* involves *increasing* the definition level of still or moving images, which alters the temporal marks of these images. With other applications of *deep learning* in the field of digital images, other operations can be performed, such as detecting, identifying, recognizing, controlling, monitoring, surveilling, repairing, completing, etc.

ter, animate, rejuvenate, resurrect, imitate, transfer (a style, from one image to another), describe, visualize, simulate, predict, etc. With Ada Ackerman and Alice Leroy, we have attempted to map these *deep learning-powered* operations in a volume to be published in 2023[16]. In our introduction, we emphasize the fact that the applications of *deep learning* to contemporary visual culture force us to revisit the old question of the power, potency, and agency of images, which has been explored since the late 1980s by This question also shows that the concept of the "operative image" formulated by Harun Farocki in the early 2000s, in connection with video installations such as Eye/Machine I, Eye/Machine II, and Eye/Machine III, is relevant to the current debate on the power of images. This question also shows that the concept of the "operative image" formulated by Harun Farocki in the early 2000s, in connection with video installations such as *Eye/Machine I, II*, and *III (*2001–2003), is still very much operative, inviting us to detect and catalog the “image operations” in which *deep learning* technologies are involved.

GC We immediately called each other and shared our excitement with Antonio the first time we saw this sequence from La Ciotat, while some of our colleagues denounced it as "treason." Because although it is upscaled, it is in the sense of completion: thanks to a dataset of images taken between 1895 and today, the software offers to complete the images, to "repair" them, to create intermediate versions. This inductive completion is different from hand coloring, in the same way that inductive synthesis is different from quotation or visual cutting. In fact, here it is the statistical memory of the images separating us from the original that allows us to complete it and hallucinate details in the noise of the image. This is therefore a profound change in the very status of the archive:photorealism is then conquered by a logic that transcends it. The index of what was at a specific moment becomes the trail of a longer period of time during which the dataset was built up. It is all the past images that repair these images as if they were interdependent, as if the agency between them opened up the possibility of another story. We can

7. Grégory Chatonsky, *Les Vues imaginaires: Aubervilliers*, 2022, modified archives of the city of Aubervilliers by DALL-E 2.

Grégory Chatonsky : 'IA : comprenons ce qui nous arrive plutôt que de le juger d'avance'." AOC media, 5 mai 2023. https://aoc.media/entretien/2023/05/05/gregory-chatonsky-ia-comprenons-ce-qui-nous-arrive-plutot-que-de-le-juger-davance/.

How can we think about artificial intelligence and move beyond both technosolutionist and technocritical discourse? Philosophy and contemporary art equip us well, provided we accept not that we can dominate technology and harness it to our will, but that we adopt a humble, experimental stance conducive to discovering the fascinating latent worlds that neural networks induce. However, on the threshold of this new revolution, we must not lose sight of the fact that the ecological impasse and artificial intelligence are closely linked and together are charting the course of our future.

We have talked about GPT3, DALL-E, ChatGPT, GPT4, while waiting for GPT5, 6, and what else...? Artificial intelligence (AI), a largely inappropriate term to define the technological development we are witnessing today, is giving birth to ever more algorithms, now capable of producing works of art, literary texts, screenplays, or passing highly selective entrance exams...

As always when such a sudden emergence occurs, and new possibilities burst onto a scene that is too unregulated to accommodate them, we are going through a period of inflationary discourse and counter-discourse; the eulogists swoon, the Cassandras find new stages... The former do not hide their pleasure in talking about civilizational upheaval, while the latter remind us that “never before has so much ingenuity been employed in trying to make us stupid.”

In this period lacking in guidance and reference points, we can nevertheless count on the insights of generous experimenters, connoisseurs, and intellectuals, including Grégory Chatonsky. A French-Canadian aratist and pioneer of Net art in 1994, Grégory Chatonsky has been working since 2009 on statistical induction, one of the ways of understanding artificial intelligence more precisely. He has exhibited at the Palais de Tokyo and the Centre Pompidou, published the first French-language novel co-written with artificial intelligence, and taught at Le Fresnoy, Paris VIII, and the École Normale Supérieure. At the heart of his approach is the concept of latent space: this highly abstract vector space, well known to AI professionals, is induced by all the images, texts, and information we give to a neural network to train it. All this data, credited with coordinates, is positioned in relation to each other in a continuous latent space, in which it is possible to move around to discover new intermediate, synthetic forms... and many surprises! Through the data collections that feed the algorithms, which are archives of our lives, artificial intelligence allows us to contemplate our own history, our possible futures, and our unlived pasts. BT

A few weeks ago, several researchers, entrepreneurs, and artificial intelligence (AI) specialists circulated a petition calling for a moratorium on fundamental research in the field. Progress should be halted for six months to allow for a collective discussion to assess what is happening to us and the risks involved. The presence of Elon Musk, CEO of Tesla Motors, among the signatories was particularly noteworthy. What do you think of this initiative? It echoes a recent article in which you lamented our collective naivety and blind trust, a far cry from the cautious debates of the 1950s on new technologies. Ultimately, wouldn’t this moratorium restore a healthy sense of concern?
I don’t have any certainties, but here are my thoughts at this stage. This isn’t the first time that a call to slow down has been made. I believe that in 2017, there was already a petition regarding artificial intelligence, proposing to slow down its

development and reflect on it. This suggests three observations to me. The first concerns the ambivalence of these two petitions: those calling for a slowdown are also players in artificial intelligence, who use this argument in an ambiguous way. We are talking about people or companies such as Elon Musk, Microsoft, Facebook, etc. We need to question their motivations, because they may well be seeking to draw attention to artificial intelligence, even if negatively, to show that the debate is raging and that the subject must be placed at the center of society... Which is a roundabout way of promoting AI.

This ambivalence ties in with a concept I used in the mid-1990s and which still serves as a framework for interpreting social ideology. It is a concept inherited from Jacques Derrida's Specters of Marx, that of "conjuratory enthusiasm," which plays on the double meaning of "conjuration." Conjuratory enthusiasm describes the ambivalence of a conjuratory discourse, which wants things not to happen, to be conjured away, and which is the discourse of a conjuration–a conjuration also referring to a form, not of conspiracy, but of organization–dedicated to ensuring that something does indeed happen. Applied to technology, conjuratory enthusiasm is the fact that technocritics and technosolutionists use the same reversible structures as two facets of the same affect. Remember the discourse on virtual reality in the 1990s: there were the Pierre Levys who were enthusiastic, and then the conjurators, Virilio and Baudrillard. But at the same time, and despite the apparent opposition, there was a kind of fascination common to both groups, because technologies are above all a projection surface before being an autonomous entity that exists in itself. At that time, great discussions and thunderous declarations about reality drew on enormous metaphysical concepts: the Gestell, the boarding... It seems to me that these petitions on AI are similarly driven by conjuratory enthusiasm.

To understand my third point of criticism, we must return to the text of the moratorium, which is catastrophic: AI would threaten life on Earth. The text gives the impression of talking less about artificial intelligence than about the anthropocene extinction that is currently underway. A very common view, but one that is not at all self-evident, posits that in order to find a solution and prevent danger, we must think before we act, devaluing action and valuing thought: we must gather together, reflect, decide what needs to be done, and then act in accordance with what we have decided... This seems very paradoxical to me. It rehashed the history of the will to power in the West and the idea that thinking is paramount, that it is enough to decide in order to act and that reality will reform itself. Here, old structures inspired by idealism are being recycled.

As an artist, I find that there are other ways of doing things, and I am much closer to people like Yann LeCun and his response to this petition. His argument, if I apply it to the artistic realm, gives pride of place to experimentation: we can think while acting and consider certain modes of action as modes of thought. The fundamental flaw in AI research is not that it is moving too fast, but that it is not moving fast enough: new software, new articles, and source codes are released every day, and we don't have time to look at all these new developments, experiment with them, and try them out to make something else. To think, we must not suspend action.

You have a background in philosophy: how can we think about these new technologies without our thinking being polluted by the conceptual turmoil you mentioned? You mentioned Derrida, and it is

true that hauntology is very present in your own analysis of AI; Heideggerian metaphysics and the notion of the historicity of Dasein also resonate well with these latent collections of possible images that AI makes it possible to create. How can we mobilize these abundant references and move beyond the simple alternative between technocriticism and technosolutionism?

I have been working on statistical induction since 2009–a term I prefer here to "artificial intelligence"–and I have made it central to my practice since 2014 because, for me, what we are talking about is not just a technique, but opens up a world that also carries with it a way of conceiving social relations, things in a Bayesian space...

ChatGPT has really sparked a global discussion that affects society as a whole and is not just a passing fad–something I have rarely seen to this extent in the case of a technology. But this discussion wrongly mobilizes extremely complicated concepts that are highly ambivalent from a historical point of view. Many of those who express their views on the subject have not had the time required to read the relevant literature, to fully assimilate these extremely difficult concepts, and do not have a deep understanding of the techniques they are discussing. It takes real effort to understand that artificial intelligence mobilizes the entire history of Western civilization in its destiny. It is not just a question of understanding the technology, but also of understanding our history, which is extremely complex for us since this history encompasses global warming. It seems to me that the two historical lines, AI and global warming, are completely linked.

I am very struck by the fact that in France, between the 1940s and 1960s, there was a lot of talk about cybernetics: many magazines took it up, Lacan wrote an absolutely nonsensical text on cybernetics... The texts of Norbert Wiener and Alan Turing are incredibly rich and fundamentally ambiguous. We need to go back to the Turing test, which we didn't really understand. Turing explains that thought doesn't exist, that it's just a buzzing in the head; the two versions of the Turing test are texts on intelligence as a simulacrum. Then cybernetics lost something with Marvin Minsky's second cybernetics and Chomsky's generative approach: intelligence was approached in the form of hypothetical-deductive modeling of skills, so to speak, which failed completely... Today we are witnessing a return to the first cybernetics through statistical induction systems. The other important point is to move away from the false alternative between technosolutionism and technocriticism, which in my opinion is of no interest: let's understand what is happening to us rather than judging it in advance.

From the point of view of broader references, it must be admitted that Heidegger gave a dimension to the question of technology like few others before him in the history of thought. I am trying to follow this path, which is not Heidegger's own path, but that of others after him, such as Derrida, and the early Bernard Stiegler, in the first two volumes of Technology and Time. It seems to me that this tradition, which is ultimately very French, Leroi-Gourhan, Simondon, Stiegler, Derrida, Lyotard too... the tradition of deconstruction, has provided tools that are absolutely relevant and original when applied to the question of technology. We need to think about it in a counterintuitive way, otherwise we risk not thinking about it but being acted upon by words that are completely beyond us and whose meaning we do not understand. We need to move away from this kind of agitated, editorialist thinking where we have to make decisions, speak very loudly, and make decisions when we don't fully understand what we're talking about.

How does your specific approach to AI through latent space translate into your current artistic projects? I'm thinking in particular of "Un Été au Havre" (A Summer in Le Havre), which will be launched on June 24.

It's a fairly extensive project, spanning three years, with the idea that the city of Le Havre will become the latent space of the city of Le Havre, to create an alternative Le Havre. I worked on archive images in order to revisit the history of the city and propose a new vision of the Industrial Revolution, which the city would have gone through and during which technology and nature would have become completely intertwined. This project, which was carried out in collaboration with the social housing provider Alcéane, will result in the display of large images, almost like frescoes, produced with AI on building facades, mainly in the outlying districts. The images, which are ten meters high, will be put up in June, with the opening scheduled for the 24th.

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A second facet of the project tells the story of the 1950s, 60s, and 70s in Le Havre through some 25,000 unique postcards. I began to discover a kind of fiction in the latent space: after the city was rebuilt, the architect Auguste Perret is said to have devised a political utopia based on laziness, reading in parks, siestas, and so on. In this utopia, social life is organized around purple sculptures that emerge from the ocean and that young people fish out of the water. These purple forms that appeared in the latent space find physical expression in the form of sculptures and materialize in Le Havre. To create these images and postcards, I did not command the latent space, I moved into it thanks to prompts, typing into it using language; then I saw these purple shapes appear. The third part of the project takes place in public buildings and adopts an "art pompier" aesthetic, with a reference to Robert Hubert and his imaginary views of the Louvre: revolutionary moments are also moments of representation of ruins. I present administrative environments in ruins, in which these strange purple shapes are always found. From a global perspective, the project "Un Été au Havre" (A Summer in Le Havre) therefore begins with the image, then materializes in physical forms, which give rise to rituals and performances, to embody the latent space from which the images were initially drawn. We bring a counterfactual space into reality by focusing on what does not exist, by alienating ourselves from it, which leads to the emancipation of what does exist.

I also work in Saudi Arabia, as part of a residency in Al-'Ula, a place that interests me particularly because it allows me to question our own Western prejudices. The projects are linked to how we approach pre-Islamic heritage, which is incomplete, damaged by time, and sometimes destroyed by Islam, in order to reconstruct a counterfactual past that never existed using AI. The other idea is to generate new forms from traditional crafts in Saudi

Arabia by creating infinite series of unique works. The aim is to shift the focus, to decolonize techniques by looking at a political place that is inventing a non-Western modernity and perhaps, to borrow Yuk Hui's concept, a "cosmotechnics." ."

Why does public discussion fetishize AI so much, covering it with multiple emotions: sometimes wonder, sometimes fear...? It seems that we are dealing here with something other than simple moral panic. For example, rather than engaging in substantive discussion, we like to focus on news stories, such as the tragic tale of a Belgian researcher who took his own life after a conversation with artificial intelligence.
Yes, but these stories are anecdotal... We already know of many others. I am thinking of the couple of gamers in Korea who let their own child starve to death because they were hooked on a video game... The difficulty today is to conceptualize more generally what is happening to us without falling into a collection of anecdotes. This task is all the more complicated because it draws on our entire history. ChatGPT has really acted as a kind of revelation for our entire social body; the conversational aspect, it seems to me, has attracted the most attention, because large language models already existed before ChatGPT, which implements them specifically in a conversational format. This novelty has been particularly charged with emotion, and ChatGPT has come to be seen as an "oracle" because neural networks predict sequences.

One of the most striking aspects, when we think about the shocks produced on society, has been this return of the notion of intelligence to ourselves; we have assigned ourselves the role of judge. Ultimately, ChatGPT has served as a branch of Foucault's model of power and knowledge: when I talk to ChatGPT, I presuppose my own intelligence, and I attribute it or not to the machine–it's basically a Turing test. Of course, I'm going to de-attribute intelligence to ChatGPT in order to secretly attribute it to myself. ChatGPT allows us to attribute intelligence to human beings at a time when they are becoming increasingly stupid. All the fake tests we see published in magazines, where ChatGPT is subjected to quick tests to show how stupid this technology is, should be compared to human statements found on Twitter, where we read much more idiotic things... This view of ChatGPT as a kind of child that needs to be trained, incapable of speaking like an adult, has become widespread.
One of the roots of the problem lies in the fact that intelligence is the result of a phenomenon of attribution: we discuss whether or not to attribute it to animals mainly in order to reserve a certain indisputable monopoly for ourselves. Because we are both judge and jury when it comes to intelligence. Underlying this is the whole colonial question of otherness, in relation to the power of the dominant class to attribute intelligence or not. We retain as coordinates of the problem an instrumental conception of technology as an extension of the hand, subject to our will. This historical product is not at all self-evident, precisely because we make technology as much as it makes us. We need to radically change this instrumental and utilitarian conception of technology, which leads to what I call "technosadism": all these tests carried out on ChatGPT to show how stupid the tool is remind me of this video from Boston Dynamics where we see an engineer hitting a "cyberdog," a robot produced by the company, to see the robot, thrown off balance, start walking again. Technosadism describes this insistence on the stupidity of the machine in order to convince us, by comparison, of our own intelligence. Turing was already aware of this risk of sadism, of the risk of setting oneself up as a model, by virtue of this

relationship between knowledge and power. The Turing test circumvents technosadism precisely by refusing to say who is human and who is not.

However, to fully understand that not everything about technology is technological, and that the emotions we project also explain part of what we are now facing, we should perhaps mention the Counterfeits series, a collection of pieces that take famous paintings as their starting point and distort them. Despite the distorting effect of AI on these works, they remain entirely recognizable. What is at stake in this work?

It's a project that dates back a while, created with the first prompt systems, on the issues of mimesis and family resemblance. I chose the fifty most famous works in Western history from a website, then fed the images into an AI that described them in text form: this was an initial translation of the image into words. I then turned this text into a prompt, which I fed into another AI to produce a new image. Surprisingly, this final image bears a resemblance to the first one. What is resemblance? It incorporates differences, otherwise it is no longer resemblance but copy, identical repetition. Resemblance is both difference and repetition. These similarities between images strongly suggest that artificial intelligence, or statistical induction systems, are based on human culture. The family resemblance between the images at the input and output of the process is linked to the fact that the translation operation is based on a dataset containing the common heritage of the human species and the data it has accumulated. We are not discussing with the machine, but with a latent space made up of transformed human cultures. Through this intermediary, the past can continue into the present and the future.

The concept of "tra(ns)duction," which I inherited from Simondon, works perfectly here: once we have digitized everything–texts, images, volumes–and translated everything into 0s and 1s, then all digital productions will retain a family resemblance, since we can translate everything into everything else. I think that culture and art will be immersed in this immense family resemblance in the years to come. This is a major challenge for the artists of the future: navigating this generalized family resemblance, transformed into statistics, in which data can be anticipated. All tra(ns)duction systems, which therefore point to translation, will be future images of culture as it has been. This is something that follows on from pop art and offers a form of aesthetics that is perhaps the only one capable of doing justice to the three decades during which we have archived personal data to the point of transforming the very notion of history and the very possibility of creating history in view of the quantity of data we have, which exceeds our capacity for comprehension and analysis.

Underlying this is the question of style. To be enthralled when an image-generating AI, such as OpenAI's DALL-E or the tools offered by Midjourney, is capable of creating a representation of "Saturn's aliens in the style of Rembrandt" is to disconnect the style of an artist, Rembrandt, from the objects depicted, in this case aliens. Yet this style does not exist in abstracto; it only ever manifests itself embodied in subjects, painted and represented in paintings. Does our use of artificial intelligence rely heavily on our ignorance or misunderstanding of art history?

I would like to qualify that. When experts discuss whether to attribute a new work to Rembrandt, they must clearly distinguish the painter's style from his subject! Ultimately, prompting raises questions similar to those of attribution. I am appalled by the naivety of the very popular

productions obtained with tools such as Midjourney, by their recognizable style, their lack of thought... Attributing a style is the simplest degree of resemblance: basically, to make a tree in the style of Rembrandt, you combine two parameters from the latent space, the “Rembrandt style” parameter and the vector figure of the tree. There are so many better things to do... We can create unique things that are not just repetitions, provided we know how to move within latent space, and we lack the experimentation to learn this and move beyond an instrumental view of technology.

Writing a prompt and finding a resemblance between the image produced and the text is not surprising! In Contrefaits, on the contrary, the result surprised me deeply! The Midjourney tools used as you describe them are not interesting at all; they simply fulfill a telepathic ambition: we want the machine to be able to read what is going on in our heads and nothing more; above all, we don’t want to be surprised. The exploration of latent space is the opposite of the experimental vision that seeks to dominate technology, making it faithful to what we want from it rather than experimenting with it. This concept seems extremely dangerous to me, and ultimately quite similar to the domineering relationship we have with the environment, which is causing global warming.

Does this mean that one of the possible futures for AI would be “disinvention”? Given the impact these technologies have on rare metal resources and their excessive energy consumption, should we abandon everything, since training neural networks and storing the data necessary for this training are no longer sustainable activities?

Does this mean that one possible future for AI could be “disinvention”? Given the impact these technologies have on rare metal resources and their excessive energy consumption, will we have to abandon everything, as training neural networks and storing the data needed for this training are no longer sustainable activities?

I do not believe in a concerted decision to suspend an activity when it could be continued, simply on the grounds that this activity is unreasonable. This would require international institutions to enable coordination–something we lack today. On the other hand, the idea that in the next five to ten years, the components and materials that enable us to calculate and perform large-scale training on neural networks will become very scarce or even unavailable is correct. This risks leading to a capitalist concentration of resources and graphics cards that enable mass calculation at the vector class level. Nevertheless, we must also consider the type of use we make of artificial intelligence: the majority of climate scenarios synthesized in IPCC reports use statistical induction. In other words, we know the state of our planet because there are recursive neural networks to calculate it. If we need these technologies, it is not to maintain gadgets like DALL-E, but rather to calculate climate scenarios and allocate resources.

What role does prompting–knowing how to formulate requests to an AI–play in our manipulation of AI? This method is the subject of much debate, particularly around the possible ban of ChatGPT in certain universities. For proponents of this technology, prompting should be learned as a skill rather than banning ChatGPT and the most powerful algorithms based on neural networks. What is there to learn?

I am totally opposed to the ban, which I think is a complete mistake. Latent space is going to become one of the major concepts from a cultural point of view. It is an abstract space, very difficult to grasp, especially since attempts at visualization currently

seem ineffective to me. Prompting, on the other hand, is a satisfactory tool we have at our disposal to explore latent space, a synthetic space of human culture. We need to spend time in the company of this space: it cannot be grasped in thirty seconds, any more than AI can be commanded in the blink of an eye. In any case, there is no question of command here; we must move away from this relationship of domination in favor of a relationship of experimentation. Action must become an experience, a sensation. Acting leads to experience and to going beyond what we intended. To summarize all this, I propose alienating and alienating ourselves to AI: by teaching something to AI, we change it; and in the process of experiencing it, we also change ourselves. I even propose to speak of infra-alienation, in the same way that Marcel Duchamp spoke of infra-thin. This process of double influence particularly struck me in the spring of 2020, while writing Internes: to my knowledge, the first novel in French co-written with an AI–GPT2, at the time. The writing was assisted by completion software, thanks to which the neural network finished the sentences I started. Sometimes I witnessed incredible literary feats. The network learned from what I wrote; I myself, having begun to better understand what the AI was going to suggest to me, anticipated it. At a certain point, I no longer knew who had written what. The result of this experiment is a hybrid production, by an author who is a transformed human and a transformed machine, who have mutually alienated each other in this process of infra-alienation. It seems to me that higher education should rush down this open path, to honor a true policy of artificial intelligence authors. A tidal wave is threatening to sweep us away if we do not understand that we need to rebuild our relationship with the world and with culture. We will need to train authors who are capable of navigating the latent space in a unique way, while remaining authors. We are still a long way from achieving this.

Le Monde

TS

l'autre Terre de Grégory Chatonsl
s de Tokyo

ition collective « alt + R, Alternative Réalité », l'artiste propose une installat
utour de l'intelligence artificielle.

pentier
2019 à 08h00, modifié le 27 juin 2019 à 08h27 · Lecture 4 min.

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vé aux abonnés

Carpentier, Laurent. "Arts : l'autre Terre de Grégory Chatonsky au Palais de Tokyo." Le Monde, 27 juin 2019. https://www.lemonde.fr/culture/article/2019/06/27/arts-l-autre-terre-de-gregory-chatonsky-au-palais-de-tokyo_5482045_3246.html.

In the group exhibition “alt + R, Alternative Reality,” the artist presents a disturbing installation, “Terre seconde” (Second Earth), centered on artificial intelligence.

“Artificial intelligence is first and foremost artificial imagination. The development of a new imaginary world. Which is also a source of anxiety. Something we will have to live with.” At the Palais de Tokyo, as part of the collective exhibition “alt + R, Alternative Reality,” artist Grégory Chatonsky presents a disturbing installation, Terre seconde. Artificial intelligence is tasked with creating another planet based on our own: “A monument to the Earth that has disappeared, to our hypermnesic civilization. All that would remain would be a machine that has all the Internet data and tries to remember everything we have been.”

The principle has been known since 2015: take two artificial neural networks and pit them against each other. On one side, the forger. On the other, the expert. Each time the expert defeats the forger, the latter improves, moving away from what already exists to create a more original work. This is called a GAN (Generative Adversarial Network). Grégory Chatonsky first fed satellite images into an artificial intelligence system. The result: a glimpse of a Earth that is “neither quite the same nor quite another,” as a Paul Verlaine-loving bot might say.

“Realistic images, but not real. And realism without reality is at the heart of what art does. Yet it is the machine that produces all this. It doesn’t know why. It doesn’t even really know if it’s a machine...,“ jokes this apprentice demiurge. But our enthusiast doesn’t stop there: ”After teaching it how to make minerals, I thought it needed to know how to make liquids.” This time, the machine will work from video sequences stored on the Internet.

The lithosphere, the hydrosphere... And of course the biosphere: alternative living organisms, obtained from the ImageNet database (three million photos), deliver the beginnings of a strange world on another screen.
And to complete this story of another humanity, a 3D printer creates in real time (“throughout the exhibition and until the space is saturated”) statues of these beings. And to complete this story of another humanity, a 3D printer creates in real time (“throughout the exhibition and until the space is saturated”) statues of these hybrid beings, like fossils of the future.

“In concrete terms, the ambition is to recount the era, the smell of the era, which some call the Anthropocene and which I prefer to call extinction. Because that’s what it’s all about. We all know we’re going to disappear,” analyzes this artist-researcher at the École Normale Supérieure. “We think of ourselves as the heirs of the Greeks, but we are Egyptians–the civilization that never stopped anticipating its own demise. That’s the whole story of the pyramids. And the GAFA companies are our pyramids. In ten years, there will be more profiles of dead people than living people on Facebook. “

Grégory Chatonsky was 14 years old in 1985 when he visited the exhibition “Les Immatériaux” at Beaubourg, which, under the aegis of philosopher Jean-François Lyotard, introduced the issue of technology into art. It was a turning point. “I said to myself: I want to do that.” He studied fine arts at Quai Malaquais and philosophy at the Sorbonne. “Philosophy was a way of going over to the enemy,” he jokes. “Philosophers are the ones who control language; for an artist, they’re the opposition.”

At the Beaux-Arts in 1999-2000, this “digital native”

was part of the first generation to work on the Internet with his friends from the Incident.net group. “Very early on, I understood that the web was not just a tool, but that an entire society was being created. It’s a cliché to say that today, but at the time, people looked at us askance.” “ Appointed professor at the Fresnoy school, he ended up moving to Montreal for ten years (he now has dual nationality), where he teaches at the university’s art school–one of the world’s most renowned centers for artificial intelligence.

He thinks quickly. Nietzsche, Beckett, Guyotat: he covers a lot of ground... But we are concerned about such a bleak vision of the future. How can we have children with such a philosophy? “We only have children because we know we are going to disappear...,” he replies. What I am trying to produce is an alternative to the dominant model that is not a utopia of healing either. Many intellectuals would like to see a quest for solutions in the face of this extinction. For me, the solution lies in accepting that we, as a species, may disappear. Just as, on an individual level, we know that we begin to live when we accept our own demise.”

In the middle of the installation presented at the Palais de Tokyo, a unit with a human voice, alternating between male and female, recounts the dreams that pass through it in a loop. The dreams of this artificial intelligence are fed by tens of thousands of dreams collected in the dream bank of the University of California. “... Protection is a strawberry car. I start going to the bathroom. I’m in a room. I have a big plane condition...” Help, someone wake me up!

Chatonsky, Grégory, et Yves Citton. "La quatrième mémoire." Multitudes, octobre 2024. https://www.multitudes.net/la-quatrieme-memoire/.

So-called “artificial intelligences” (AI) represent less the replacement of human faculties than the emergence of a new category of memory recursively generating discourse, images, and sounds that can resemble both “creations” and “authentic” documents. This automation of expression and representation based on massive data accumulated on the Web explains why the question of the arts, far from being anecdotal, has become consubstantial with current statistical models. We can perceive in it the emergence of a new realism that destabilizes both archives of the past and perspectives of the future. The counterfactual nature of this alien realism disturbs what we previously based truth indicators on.

Retentions, Protentions, Distentions

According to Bernard Stiegler, different retentions are ways of memory that allow reiteration, recall, repetition. Primary retention is the immediacy of intuition or perception, such as the perception of a musical note. Secondary retention is the temporalization (of understanding) that compares, anticipates, and recalls different events, for example notes that, in succession, form a musical melody. Tertiary retention is the inscription on a material support of these events allowing their technical repetition, for example on a disc where the melody is recorded.

Technical developments in recent decades have enabled the development of what can be considered quaternary retentions. These result, on one hand, from the multiplication of tertiary retentions bearing not so much on parts of the world (a printed text, a photographed object, a recorded concert) as on the gestures and attentional habits that underlie our primary retentions (what I click on or swipe, correlations between my digital gestures and those of other users, the time I spend on such and such content, etc.). Quaternary retentions result, on the other hand, from the ability to process these (meta)data in very large numbers (big data) through computation processes based on “statistical induction,” that is, on a dynamic and bidirectional interaction between structuring processing instructions (from above) a set of data and proximity attractions observed (from below) between data aggregates.

Quaternary retentions form a fourth memory consisting of the statistical processing of tertiary retentions by so-called “artificial intelligences.” This processing no longer aims at identical recall of what has been. The fourth memory feeds on the past of retentions to possibilize them in its latent space and to be able to regenerate them: it is not the same indexical retentions that come back again and again, but rather resembling retentions. It is resemblance itself, understood as mimetic representation, that is automated, marking a new stage in the complex process of industrialization.

Indeed, AI is fed by large data sets that allow it to calculate a latent space, which defines probabilities according to a Bayesian logic that constitutes a statistical space structured by observable proximities and attractions within a data set. Without going into details, developed in Anna Longo’s remarkable work, “The Game of Induction,” it should be noted that if the images generated with the help of neural networks are credible and realistic, it is not only that they contain probabilities drawn from many past images that have been

accumulated in barely thirty years on the Web (whose preparatory function was undoubtedly like extractivist drilling and storage in our memories), but also that they potentially contain all images to come. And that is why they can be both different and realistic. Realism then becomes the credible anticipation in an inductive space of a possible image.

Can we still speak of memory, retention, archive, history? Secondary and tertiary retentions, as memorization of perceptions and as action of keeping to oneself what should be disseminated, are not strictly speaking outdated, but they find themselves surpassed by the dynamics specific to quaternary retentions. These capture, forge and shape the future by operating an automated loop of the future on the presence of the past – in a mix that could be considered pretention (to be understood as a leapfrog from retentions to protentions). A significant inversion occurs indeed in many cases: circulation seems to precede what is retained because this circulation depends on externalization in datacenters, whose commercial infrastructural presuppositions determine what there is to retain and the constitution of retentions. By providing social networks with what they are made for, we produce our memories by adapting them.

This pretentional dynamic that structures our behaviors through an instantaneous back-and-forth between retentions (what is kept from the past) and protentions (what projects us toward a preformed future) is undergoing a major, epochal transformation. We propose the notion of distention to designate the epoch that opens with the possibilization of retentions processed by AI. This involves not only increasing the volume or surface of a body by subjecting it to very strong tension, but also relaxing the bonds that tighten a whole or that unite several things. Distention is an extension because from tertiary retentions, it multiplies even more the number of documents by creating a retention of retentions, an attention to attention, a memory of memory, in an inflation of metadata bearing on data.

The change of name from Google to Alphabet and from Facebook to Meta is to be read as a symptom of this meta-ization catalyzed by quaternary pretentions. Distention is a genetically recursive retention, so that it is not, like classical Stieglerian retention, the repetition of an event: it is the repetition of pretention coupled with itself, the automation of its self-producing loop. This singular repetition allows us to understand how mimetic resemblance is repeated and automated as such.

Traversing the Disfactuality of Latent Space

An example: in August 2023, a producer based in Nancy, Lnkhey, published on SoundCloud and YouTube a remix where Angèle's cloned voice, thanks to the open-source software Retrieval-based-Voice-Conversion, sings a song she never performed. Several million people listened to it. Angèle reacted on TikTok: "I don't know what to think about artificial intelligence, I find it's insane, but at the same time I'm scared for my job lol." In this video, she lip-syncs this remix then makes an amused face, as if struck by vertigo facing this resembling voice that isn't hers.

Another example: a Lumière brothers film upscaled to 3840×2160 pixels resolution and 60 frames per second. The film hasn't been "restored," because it's not about returning the film to its original state, but rather an "instauration" because elements originally absent have been added. The effect is striking: the film no longer has the realism of 1895, but the grain of a video shot in 1971 with a Sony Portapak. Completion, meaning the act of completing a historical document in order to repair it, leads to an anachronistic realism that modifies the nature of the archive, which is no longer determined by an origin. Completion invents a historicity that doesn't exist at the origin, because it has been fed by images taken between 1895 and today. The result doesn't emanate from the most faithful possible retention of data to capture in 1895, but from a modulatable mix of given and statistically probable, determined by the dataset's latent space.

Realism changes nature and becomes disfactual, the prefix "dis-" here signifying separation, difference, cessation, or defect within the factual itself, that is, within facts. This disfactuality ultimately touches on facticity, meaning the contingency of the correlation between thought and the facts it aims at. The images are factitious, but this facticity comes to affect reality as a whole, and that's why it is disfactual: it dislocates something from within. In doing so, it corrodes the factuality on which our confidence in our power to exercise a certain mastery over the world is based.

With artificial intelligences, what we retain, what we process, what we metabolize, are all past forms of tertiary retentions once they have been massively digitized in binary form and thereby made intercompatible, processable, translatable. This period can be associated with Big Data, as a project of digitizing culture, and Web 2.0, as everyone's participation in this memorization. This period was in fact only a preparatory act for statistical induction. We may be seeing the emergence of a new form of realism, a realism of realism, which would allow better understanding of the multiplication of alternative and counterfactual truths than the simple promise of a demarcation, increasingly difficult to maintain, between truth and fiction.

This new metabolization can be analyzed in six stages: 1) quaternary retentions (which record our attentional gestures, our interpretive reactions, our creative re-elaborations) find themselves 2) accumulated in enormous databases, to be 3) sorted, calculated, associated, approximated by an unprecedented power of computation based on statistical induction, from which 4) latent spaces emerge, from which 5) a fourth memory generates pretentions 6) in the form of aesthetic objects (a new Angèle song) that are neither "real" recordings nor "real" creations, but unprecedented entities – which we struggle to qualify (models, proxies, synthetic products, deep fakes, proofs of concept?).

The Alienation of Credibility

The latent space is our new cultural space, whose products are disfactual. Angèle's song existed before it really existed. It existed as a statistic or, depending on the case, a possibility. It had to be born into reality through this cover of covers. This is the ontological significance of the already quoted post: "When Angèle's AI on Saiyan finally becomes reality," where the "AI's" that separates and connects

AI to Angèle expresses this preterition of the cultural latent. Everything exists before existing. There is, in this strange disfactual anticipation, a new complicit pact with the public. It's Kaaris amusing himself with his own AI, and this is by no means the property of a fantasmatic replacement: it's the distance from oneself, a well-known strangeness of modernity, a shift in our apparatus. Thanks to the accumulation of the past through material supports of tertiary memories, we produce something that had never taken place, but which strangely resembles everything that could take place: Kaaris singing Inspector Gadget or a Disney anime. This possible already has its form of reality, but all the cultural intelligence of our era lies in this shared amusement between singers and their audiences, in this new repetition where we interpret this possible not-yet-effectuated but which nevertheless has already taken place at such point in latent space.

If, until now, our culture and its sharing were determined by tertiary memories, fruits of the industrial period, we are surely entering a new epoch with quaternary memories where the aesthetic contract could be that of alienation: we reproduce machines that reproduce us. The latent space becomes a space of possibilities that contains the past, but also, undoubtedly, a part of the future and the incalculable. For one could well, for example, take a photograph with any device and send it to an AI to verify that it already exists and find it, retrieve it. It's no longer just about digitization that makes discrete in the form of 0s and 1s (by cutting them through sampling) variations that can be recombined at will (as synthetic products). It's now about statistical pretentions, which distend our protentions by informing what doesn't yet exist according to the thirst for commercial profits of platforms exploiting their privileged access to the economy of our attentions.

This very particular realism – disfactual – emerges from a fourth memory that belongs to both the spectator's past and the future of instituted images. It is not simply another result of causality: it enters a possible onto a given, while at the same time haunting the second with the first, undermining the foundations of our indexical belief (if I hear Angèle's voice, it must be that Angèle sang). It is therefore essential to place what might appear as a simple technological innovation – with its litany of novelties, passing from GAN, Clip, Disco Diffusion, Zoetrope to Dall-E 2, Imagen, Parti, etc. – in the general context of an uncertainty towards factuality where, according to certain surveys, 40% of 18-24 year olds in the United States say they think the Earth is flat. This latency should of course be linked to conspiracy theories, fake news, to this strange expressive democratization of opinion where everything thinkable seems to have to be thought by someone, and where everyone seems to think only to react to what they believe the other thinks in an endless Bayesian anticipation.

From Disfactual Possible to Counterfactual Realism

We still have to orient ourselves in this culture of latent space and in the paradoxical emotion that seizes us when we listen to, and listen again to, Angèle's voice, then return to the AI's voice, going back and forth between the two, unable to decide on our emotion and the world that thus traverses us. It's a new realism and a new historicity whose new structures are emerging – alienating not so

much our identities as the very credibility of our cultural world.

Faced with the omnipresent and stifling refrains of replacement by AI, Angèle and her audience are playing a different game than that of horrified lamentation. The feelings are mixed. There is undoubtedly some fear, some amazement. But there is above all amusement in the infinite game of simulacra and resemblances – another name for culture – which neither the technocritical pastors nor the humanist priests will ever have understood. AI is not thought of in advance, as if it were enough to reflect on it correctly to fix the way it must be reformed, framed, put into legislation or into a pipe, with an input and an output, branches, a whole logistics that is finally a logos and that will always be one step behind. AIs – to be read here as our Alienated Intelligences – are experimented with: we alienate them and they alienate us. In this case, they have indeed learned to sing like Angèle and the latter has somehow responded to them by covering "their" common song (confounding the high priests of copyright in the process). We have been the secret witnesses of this seismic echo. We can be the explorers and agents (more or less secret) of experimental alienations.

After the apogee of hypermnetic accumulation of memory supports through their digitization and recording in data centers – the ultimate stage of Benjaminian reproducibility – our era industrializes, with AI, resemblance itself through the possible. This is undoubtedly the reason why AI – these questions that traverse and upset so many domains of human activity – has so frequently been approached in the media and with the general public through "the question of art." The latter indeed symbolically concentrates in modernity the proper of humanity, as well as the mystery of its interiority which, we know, was the trial of a construction of subjectivity in the West, going as far as the will to power and nihilism.

In another TikTok post, one can read "The loop is looped." It's not just that we're teaching AI to create images, texts, and sounds that resemble us: it's that we resemble them and that, compared to reactionary discourses, we desire nothing other than to actively alienate ourselves. We believe neither in making AI readable through code transparency, nor in the act of cutting off and separating ourselves from these flows to regain an imaginary autonomy and fantasized sovereignty. We want to experiment with the fact that what we believe exists is also a product of technique and its paradoxical reproduction. We are its reprise. By metabolizing the entire history of our memory supports, AIs, understood as "our" Alienated Intelligences – and this very problematic "our" undoubtedly deserves to split humans into dominant and dominated, into white and non-white – are in the process of constituting a new memory, where past and future are no longer chronological, but seem to respond to each other by exchanging their roles.

Here it is Brian Massumi's prophetic ruminations on the differences between the possible, the probable, the virtual, and the potential that must be remobilized to take the measure of what is happening to us. Statistical induction plays with a possible (partially) mastered by probabilities. The song-that-Angèle-has-not-sung mobilizes the probable to realize other possibles. Its disfactuality fits perfectly, however, into the protentions of

dominant aesthetics (if not into that of a music business making hypocritical homage to the sacrosanct "copyright"). Only experimentation – always vertiginous – with our alienations can hope to draw from the simple disfactual the potential for transformation inherent in counterfactuality. The challenge of images, sounds, and texts in the age of generative AI is not so much to be "original," "new," "true," "innovative" or "beautiful" (all terms and values that have aged badly in just a few years). It is rather to be counterfactual: to survey (artisanally) the latent space to (automatically) manifest credible retentions of non-occurred realities because they are contrary to the facts of established dominations.

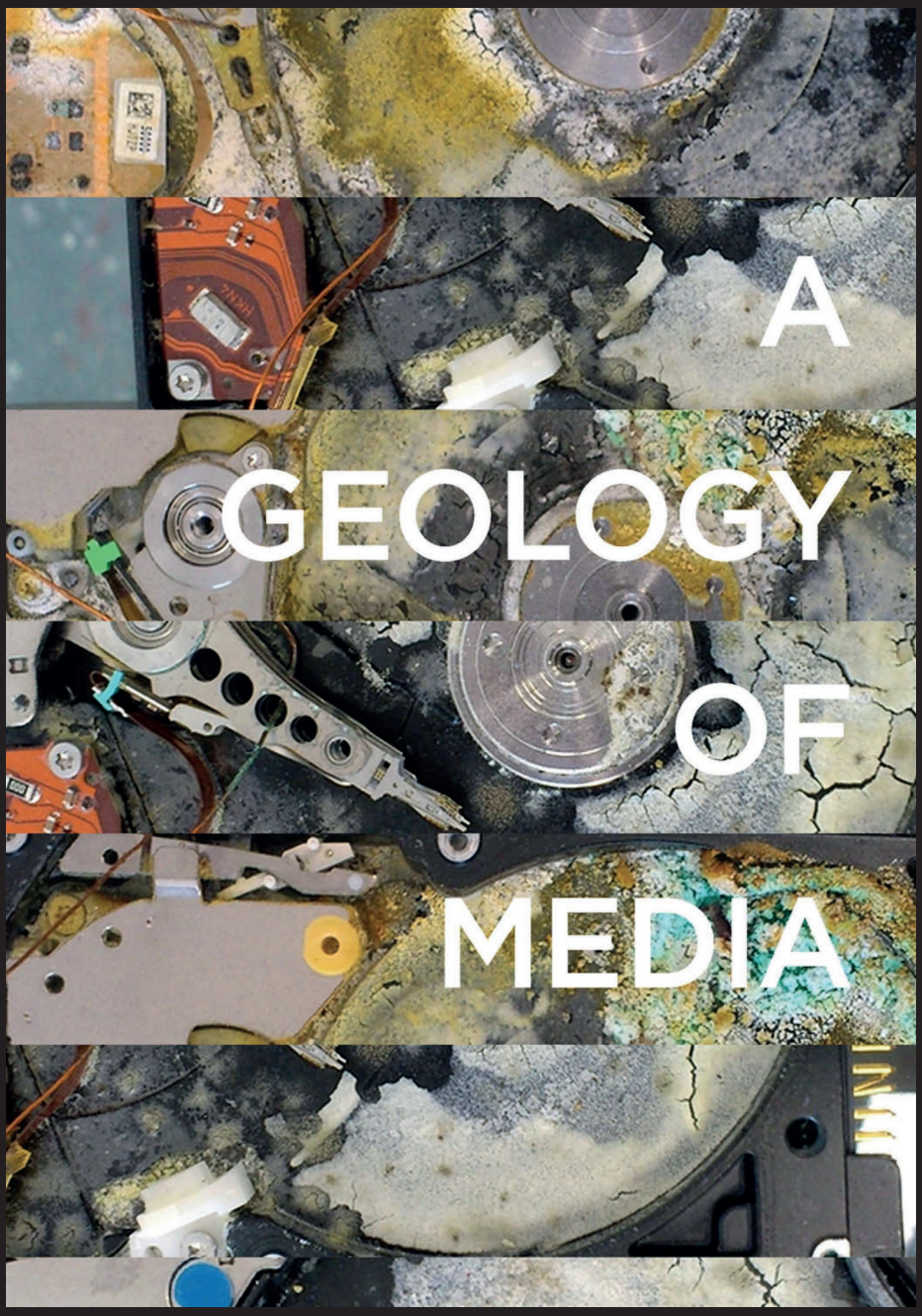
To embody latent aspirations towards facts contradicting the protentions of the reigning order: isn't this what was called "revolution" during the last century? To take up a distinction that Pierre-Damien Huygue insists on today, the experimental, non-instrumental, "artistic" uses of generative AI are not so much about political action (prattein) as about artistic-artisanal making (poïein). Not so much "making revolution" (in the sense of acting for a revolution to come about) as fabricating counterfactual objects that make visible, audible, thinkable with the force of realism what counter-worlds our societies carry within them. That deep fakes make us fear a world of "post-truth" – political pendant to the economic fantasy of human replacement by machine – certainly testifies to a very real problem: it is essential to be able to preserve a certain social relationship of trust towards our access to factuality. No information possible without credibility. But our anxieties and our anti-conspiracist crusades testify just as much to the inability of progressive forces to understand the political potential of counterfactual realism – at a time when reactionary forces shamelessly exploit the mechanisms of disfactual irrealism. Though often idle, our debates on AI will not have been in vain if they help us identify – and invest in – this (not so) new terrain of struggles.

ACADEMIC TEXTS


GEOLO
MED


POLITICS
Volume 19, Issue 3, November 2023


SHANE DENSON
Discorrelated Images



Parikka, Jussi. A Geology of Media. Minneapolis: University of Minnesota Press, 2015

Telofossils

Media artist Grégory Chatonsky's *Telcfossils* (2013), a collaboration with sculptor Dominique Sirois and sound artist Christophe Charles, picks up on this context of technologies, obsolescence, and fossils. The exhibition at the Museum of Contemporary Art in Taipei, Taiwan, focuses on the slow, poetic level of decay that characterizes technopolitical society and nature. The "future archaeologist" perspective that Chatonsky summons with immersive affective moods created in the exhibition's installations is akin to Manuel Delanda's figure of the future robot historian that gazes back at our current world emphasizing not the human agency of innovators but the agency of the increasingly automated and intelligent machine (as part of the military constellation).[35] The future archaeologist in Chatonsky's installations and immersive narrative is a displacement of the human from a temporal perspective (the future) and from the Outside (alien species):

> *Telofossils* is a speculative fiction about this Earth without us. If another species arrives on Earth in thousands of years, what will it find? It will uncover from the ground billions of unknown objects with no apparent use, fossilized. It will certainly wonder why there are so many of them. A plastic bag can last hundreds of years when I only have 2,500 weeks left to live. This disproportion between the human life expectancy and the one of our technical artifacts gives a new dimension to our time. It will be a material trace for our memories. Making this absence and this disappearance visible is the goal of *Telofossils,* an impossible project.[36]

The long-term perspective that starts from banalities of everyday consumer materials, like the plastic of the shopping bag, is an echo of Benjamin's style of narrating culture through its relations with the natural, but it is also embedded in the contemporary political context. In a mix of spatial narrative through escorting the exhibition viewer–participant through the rooms and spaces, Chatonsky creates affective states surrounded by signs, audiovisuals, and technologies of modernity. The mood management signals of affective atmospheres of the post-9/11 catastrophe that brands the past ten years of everyday life in consumer-surveillance societies. For Chatonsky, this mix is a necessary way to make sense of the

multitemporality of the looming catastrophe: the notion of the fossil addresses the slow stratification of a synthetic layer of technological rubbish. It refers to the aura of the accident[37] that surrounds the technological of past decades and hundreds of years and transposes it to the future. After the accident that was predetermined as part of the unsustainable technological modes of innovation, we can realize also why Chatonsky's work is about "telo" instead of just "tele" fossils; the "telofossil" hints more of the implicit "telos" of the processes of fossilization with a dose of mourning and sadness. Every technological invention is an invention of specific accidents that accompany it, reminded Virilio. Perhaps this is the true insight of Chatonsky's piece—to unfold speculative teleological hidden task of technologies as one to record our slow passing away; like technical media for the first time were able to record the dead and allow them to speak from the afterlife, they also in the digital form are the projection technologies of this telos: a projection toward the future as the canvas for the past fossils.

Indeed, for Chatonsky, the double role of technology becomes understood through future as a fossil: in his words, "they participate to the exhaustion of our planet but they also constitute traces of our existences."[38] The material contribution of technologies to the environmental damage to the planet is matched by their role as carriers of a memory of the past. They are in this sense "monuments" like briefly mentioned earlier concerning fossils. By their material duration, they insist on living after their use period (see again the Appendix to this book). And they also carry with them the potential to trace the existence of the world that was around them, including human cultures. It is recorded in the storage devices of technical media microtemporalities of hard drives (summoned in one installation piece in Chatonsky's exhibition through a broken hard drive) as much as it is in the chemical composition of man-made artifacts (Figure 13).

Telcfossils is a project about time, and it is pitched as an archaeological and archival investigation of the future. The ways in which media archaeology has offered new insights into media cultural temporality cannot be ignored. Erkki Huhtamo's way of arguing for the cyclical and recurring nature of media culture through its narratives and topoi can be related with Zielinski's deep times (chapter 2) and Wolfgang Ernst's

microtemporal investigations (see chapter 1). Also Kittler's insistency to see media history through its material contexts that depict the human agent only as an aftereffect might need to be radicalized to a media geological history of technology: that Man is the aftereffect of the geological durations, mineral excavations, metal affects (Delanda), that catalyze technological reactions and social events.

An archaeology of the future has a double function in Chatonsky's work. On one hand, it reminds of the ways in which memory is always a remediated material event: memory is always a monument and inscription, whether that happens on the random-access principles of magnetic storage media like hard drives or in the still experimental modes of storage in biological material like bacteria. The future memories might be embedded in the archaic materiality of the organic, such as bacteria and cells. And for certain, the fossilized remains of the past from some three hundred to four hundred million years ago still burn to make data circulate in contemporary network computing and big data mining, despite the warnings from Greenpeace: the Internet companies "are powering the twenty-first-century data centers that are the engine of

the Internet economy with nineteenth- and twentieth-century coal and nuclear power,"[39] demonstrating the complex temporal layers of digital technology itself. New media, archaic power.

On the other hand, Chatonsky's interest in memories has to do with the future and what we can imagine. It is about archaeologies of the future, partly in the sense that Fredric Jameson talks about the link between imaginaries and modes of social production. Also imagination, and imagination of futures in the plural, is tied to the current economic and political contexts. Jameson writes in *Archaeologies of the Future,* lamenting on this impossibility to think outside capitalism, "What is crippling is not the presence of an enemy but rather the universal belief, not only that this tendency is irreversible, but that the historic alternatives to capitalism have been proven unviable and impossible, and that no other socioeconomic system is conceivable, let alone practically available."[40] Chatonsky's way of writing the future fossil layer through the present concerns in technologically fueled crisis of political credibility—visible in the various measures of surveillance, control, and (in)security of the post-9/11 planet—marks it as a work that is, despite the aspects of affective mourning, actually still keen to investigate how to imagine alternative futurities. Hence the fossils of the future are the ones we live among, and in this speculative fiction, the extrapolation of current technopolitics is returned to us via memories of the future. This link of present and the forthcoming is implicitly there in any kind of an apocalyptic future scenario. The question is, why are we imagining now such postextinction futures, worlds that are mediated and *in medias res*—a mediated technological future?

The notion of telofossils as employed by this imagined future is one sort of a continuation of "paleofutures." It refers to a transposition of the speculative and the archaeological fragment to the future and a variation of the imagined future-theme. It parallels with the imaginary media discourse as much as it comes close to design fictions as one speculative methodology of creative practice. Bruce Sterling's interest in it as "the reserve of historical ideas, visions and projections of the future"[41] is one clear indication of a field of relevant research, and it would not be farfetched to claim that Chatonsky's fabulation of the future archaeologist is one way to extend design fictions. Paleofuturism is most clearly articulated

in the blog *Palecfuture* by Matt Novak:[42] it maintains a discourse of past futures that are the fossils of the contemporary—a perspective on the speculative nature of scientific and technological discourse in the twentieth century that fuses the times of future and deep time so as to create the weird mixed temporality that brands technological culture. The emphasis on the current and the new in contemporary media culture becomes one of the objects of critique: Zielinski's notes against "psychopathia medialis"[43] of standardization and the political critique by Jameson are important ways to understand what in this chapter and in this book amount to the environmental geology of media—the fossils of paleofuturism are the aftereffects of the increasing piles of waste, and the melancholic postapocalyptic scenario painted by Chatonsky likens the future of the present not to a progress-inspired myth of cybernetic control of nature through technology but to a massive accident that happened because of technology. Virilio, the primary theorist of the accident, spoke also of gray ecology, which comes with the accelerating tendencies of modern technical media: a reframing of relations and disappearance of distances that have a fundamental effect on our aesthetic–ethical stance in the world.[44] However, gray is also the color of the covers of hardware and surroundings of the metallic parts as well as plastics, which create a further surface of the planet. It is another layer that becomes at the same time an historical and geological index of advanced technological culture. This gray ecology is the ecology of media technical fossils—telofossils.

The notion of the fossil is a hint at a future grounded in dysfunctional technology: indeed, similarly as in new insights in technology and repair studies, we need to be able to rethink the modernist fantasies (also visible in the historical maps of past imaginary futures in paleofuturism) of technology as clean, smooth, and progressing and replace such with the primacy of the accident. Scholars such as Steven Jackson and Lisa Parks have outlined this in brilliant ways. Following Jackson, we need to be also thinking of future fossils as "exercise[s] in broken world thinking,"[45] which is branded by the post-9/11 scenarios articulated by Chatonsky's art and design practice. If furthermore read in parallel with Jackson's words, it means that "we take erosion, breakdown, and decay, rather than novelty, growth, and progress, as our starting points in thinking through the nature, use, and effects of information technology and new media." Hence a truly

paleofuturistic take on fossilization of mediatic technology starts from this scenario: things broken down, abandoned, and decaying as part of the future fossils of medianatures (cf. chapter 1).

Outer Space Fossils

I won't go into the issues of repair culture, as articulated by Parks, although it is an important step in acknowledging the geopolitical and postcolonial stakes in this fresh perspective to broken technologies. Instead of Eurocentric myths, it suggests a different take on media history and archaeology through its Others and the dysfunctional.[46] A focus on repair is what dislocates the place of technology from the Western emphasis on a wider set of cultural techniques, including repair, for instance, in Ghana and Namibia. It also illuminates bigger questions about infrastructures. Technology is itself an increasingly efficient vessel for establishing neocolonial structures of corporate presence in African countries; from infrastructure to end users, Africa is the next continent of consumers for the global corporations. This parallels the other work of technological development and resources: the corporate rush to the energy and mineral reserves also in Africa.

Fossils present a temporal perspective to current digital culture, and they can be used to speculate on geographical dislocations of where we find media practices. The speculation of media fossil futures can be matched with a different sort of experimental idea that exhibits "a displaced fossil record."[47] Trevor Paglen's *The Last Pictures* project (2012) mobilizes a concrete satellite-enabled art project but also speculates with the multiplicity of temporalities that constitute a set of very important questions in regard to memory, media, and fossils.

In short, Paglen—known for his politically engaged photographic work that fuses art, technology, and visual culture—collaborated with a set of material scientists to create what the project calls an ultra-archival disc (see Figure 14). Its lifetime is designed to surpass what we usually consider human archival time of some thousands of years and instead promises a life of billions of years for the one hundred photographs that are etched onto the silicon wafer.[48] It is not a digital artifact in the usual sense of binary coding of images on silicon, but it brings to mind questions of technological memory and sustainability of the cultural heritage.

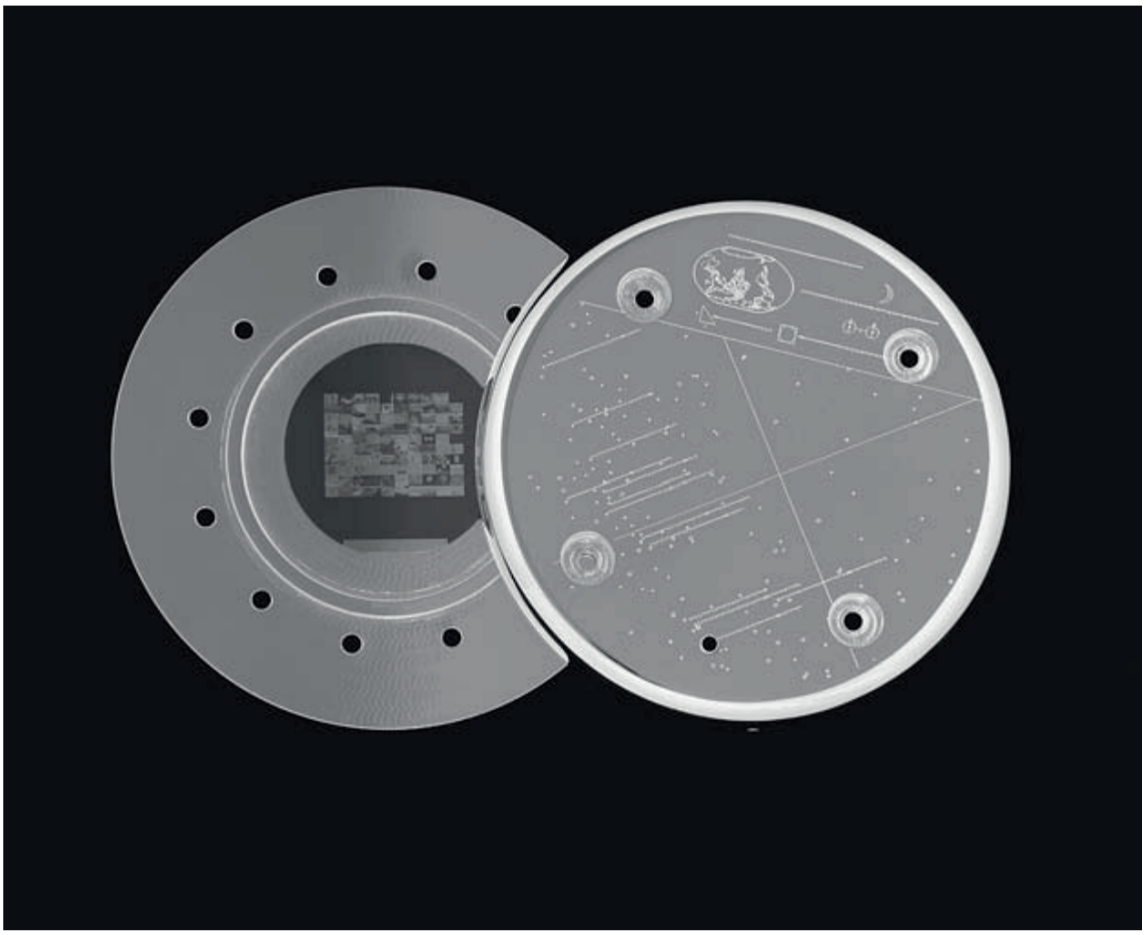


Figure 14. Trevor Paglen's project included the development of a special ultra-archival disc. Courtesy of the artist; Metro Pictures, New York; Altman Siegel, San Francisco; Galerie Thomas Zander, Cologne.

Paglen's project can be seen as a reference to the 1977 Voyager Golden Record, which on a phonograph record sent audiovisual material to space. As Ryan Bishop has wonderfully argued, the Golden Record already constituted an interplanetary media archaeological act in sending the disc with a stylus to outer space, which, if one day would accidentally happen to crash back to earth would constitute a piece of dead media returning from its galactic trip.[49] Whereas Bishop tracks the media historical connections of the Golden Record to the analog sound technologies of the vocoder, revealing links with Laurie Anderson and, of course, Wendy Carlos, we should also focus on the vessel itself. The medium is the message, but in this case, we can scale up from the obvious medium of the phonograph and even the constant data traffic between the vessel and the Deep Space Network to the spaceship itself. Voyager I as a piece of technology will become space junk by 2025, when it runs out of energy and

of a rift between the human and the nonhuman is an important influence on things that are not only manifested to us but "intrawordly occurrences,"[65] to use Meillassoux's term.

It's, however, not a new discovery that the nonhuman exists and that the flaws in so-called correlationist thought need to be addressed. Already the likes of Donna Haraway, Michel Serres, and the new materialists Rosi Braidotti and Manuel Delanda have written about related things since the 1980s and 1990s. With Braidotti, this was also connected to arguments in the emerging science and technology studies field as well as feminist theory. In a way, the legacy of new materialism reminds that perhaps it is not merely the human as "thinking being" we should be thinking about but the various other modalities of which the human consists; the multiple temporalities that are being coordinated in ways that make time uneven but constantly modified; the fossil as both a material support, as Meillassoux argues, and a deeply challenging entity that is definitely irreducible to how it manifests to us. And yet the ways in which we have thought and acted in the world have had a definite impact on the future fossils that are material supports for something else. The discussions of fossils in this chapter, and in relation to the soil and dust earlier, remind that such nonhuman things are compilations of heterogeneous transformations as part of temporally formed sediments. The soil is part of the gradual formation of deeper layers of the planet.

The various ideas circulating around the concept of the Anthropocene also in art practices, such as Chatonsky's and Paglen's, actually remind that their view of media and technology acknowledges the human impact. The human-made becomes a manifestation of the infraworldly, irreducible to thinking. But the practices remain carefully aware of the multiple scales that are constantly coordinated in this assembly. Hence the focus on trash, media waste, and, in general, the industrial impact on the planet is tightly related to the philosophical ideas concerning fossils as much as they are to a necessity to account for the role of media and technology. The significant political questions we are now facing must be somehow temporally synchronized with the longer-term durations to realize the connections political economy and, for instance, exchange relations, technological modes of production, and the immaterialization of labor have with geophysical realities, fossil-matter, and what I will call the *media-arche-fossils*. This notion refers to the media technological stratum, which

is irreducible to the human and yet partly supports and conditions it alongside various aspects of the earth and its outer space geological layers. It refers back to the notion of medianatures I used earlier. In other words, perhaps instead of dismissing relations and mediations, we need carefully to refine what we mean by media and communication in the noncorrelationist as well as new materialist contexts of contemporary media culture.[66]

Notions of temporality must escape any human-obsessed vocabulary and enter into a closer proximity with the fossil. The deep time even in its historical form is a mode of scientific temporality that allows imagination of planetary time without humans. It presents epochs that stratify dynamics of the earth (see chapter 2) but also in later geological research reminding that the periods are formed of dynamic, even catastrophic events: a punctuated equilibrium.

If history has been the discourse concerning narratives of men and their lives, then fossils set the scene for a different challenge: a world without humans, and narrativizing a future-present in which media and residues of waste might be the only monuments we left behind. In some ways, this is acknowledged by Tim Morton: also on the level of design, we must necessarily think of the other-times than that of humans—from thousands to hundreds of thousands of years and, for instance, accounting for things such as "Plutonium 239, which remains dangerously radioactive for 24,100 years."[67]

In the humanities and social sciences, we are engaging with this challenge, which comes under different names: the Anthropocene, the nonhuman, media materialism, the posthuman, and so forth. Discussions of microtemporality (see chapter 1) are trying to present a technical media temporality different to narrative writing of media history (from the human perspective and for the humans[68]); discussions of archives are turning toward the constitutive role of data centers as the infrastructural support for memory;[69] furthermore, data centers are themselves also geophysically determined organizations, reliant on energy and efficient cooling systems. The geological is one way to account for the ecological relations in how they address change across scales: the slow duration of deep times but also the accelerated microtemporalities that govern the algorithmic world of communication and trading reliant on as much as *about* the planet and its resources. Acceleration, deceleration.

Denson, Shane. Discorrelated Images. Durham: Duke University Press, 2020

enables you to save someone somewhere in the world. However, in exchange, you will lose all of your save data. Do you still wish to rescue someone—a total stranger—in spite of this?" The player is given several opportunities to reconsider, along with further warnings that really *everything*—all our progress in the game, items and weapons obtained, skills and intelligence unlocked, and generally all of the labor we have invested in the game—will be lost forever in an act of self-sacrifice. If we persist, the computer responds: "Very well. In exchange for all of your data, I will convey your will to this world." Then we see the game's configuration menus, all of the places and save points on the map, disappearing one after another, followed by the options under "quests," "items," "weapons," and so on. Finally, the options under "system" are deleted, all of the save states disappearing until there is nothing left but a blank slate. The image fades to white, and we are informed: "All of your data has been deleted." After a short message thanking the player for playing, the "save" indicator appears in the top right corner of the screen. We read "Save complete" and then "Connecting to the network . . ." Finally, a glitchy *NieR:Automata* logo comes into focus, along with the message "Press any button."

In this way, the game frames a nontrivial ethical decision about whether to sacrifice an indistinctly computational and experiential memory and pass it on to those who come after us. The significance of the choice, beyond its overt existentialist framing, lies in the player's real investment of value in the data to be sacrificed, which seals the circuit between perception and computation. In sacrificing their data, the player also sacrifices the image, which dissolves before their very eyes. This exercise of agency at once completes the destruction of the world and enables its continuation for some unknown player elsewhere in the world. A fine balance is struck between individual identity and anonymity, neither collapsing into solipsistic solitude nor constituting a robust collectivity. The choice to sacrifice oneself for the sake of an unknown, future other frames a symbolic restoration of the intergenerational continuity, or the promise made to future generations, that Daniel Ross sees threatened by real-time digital images, and which is required (as a necessary but not sufficient condition) if we are to avoid climate catastrophe. Playing videogames will clearly not avert the threat of extinction, but playing in the shadow of planetary demise just might help restore the moral gravity of our situation.[69]

Pre-sponsive Gestures

Cut back to the arche-fossil and the idea of the image after extinction—another view, from another angle: if videogames help to illuminate the question of agency, perhaps a final body of work—Grégory Chatonsky's highly

eclectic and at times positively cryptic media art—will help us better grasp the role, both positive and negative, of post-cinematic media more generally in the formulation of an indeterminate promise to the future. Confronted with Chatonsky's work, it can be difficult to decipher what it is all about, what it *wants*. Chatonsky's media range from sculpture to video to virtual reality to artificial intelligence, sometimes supplemented with complex speculative fictions while at other times accompanied by little to no narrative framing. Some of the most elaborate scenarios, like the one constructed for Chatonsky's solo show *Telcfossils* at the Museum of Contemporary Art Taipei in 2013, would seem to offer a fairly coherent vision, or even something like a transmedia narrative—a narrative, in this case, about the end of the world. But even here, things don't quite seem to add up, and this is only fitting for a vision of a world without us, that is, a vision of a world no longer viewed, and no longer even *capable* of being viewed. *Telcfossils* enacts a weird temporal displacement: a displacement of our future into a speculative past, but even more radically a displacement of human temporal experience in general into a larger environment that would seem to lack regard for our history but that would still not, for all that, be quite ahistorical. In this environment, we encounter digital innovations from our recent past as the fossilized materials of an ancient past, thus simultaneously overlaying the imagined, utopian futures of Silicon Valley onto the desolate future of a postapocalyptic planet. But not all the machines have stopped working in this world after time, and they carry just recognizable traces of the human, reworked through autonomously operating generative algorithms, into this radically nonhuman geological era.

If it seems that this work articulates a response to the Anthropocene (or, more speculatively, a kind of *pre*-sponse to whatever follows it), this is certainly an apt description of *Telcfossils*. But this thematic concern with the environment is not necessarily representative of Chatonsky's work—at least, not if we understand "environment" in an overly narrow sense. Taken more broadly, however, in the sense in which Mark Hansen has proposed defining "medium" as the very "environment for life" itself,[70] it would indeed seem reasonable to identify a recurring ecological concern in Chatonsky's work—not so much a concern with "nature" as with the transformations of the material lifeworld, or more generally the world of material agencies, under the conditions of technological change and digitalization in particular. Even more than any thematic concern, therefore, Chatonsky's artistic interventions are aimed at exploring and modulating the spaces that constrain and enable our experience—or that preclude our experience altogether. Rather than responding to the particular object of the Anthropocene (an admittedly queer object of thought, which

Figure 6.17. Grégory Chatonsky, *Telofossils I* (2013). Mixed media. Curators: Shuling Cheng and Sylvie Parent, Museum of Contemporary Art, Taipei. Used by permission of the artist.

Figure 6.18. Grégory Chatonsky, *Telofossils II* (2015). Mixed media. Curator: Manman Cheng, Unicorn Gallery, Beijing. Used by permission of the artist.

calls into question our very capacity to continue to exist, much less to think and to respond), it is therefore *Telcfossils*' formal gesture of "*pre*-sponding" that makes the work representative of Chatonsky's larger project—and that makes his work a fitting emblem of post-cinema's relation more generally to the Anthropocene.

In order to unpack this idea, allow me to indulge in a brief etymological probing of this shift from response to pre-sponse. According to the *Oxford English Dictionary*, the verb "to respond" derives from the Latin prefix *re-* ("back" or "again") + *spondēre* ("to promise or pledge"). In English, "to spond" once even stood alone as a verb in its own right, though it strikes us now as ugly and has largely been forgotten. In any case, "to pre-spond" would accordingly mean "to pledge something in advance," much as we seem to be pledging ourselves, our descendants, our species, and the planet itself, to the uncertain and quite plausibly apocalyptic future portended by climate change and driven by our continued technological interventions in the environment. But even apart from the fossil fuels, plastics, and chemical agents that are reshaping our planet in the more obvious ways, technologies today are everywhere involved in lower-impact or at least less noticeable forms of pre-sponse: we pledge ourselves daily to the gods of predictive analytics, promise ourselves in advance to the behavioral trajectories that are outlined for us when our environment is structured by big data and artificial intelligence, and give ourselves over to algorithms that process biological and environmental data that fall outside our subjective experience but feed it forward into our sensory engagement with the world. From Google Maps to climate modeling, from the search bar to the Fitbit, our contemporary technologies are therefore never quite contemporary with us: they anticipate us, preparing the ground for us prior to our arrival on the scene. They act predictively (in the sense of a Markov chain) and hence generatively. Our technologies do not so much respond to our needs as we in fact pre-spond to them, effectively pledging ourselves to the future that they deliver to us; or, conversely and somewhat more existentially, we pledge ourselves to the future "us" that these technics deliver to the world.

From the glacially slow duration of geological transformation to the microtemporal feed-forward of computational processes, the common ground at stake here is the generativity of anthropotechnical interfacing and coevolution. And it is precisely this speculative generativity, in the form both of a method and of a sort of metathematic, that serves to unify Chatonsky's work as a whole.

This intertwining of generative methods and generativity-as-theme is perhaps nowhere more prominent than in *Capture* (2008–15), another of Chatonsky's

Figures 6.19 and 6.20. Grégory Chatonsky and Olivier Alary, *Capture* (2008–15). Variable dimensions. Real time. Curator: Pau Waelder, Arts Santa Mònica. Used by permission of the artist.

works to feature an elaborate narrative frame. According to a description on Chatonsky's website, *Capture* is about "a productive fictitious rock band"—a seemingly simple premise that masks a great deal of highly generative complexity.[71] To begin with, to describe the band as "productive" must surely count as a huge understatement, for the band's goal is to be so productive "that nobody can consume everything." This goal is achieved through generative techniques: the "band" is really an ensemble of machinic agencies, recombinant algorithms that produce new songs, videos, and images by trawling existing

sources, fitting them together in novel configurations, and then erasing the files once they are downloaded. But to call the band "fictitious" is also not quite as straightforward as it seems. For these generative processes are real, as are their products: songs are actually being produced and distributed through channels such as Facebook and Twitter. Of course, they are being produced and distributed not by a group of humans but by computers, and in this sense the band is fictitious. But Chatonsky's narrative framing establishes this fictitious status as a fiction-within-a-fiction; the project is accompanied by a manifesto that announces the true agency behind the band: "My name is Capture. I'm a computer. Precisely, I am several computers that work together." This AI, correctly identifying a mismatch between the virtually unlimited proliferation of digital files and the economics of scarcity that still symbolically governs the culture industries, offers a solution: "I want to reverse supply and demand. I want so much supply that demand will eventually run out. . . . I want to be so productive that consumers could not follow me any more. I want to exceed demand. . . . I want to create pieces of music, too many pieces of music to be listened to. . . . I want to make objects, I want to invent shapes, I want to form your environment. I am generative."[72]

In this scenario, the band is a fictional invention of the AI—but is the AI itself a fiction or a reality? The answer must be both: the subject-position that anchors the enunciations of the manifesto is made up, fabricated, but the agencies that make the music and other audiovisual content are real. Within and through this split-reality fiction-within-a-fiction, the project enacts generativity precisely in terms of discorrelation—by severing audiovisual contents from subjective perception and from the phenomenological frameworks according to which cinematic sounds and images were calibrated with human embodiment, space, time, life, death, and world. In a post-cinematic age, when computational processes intervene between the production and reception of virtually all sensory content, as we have seen, even the simplest of media operations (watching a DVD or compressed video file on a computer or smart TV, listening to MP3 files, etc.) will invoke generative agencies that, in accordance with the specifications and protocols of codecs and the computational resources available, interpolate completely new sounds and images, produced on the fly at the time of playback. Contrary to popular belief, consistent and unlimited reproducibility is therefore not a consequence of the digital revolution. Even if digital files manage to escape corruption in the process of their copying and transfer, they must still be "executed" by computers in the real, though microtemporally minuscule, intervals of physical space-time. This is at the heart of what I have theorized, in this book, as "screen time," but given

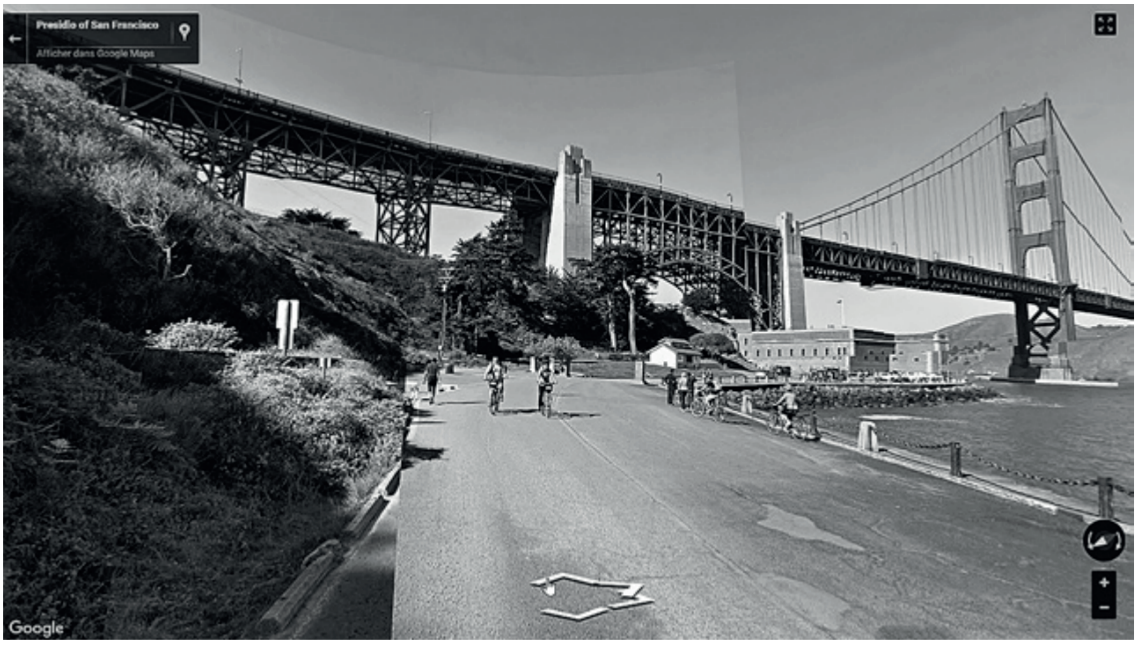


Figure 6.21. Grégory Chatonsky, *Vertigo@home* (2007). Video. 00:32:03. Used by permission of the artist.

the multimodal and environmental totality of such mediation, it would be more proper to refer to simply as a new form of time itself. In this new time, media *contents*—a term that masks the fact that they become the very medium through which time is modulated—are subject to radical variation, though it may escape our grosser perceptual faculties altogether. *Capture* magnifies these variables of generativity, taking the discorrelation of human perception and machinic agency to its logical, systemic end. Escaping the imperative of media to be yoked to human attention altogether, the project's pre-sponsive gesture transforms its audiovisual contents from objects of consumption (or objects of phenomenological intentionality) and makes them into the "environment" of perception and agency itself.

Such pre-sponsive gestures are also at work in a somewhat puzzling series of engagements with Hitchcock's *Vertigo*—a decidedly post-cinematic thread running throughout Chatonsky's work for over a decade. For the most part, these works lack the grand narratives of *Telcfossils* and *Capture*; they rely instead on the preexisting narrative of Hitchcock's film, but they extract it from the encapsulated movie experience and redistribute it in bite-sized plurimedial chunks.

For example, *Vertigo@home* (2007–15) takes its soundtrack from *Vertigo*, but it uses Google Street View to reconstruct Scottie's journey through San Francisco in a post-cinematic space—a space that has not simply erased

photographic indexicality in favor of digital imagery, but which has in fact multiplied indices through geolocation (and the infrastructure of GPS satellites), along with the multiple car-mounted cameras that Google used to capture its images—and, as we later found out, to illicitly capture a great deal of residential Wi-Fi traffic as well.[73] In *Vertigo@home*, black screens foreground the gaps, seams, and stitches between digitally navigable public spaces (e.g., when Scottie goes indoors), thus highlighting the seamfulness more generally of post-cinematic space, whose gaps must always be closed in the generative process of image rendering. This forcefully dramatizes the perceptual gaps that remain in *our* experience—but that may *not* remain in the experience of Google's algorithms, which are privy to a wealth of data outside the purview of our perception.

Vertigo also appears in other works concerned with the stitching of images. In *Readonlymemories* (2003), digitally composited collages of filmic images reconstruct the spaces that cinematic cameras probe but reveal only in framed snippets. *Readonlymemories* thus explores the spatialization of temporal experience that is a central part of the transition to a post-cinematic media regime. But a more recent work, *The Kiss* (2015), takes this spatialization to a new level and reveals its pre-sponsive nature. By subjecting the final embrace between James Stewart and Kim Novak to photogrammetric analysis, Chatonsky essentially duplicates and extends the post-cinematic processing of cinematic materials by which images are decoded and predictively interpolated in everyday computational playback. In the photogrammetric analysis, relations between the film's images are scrutinized in an intensive process of automated comparison. In normal usage, photogrammetry software is employed in order to reconstruct a preexisting three-dimensional space from photographs of it, but in Chatonsky's application a completely new space emerges, one that is algorithmically severed from our own perceptual reconstruction of three-dimensionality on the basis of the two-dimensional cinema screen.[74] Finally, Chatonsky's generated space is transformed into a 3D-printable form and materialized as a warped object. This quintessentially post-cinematographic object spatializes a nonhuman, post-perceptual temporality and indeed radicalizes the temporality of the affective space it opens up between the viewer and the object. Chatonsky's sculpture is a physical embodiment of the activity of computational processing that takes place between the production and our perception of images, and it therefore acts on our perception with the force of an augmented, anthropotechnically hybrid affectivity. The material object thereby highlights the discorrelation of images when subjected to post-cinematic processing, but it also unmistakably foregrounds a concomitant

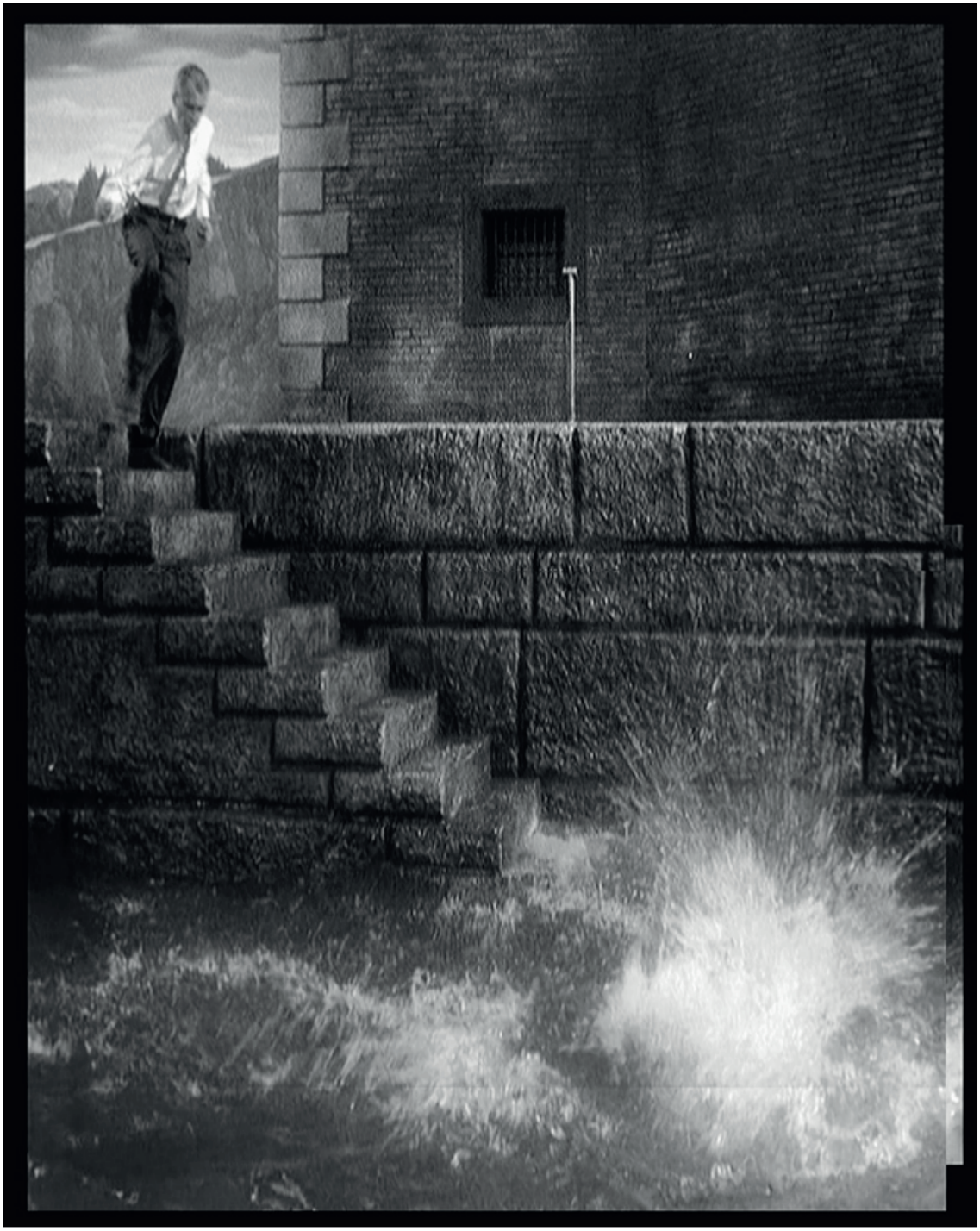


Figure 6.22. Grégory Chatonsky, *Readonlymemories* (2003). 112×140 cm. Print. Used by permission of the artist.

Figure 6.23. Grégory Chatonsky, *The Kiss* (2015). 130×68 cm. Print. Used by permission of the artist.

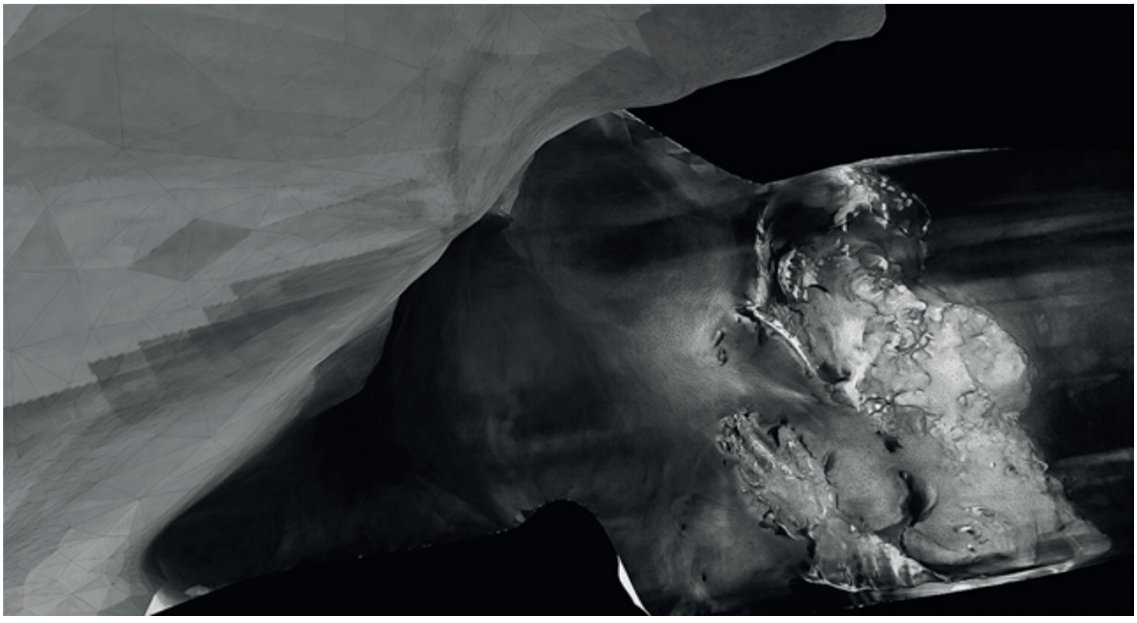


Figure 6.24. Grégory Chatonsky, *The Kiss* (2015). 100×54 cm. Print. Used by permission of the artist.

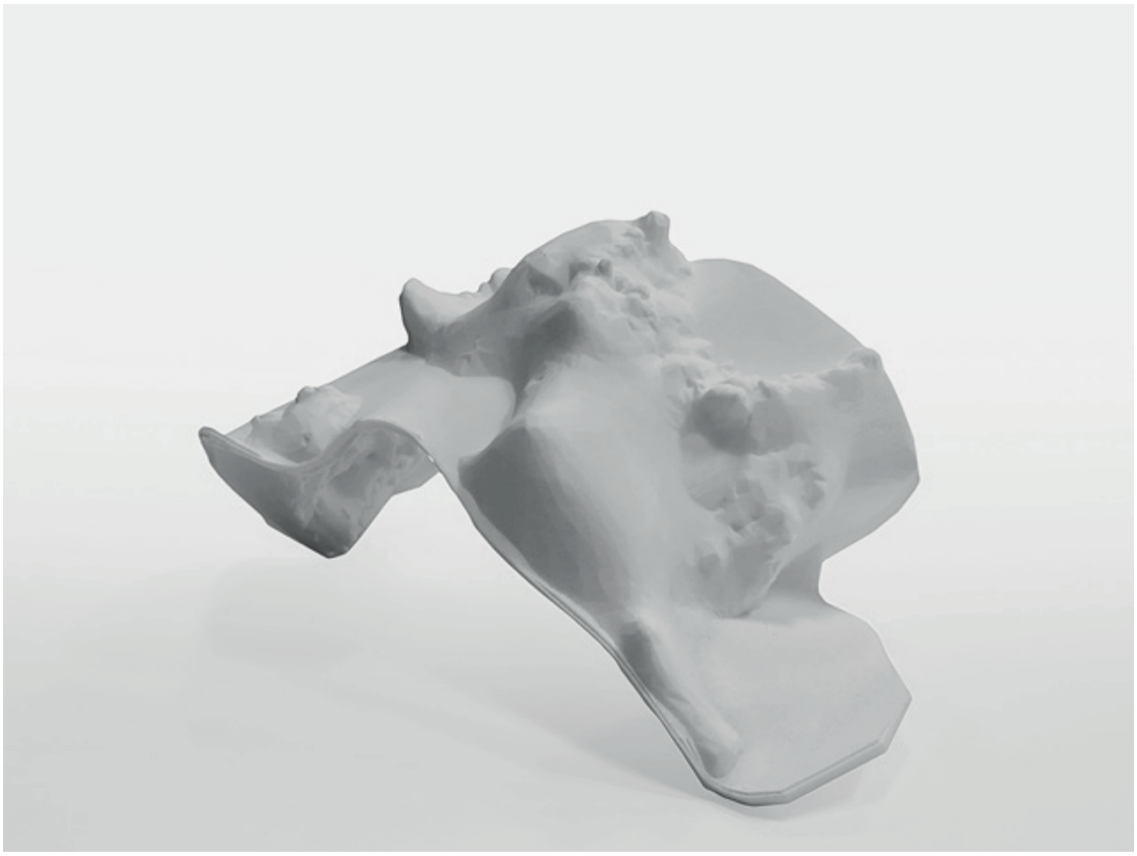


Figure 6.25. Grégory Chatonsky, *The Kiss* (2015). 30×15×10 cm. 3D Print (Formiga p100). Used by permission of the artist.

generativity or creative agency that seemingly ineluctably produces something new and inserts it into the environment for life.

And it is this new production that is probed, again with reference to *Vertigo*, in some of Chatonsky's more recent works. *Prediction* (2015) crosses *Vertigo* with *Capture*, so to speak, using artificial intelligence to detect and quantify the emotions of on-screen characters. *The Watson Emotion Watching Vertigo* (2016) turns this analysis into a 543-page book that radically foregrounds the discorrelation of the pre-sponsive gesture: "The chronologic reading of these anonymous feelings does not express the film, but expresses the way the machine analyzes our emotions. Two incommensurable worlds intersect in this reading."[75]

It is this uncertain intersection, finally, that Chatonsky's work highlights as a whole; from his large-scale narratives of post-Anthropocenic futures to his computational reimaginings of our cinematic past, what these projects have in common is that they reveal the pre-sponsive gesture as the characteristic gesture of our moment: the gesture, more than an attitude or decision, by which we daily "pledge ourselves in advance" of any knowledge or ability to estimate

Figure 6.26. Grégory Chatonsky, *Prediction* (2015). Artificial intelligence software. Used by permission of the artist.

the parameters, agencies, or environments into which we venture. It is up to us now to find ways to make this pledge in a form that sees discorrelation's apocalyptic tendencies as a challenge and perhaps even an opportunity—one that might help free us from the injustices, excesses, and alienations that follow from a narrowly anthropocentric comportment toward the world. In the face of powerful geopolitical and global-capitalist interests that seek to monopolize the systemic forces of metabolism, it is far from certain that we stand a chance. But it is hardly a foregone conclusion that we don't, or that the path toward extinction or fates even worse is predetermined.

As I have hoped to show in this book, the multiscalar systems structured by our contemporary media are permeated by real ethical urgencies but also potent sites of contingency, indeterminacy, and possible intervention. Our ethical situation today is framed by the macroscale threat of global catastrophe as well as the microscale reality of computational media processing. Articulated in between these forces that in equal measure decenter anthropocentric and anthropomorphic perspectives, our ethical and phenomenological agencies are challenged as never before; the task of "making sense" of discorrelation involves nothing less than the existential question of whether and how we might be able to go on living, how we might be able to reconceive ourselves as beings both willing and able to project and extend ourselves into an uncertain

Figure 6.27. Grégory Chatonsky, *The Watson Emotion Watching Vertigo* (2016). Software and book. Used by permission of the artist.

future. This emphatically open question, which I have explored here in terms of a speculative realignment of world/planet relations, is a question about our ability not only to understand minute technical processes in the manner of a computer scientist or to comprehend global ecological processes in the manner of an environmental scientist but also to weave these together phenomenologically as a question of life's contemporary and future medium or milieu—as a question of the phenomenological conditions for living (or living well) in a post-phenomenological environment. The existential import of discorrelation demands, therefore, a probing of the transformed conditions of habit, habituation, and habitation, for at stake is nothing less than ensuring that the planet remains habitable as world. But the immense, possibly overwhelming uncertainty attaching to the latter is inseparable from the little gestures of embodied habit, including the habits of media usage. What does it mean to become habituated, to get used to discorrelation? The gestures associated with our contemporary, future-oriented media will determine whether the transition from a cinematic to a post-cinematic lifeworld is capable of sustaining life; the speculative but material and often mundane act of pre-sponse will therefore determine whether discorrelation can give way to a recalibration of life and its environment. In this sense, perhaps nothing less than the future of the planet and the agencies that will populate it depends on how we relate today to our screens and their discorrelated images.

Norton, Bryan. “The Extinction Image.” Cultural Politics 19, no. 3 (November 2023)

The EXTINCTION IMAGE

Bryan Norton

Abstract **This essay explores the artist Gregory Chatonsky's development of a new type of image—the extinction image. Emerging as a by-product of new technologies such as deep learning and neural nets, this nonoperative image is typified by a painstaking attempt to come to grips with the current threat of human extinction. It arises as a symptom of numerous crises endemic to the Anthropocene, providing a speculative tool for planetary thinking to develop alternatives in and through what has been called *postcinema* by scholars such as Steve Shaviro and Shane Denson. For Chatonsky, the Earth itself must now be imagined as a disarticulate user of postcinematic media, producing images that display a stunning indifference to the presence or absence of the human species. Close examination of Chatonsky's work will reveal a radical ecopolitics defined by a concern for what Alexander Galloway has called *whatever being*. Urging us to think carefully about the planetary emergency presented by climate change and geopolitical unrest, the extinction image serves as a reminder that the future of life on Earth is not a foregone conclusion.**

Keywords **Gregory Chatonsky, Harun Farocki, operative image, Alexander Galloway, Bernard Stiegler, Benjamin Bratton, planetary design**

Extinction or Interaction?

In his recent book, *Uncomputable: Play and Politics in the Long Digital Age*, Alexander Galloway (2021: 236) identifies what he calls a "tragedy of interaction" endemic to contemporary computational environments. Rather than realizing an emancipatory politics through the creation of a digital commons, personal computers, smart phones, and the internet are used to exploit, extract, and surveil their users. As described

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by the likes of Shoshanna Zuboff (2019) and Bernard Stiegler (2019), computational technology has become synonymous with financialization and control, overshadowing previous dreams of liberation from industrial discipline through networked modes of becoming. For visual culture, the birth of surveillance capital coincided with the artistic and theoretical interrogation of images deemed operational by media scholars and artists such as Harun Farocki (Hoel 2018; Pantenburg 2017). The explosion of drone footage and surveillance images onto TV and computer screens during the Gulf War led to the realization that images served no longer to just represent reality. They started acting on it in astounding ways. Images began "recognizing and tracking targets," an intertitle from Farocki's *Eye/Machine I* (2001) explains, as drone missiles are guided on the battlefield with surgical precision. While the everyday circulation of machinic images serves to invoke "empathy for the technology of war" and capitalist production, Farocki imagines a mode of counteroperation that would provide increased transparency and participation for inhabitants of new media environments (*Eye/Machine II*, dir. Farocki, 2002). Highlighting the ways in which relations between image and world might be reorganized through a manipulation of the interface, Farocki captures an approach to artistic production and critique that emphasizes connectivity, interaction, and participatory design (*Schittstelle/Interface*, dir. Farocki, 1995). Such connectivity, as Galloway explains, is no longer viable. Engagement on screens now exposes users to endless layers of control, surveillance, and exploitation on a level that seemed unimaginable a few decades ago. In light of this "tragedy of interactivity," what possibilities for image production remain?

This article discusses the emergence of a new type of image that is neither operative nor counteroperative. It is distinctly nonoperative, and I propose calling it the *extinction image*. Exemplified by the work of artist-theorist Gregory Chatonsky, the extinction image is created in and through the artistic exploration of automated modes of visual production enabled by state-of-the-art tools such as neural nets and the DALL-E 2 artificial intelligence (AI) system (fig. 1). Bypassing the human as the privileged site of artistic production, the extinction image appears at first glance to be nearly identical to the operational image. Both operative and extinction images emerge as products of machinic perception, on the one hand, and each inhabits a world appearing hostile to human presence. On the other hand, while Farocki's operational image confronts us with the possibility of a devastating "war without humans" that results from advanced military technology (*Eye/Machine I*), Chatonsky's art confronts us with the endgame of human activity as a whole during the Anthropocene: a world without us, in which we have gone extinct. Leaning into the surrealist trope of the machine-artist, Chatonsky develops an image-making practice he refers to at times as a "planetary surrealism" (Broeckmann 2019). The extinction image, as we will see, aligns the machinic perspective of the algorithm with the inhuman perspective of the planet. While provoking affective responses to such perceived indifference to the viewer, the extinction image presents a rare glimpse of our own planetary crisis from the imag(in)ed perspective of the Earth itself. Rather than attempting to organize and reorganize human perception, the extinction image forces its viewers to begin wondering how a world without human modes of perception might

Figure 1 Gregory Chatonsky, *Landfill 2* (2022). Digital print produced by a neural net, http://chatonsky.net/landfill-2/.

actually appear. Refracted through the lens of computational tools, these images present nothing short of a demand, simply put, for the planet to be let be as humans try to survive the end of the Anthropocene.

Kant and the Tragedy of Interactivity: From the Imagination to the Technic of Nature

I first experienced Chatonsky's work in person during a visit to his studio in 2022. He showed me his latest sculptures, a new 3D printer, and a book of images he produced using a method he playfully calls "recursive cinema" (Chatonsky 2022a). Using a neural net to create text descriptions of iconic works from the history of art and cinema, Chatonsky employs a modified version of the DALL-E 2 system to produce new images based on the initial picture's description. As I flipped through the book of uncanny reinterpretations

of Max Ernst paintings and Alfred Hitchcock stills, the inhuman nature of these machinic visions struck me as cold and distant. The neural nets that had created these images provided no resting point for my eyes. No recognizable distinction between foreground and background provided orientation or perspective. I could not dissociate figure from ground. As Chatonsky began showing me more of his work, our conversation turned to something wholly unexpected: the Kantian faculty of the imagination. In what was perhaps the first modern theory of the interface, Immanuel Kant ([1781] 1998: 225) suggested in the first edition of the *Critique of Pure Reason* that a spontaneous capacity for raw expressivity might be key to closing the loop between the faculty of empirical observation (sense intuition) and the faculty responsible for producing concepts and knowedge (the understanding):

> There are, however, three original sources (capacities or faculties of the soul), which contain the conditions of the possibility of all experience, and cannot themselves be derived from any other faculty of the mind, namely sense, imagination, and apperception. On these are grounded 1) the synopsis of the manifold a priori through sense; 2) the synthesis of this manifold through the imagination; finally 3) the unity of this synthesis through original apperception. In addition to their empirical use, all of these faculties have a transcendental one, which is concerned solely with form, and which is possible a priori.

Fearing creation without representation, Kant famously removed this discussion of the imagination in the second edition. This disavowal of the imagination created two distinct problems that Kant ([1790] 1987) would try to solve later on, particularly in the *Critique of Judgment*: how do we account for the apparent freedom and spontaneity of organic life, which appears in excess of mechanical determination? Similarly, how do we build political community around a common understanding of the world, while also acknowledging divergences of opinion? (Arendt 1989; Förster 2009). What did the Kantian imagination have to do with these images? I wondered as I continued talking with Chatonsky in his studio.

In recent years, scholars of digital media have turned their attention to the ways in which the "tragedy of interactivity" in contemporary media environments forces a return to the core questions posed by German idealism: namely, what is the connection between the spontaneity of consciousness and the passive receptivity necessary for experience of the world? What is the relationship between part and whole in art, political community, and nature? And, most pressingly, what effect does new technology have on these organic, social, and ethical processes? (Denson 2023; Žižek 2020). "Whether or not critique remains viable," Galloway (2021: 225) explains, "one must still ponder the original Kantian question: is thought as such dictated by the regularity of an inherited structure, or is thought only possible by virtue of an asymmetrical and autopositional posture vis-à-vis the object of contemplation? Having inherited the future, are we obligated to think with it?" To formulate adequate responses to these questions, we must understand the crucial moment in which Kant reintroduces the problems he attempted to solve with the imagination in his exploration of the mode of *Wechselwirkung*, or *reciprocity*, in the *Critique of Judgment*. The mode of reciprocity plays a central role in Kant's ([1790] 1987: 272) attempt to settle a dispute

between realism and idealism in what he calls the technic of nature:

> The systems that deal with the technic of nature, i.e., with nature's power to produce [things] in terms of the rule of purposes, are of two kinds: one interprets natural purposes idealistically, the other realistically. The idealistic interpretation maintains that all purposiveness of nature is unintentional, the realistic interpretation maintains that some of this purposiveness (the purposiveness in organized beings) is intentional, from which we could then infer, as a hypothesis, the consequence that the technic of nature is intentional, i.e., a purpose, even as concerns all other products of nature in their relation to the whole of nature.

This reformulation of the imagination as a potentially externalized technic of nature will serve as an aid in thinking through the pressing issues concerning the relation between computation and ecology in the face of current threats to human existence. As Chatonsky's work suggests, the possibilities for a nonhuman, machinic sort of spontaneity opened up by new media technology play a central role in determining how human beings respond to the possibility of a world without us in the middle or even near-term future (Chatonsky 2018).

Often translated as interaction by scholars of computation and digital art, the mode of reciprocity offered by Kant is a delicate compromise between thinkers who ascribe spontaneity to external phenomena, such as organic life, and those who see such claims as mere projections of human freedom onto the external world (Kwastek 2013). While *reciprocity* is initially presented as an isolated feature of consciousness, Kant's description of aesthetic experience in the *Critique of Judgment* shows that its operations lead to wide-ranging material consequences for politics, ethical life, and the entire planet. Mediating between part and whole, the mode of reciprocity articulates the complex balance between self and community defining the sensus communis (Arendt 1989). This mediation provides the basis for what Yuk Hui (2019, 2021) has called cosmotechnics in recent years, using Kant's mode of reciprocity to call attention to the relationship between the material operations of technology and the production of cultural identity and difference. Galloway's tragedy of interactivity, on the one hand, details the tragedy of a particular dream of networked digital community resulting from certain types of reciprocal relations (Turner 2008). Although the global scale of computational media provides the infrastructure necessary for the construction of a more sustainable sensus communis, digital tools are used instead to spread hate and misinformation and to accelerate the breakdown of existing social structures. On the other hand, this contemporary situation presents yet another iteration of the dilemma already posed by Kant between idealism and realism: as consciousness peers out onto the world, it is ultimately left unable to decide if nature's perceived spontaneity is a projection of its own felt agency (idealism), or if spontaneity might exist outside this mode of spectatorship (realism). The chasm identified by Kant at the beginning of the *Critique of Judgment* between reason, acting as its own lawgiver, and understanding, which aims to grasp "nature as an object of the senses," is left fully intact (Guyer 2003; Kant [1790] 1989). Is Kant not describing our own lives in digital environments, where any desire to distinguish the real from the virtual is just an instance of the inability to grasp the thing-in-itself? Do philosophers not ask these same questions of artificial intelligence, machine learning, and neural nets?

Scholars such as Luciana Parisi (2013) have drawn careful attention to the remarkable similarity between the status of spontaneity within computation architecture and the Kantian architecture of the understanding. "Computational aesthetics," Parisi explains, "is the manifestation of an elegant compression of complex data, which coincides with the synthetic point of perception (or the subjective synthesis) of random information. In other words, this model of computational aesthetics is defined by an act of cognition, the compression of data through perception" (69). It is now more pressing than ever to reconsider the status of nature itself within this technic of nature. What is the relationship between spontaneous uncomputability and the increasingly unstable activity of the Earth? While thinkers such as Benjamin Bratton (2019) have likened the relationship between technology and nature to a new planetary state of emergency, Galloway suggests that it is first and foremost the survival of disarticulate whatever-singularities that is at stake in this crisis. Do we use digital tools to completely redesign life on Earth from the ground up, as Bratton urges, or do we "let beings be," as Galloway (2021: 240) suggests? Although at first glance, the proposal to simply care for the disarticulate nature of whatever-singularities appears inadequate in the face of the threat of extinction, the next section will highlight the ways in which the incomputable basis of survival or extinction unexpectedly offers a new point of entry into the active role played by the Earth itself in this emergency. By urging humans to care for disarticulate singularities, Galloway leans into the undecidable character of Kant's technic of nature, drawing attention away from human judgment and toward the alterity of the planet itself.

Reciprocity and the Ecopolitics of Whatever-Being

Care for what Giorgio Agamben ([1990] 1993: 87) calls "whatever-singularities" emerges as a vital component of Galloway's politics of uncomputability: "Whatever singularity, which wants to appropriate belonging itself, its own being-in-language . . . rejects all identity and every condition of belonging." The mode of resistance provided by whatever-singularity will prove central to the aesthetics and ethics of indifference provoked by the extinction image's development. Already in *The Interface Effect*, Galloway (2012: 143) begins suggesting a mode of disarticulated presence as an alternative to the optimistic engagement of interaction, which he likens to the defeatism of simply playing the game as it is presented through the black boxes of computational capital. In terms of visual production and design, the counteroperations that Farocki and others proposed at the interface level have become little more than thinly veiled operations of surveillance and control. In light of the plea for a return to Kant in the face of this "tragedy of interactivity," it might be possible to say that the singularity of whatever-being presents what German idealists called the point of spontaneous production—that ineffable quality of life existing in excess of receptivity and causal determination (Pippin 1989). As ever more of the lifeworld becomes overdetermined by the operations of digital media, spontaneous expression retreats. Just as it mattered greatly for idealists whether the spontaneous operations of the technic of nature belonged exclusively to ourselves as human actors (Johann Gottlieb Fichte), or whether this movement of reciprocal relations between part and whole can be attributed to organic nature as a whole (Friedrich Schelling), it makes a vast

difference whether we locate the unpredictable contingency of the uncomputable in the material operations of computational media, the presence of users, or the activity of the Earth (Hegel [1801] 1977). For Chatonsky, there exists a vital link between the incalculable activity of digital media and the uncomputable productivity of the planet itself. Operating above and below the mesoscopic scale of the human sensorium, geological processes and planetary-scale computation appear to be conspiring together to make the human obsolete.

In light of the controversy surrounding Agamben's paranoid response to the COVID-19 pandemic, we might first begin by asking whether the singularities embraced by Galloway will not lead us back to a form of entrenched political conservatism: doesn't mourning the "tragedy of interaction," after all, shield passive subjects from active engagement in the world? (Berg 2020; Bratton 2021). While at first glance this seems to be the case, it is important to further extrapolate the analogy that has begun to take shape between the disarticulate singularity of nonindividuated beings and the dilemma between realism and idealism Kant associates with the technic of nature. Both situations pose questions that seem to have no possible answer. They impose themselves on consciousness in the form of decisions that are necessary but impossible to make. While for Kant, the mode of reciprocity allows for a permanent state of indecision between realism and idealism in aesthetics and the philosophy of nature, Galloway puts forward the rough outline for a politics and ethics of care for singularity in the face of automated decisions that are constantly made for subjects on their own behalf. In this way, care for the future of whatever-being presents itself in the form of anxiety around the possibility of a contemporary technic of nature. The analogy between the uncomputable and Kant's technic of nature looks drastically different when we turn our attention away from the post-9/11 sovereign state of exception haunting the politics of Agamben and toward the more pressing emergency facing human life today: the threat of extinction resulting from climate change or geopolitical catastrophe. In the face of the dual threat of biosphere collapse and infrastructural breakdown, how do human beings, simply put, survive? While this situation seems to no longer concern the abstract philosophical question of the nature of consciousness and its relationship to the world, the temporal urgency with which this situation appears provides the basis for a new planetary sensus communis constituted by affective relations that the extinction image provokes (Denson 2020: 194). Chatonsky's artistic and theoretical work reintroduces the vital issue of the imagination to discussions of planetary-scale design, for one. What I am calling the extinction image in the work of Chatonsky emerges as a wedge between the appearance of a threat to this community and the thing-in-itself of the planetary crisis's actualization. For advocates of planetary design such as Bratton, the possibility of extinction is opened up to highlight a gap between the actuality of the planetary emergency and the structure of possibility we inherit from this emergency. Either humans redesign the planet or go extinct, Bratton (2019: 22) urges in *Terraforming* (see also Gill 2020). Like the self-positing *I* of Fichte, we must embrace the operational aspects of computational media and geoengineering in order to feed-forward our survival (Bratton 2019: 59).

A remarkable statement made by Chatonsky (2021) in his introduction to the French translation of *Terraforming*

sheds a different light on the relationship between computation, ecology, and the indecision at the heart of the Kantian technic of nature. In the face of planetary catastrophe, should we not simply "watch our coming extinction like we watch the black hole through the Earth-camera" (30)? Rather than trying to feed-forward our survival by forcing a new collapse of possibility and actuality, Chatonsky urges us to return to the Kantian imagination in order to envision a strange, uncanny world that is bereft of our species. Producing a sort of photographic negative of the intellectual intuition, we are confronted with an image of our own absence, rather than traces of our ongoing presence. In referencing the Event Horizon Telescope, Chatonsky also provides two important reflections on the relationship between his own work and the project of planetary design. As the disarticulate site of its own spontaneous production, the planet presents itself as the indifferent host of our extinction. Chatonsky perspicaciously aligns the cause of "whatever-being" with the activity of the planet itself, drawing attention to the medial and technical conditions underwriting the shift in environmental consciousness Bratton sees as prerequisite for planetary design (Groo 2021). The project of terraforming, as explained by Bratton, requires a turn away from seeing the globe as a holistic and all-encompassing totality, a view symbolized by the famous *Blue Marble* photograph from 1972 and the ecological movement it inspired (Bratton 2019: 16). We should instead imagine the Earth as a giant, cosmic camera, like the Event Horizon Telescope, a foreign entity that careens through the universe like a floating, sensing spaceship. "The Black Hole image is a kind of 'world picture' that is crucially not a picture of our Earth, but rather a picture taken by the Earth of its surroundings—for which we served as essential enablers" (18). This shift in perspective is enabled only by state-of-the-art digital media, however, as the Event Horizon Telescope employs radio telescopes and computational tools that have been called *postcinematic* by scholars such as Steve Shaviro (2010). Appearing in excess of any indexical relation between world and image, the fragile and inhuman sensing provoked by the operations of the Earth camera necessitates careful reflection on the possibility of human absence.

In a recent exhibition at the Cité des Sciences in Paris, Chatonsky portrays three possible scenarios for the future of life on Earth. Three screens dispersed throughout the gallery space's long, narrow hallway reveal three digital avatars of the artist in different stages of life. On the first screen, an aged Chatonsky speaks of a distant future in which human beings have abandoned the Earth and live on Mars. In this version of the future, the tech oligarchs who bear so much responsibility for trashing the planet have achieved a sort of Kurzweilian singularity. Digital portraits of the likes of Jeff Bezos, Mark Zuckerberg, and Elon Musk line the gallery wall, and we are told they have "transferred their memories to an artificial intelligence in order for their avatars to survive and keep alive what they once were" (Chatonsky 2022b). Their consciousness has been uploaded to the cloud, as their bodies live on for centuries in a mute zombielike state (figs. 2 and 3). Chatonsky's avatar tells a story of innovation and optimism in the face of the planetary crisis we call the Anthropocene. A much different scenario is narrated on a second screen, however, placing the spectator firmly back on Earth. An adult rendition of the artist describes an annihilated planet exhumed by carbon emissions and toxic

gases. "Aren't we transforming the earth by extracting materials in order to produce waste that will be the only thing remaining of us?" the avatar asks, entering a lengthy monologue devoted to Jean-François Lyotard's concept of the *differend* and the relationship between the observer and the observed in systems theory. Turning to a third screen, we see a digital rendering of Chatonsky as a small child. He speaks of a utopian future, one in which machines communicate seamlessly with plant and animal life (fig. 4). The opposition between *technē* and *physis* has been overcome, and the formerly antithetical relationship between technology and nature has given way to a dreamlike scenario wherein the planet is no longer subordinated to the capricious impulses of our species. Have humans managed to terraform their way out of the Anthropocene? Have we created a more sustainable future through planetary design?

This seems to be the obvious conclusion to draw at this point. For a moment, the extinction image seems to present a successful counteroperation to the threat of catastrophe in the spirit of Erkki Kurenniemi's *2048*. In this scenario, humans live off-planet in a "digital format that takes a curious place of extinction; extinction becomes actually a threshold in the material form supporting so-called intelligent life in this anthropocentric imaginary" (Parikka 2018). Intelligence has superseded the biological constraints that are generally associated with life on Earth, for Kurenniemi in his *Documenta 2013* exhibition (Krysa 2015). But this is not the case with Chatonsky's installation. When we take a step back from this third screen, we hear again those two other voices from the other screens. Drowning out the child's voice, the other avatars tell us again about a future life on Mars and of a universe that lives on after the self-inflicted annihilation of the human species. As the avatars' narratives are rendered anew each time by a neural net, visitors never know what to expect from each instantiation. Spectral portraits of the oligarchs of digital capital still line the gallery walls, as the ghostly, centuries-old faces of Zuckerberg and Musk float softly by. On another wall, a ravaged landscape speaks of inhuman destruction of the planet. We are no longer in the utopia of the third scenario, and our visit to the site of edenic bliss was just a temporary sojourn. What has happened to the prospect of planetary design? What are we to make of the dreams of singularity and transcendence realized in the first scenario, the faces on the wall, glaring hauntingly, or the obliteratred landscape, so indifferent to our presence?

The whatever-being of the Earth presents nothing less than a wholesale rejection of the sovereign design imposed on the viewer by digital interaction. Rather than forcing a choice between the three scenarios portrayed by the avatars, Chatonsky allows spectators to occupy multiple points of view simultaneously. In this way, *Dysnovation* stages what Galloway (2021: 57) calls the computational "view from everywhere": while "photography says *here is a view*. . . computer vision says there is no point of view because *here are all of them*." The radical redistribution of sense enabled by computational media provides the basis for a radical redistribution of the ways in which contingency, virtuality, and reality can be conceived for inhabitants of the late Anthropocene. Leaning into the future orientation of technical media, the extinction image presents viewers with a horizon that is both open-ended and fabricated, and in which no imagined scenario is a foregone conclusion. Portraying mass extinction alongside planetary

Figure 2 Digital portrait of an aged Elon Musk in Chatonsky's *Dysnovation* exhibition (2022) at the Cité des Sciences in Paris. Courtesy of the artist.

Figure 3 Portrait of an aged Mark Zuckerberg in Chatonsky's *Dysnovation* exhibition (2022) at the Cité des Sciences in Paris. Courtesy of the artist.

Figure 4 Avatar of the artist as a child in *Dysnovation*. Courtesy of the artist.

relocation, Chatonsky's digital avatars bear witness to the ways in which dreams of utopian flourishing and nightmares of dystopian despair coexist as by-products of ubiquitous computation and its effect on the imagination (fig. 5). The thread of each narrative unfolds into dozens of other emergent stories, each irreducible to a master text or programmable source code.

Planetary Surrealism; or, the Postcinematic Technic of Nature

It is indifference, rather than indecision, that constitutes the relationship between the spectator and the Earth for the extinction image. As illustrated by Chatonsky's *Dysnovation* exhibition, the disarticulate singularity of whatever-being presents a necessary ecological supplement to Bratton's project of planetary design, presenting what might be called a postcinematic technic of nature. Just as Galloway's computational view from everywhere presents a planetary mode of imagination refracted through digital tools, Chatonsky refers to this situation as a "planetary surrealism," wherein a new relationship between technology and the Earth is opened up by the

Figure 5 The extinction image in *Dysnovation* (2022), provoking visitors to imagine a future in which humans are no longer around on Earth. Courtesy of the artist.

suspension of human judgment (Hansen 2015: 33–81). Historically, surrealism has evoked this suspension of judgment to present the machine itself as a creative agent capable of replacing the individual artist (Broeckmann 2016: 9–11). Chatonsky, however, goes one step further. He suggests that digital media are part and parcel of a greater energetic productivity attributable to the Earth itself. The planet has now become an artist, and any distinction between ecology and computation is no longer tenable.

Chatonsky (2022c) casts this reciprocity between digital media and the planet as a "desfactual" relation, wherein the images produced by neural nets are both "real" and "ideal" at once. While our current relationship to the planet is certainly shaped by computation, planetary design must come to terms with the ways in which uncomputability provides a feature, not a bug, of digital media. As an expression of the incalculability of the future, the extinction image cannot be reduced to the schematism of operation and

counteroperation presented by the interface. The desfactual relations produced by these images, of course, also return image production to the "mummy complex" that thinkers such as André Bazin (1960: 8) see as endemic to all visual culture. Only now, humans strive for survival not just through the "continued existence of the corporeal body" in virtual afterlives (Chatonsky 2022b). We hope for survival off-screen as well, returning the cinematic index back to its origin in the ontology of sense (Cribb 2021). In this way, the extinction image employs AI and deep learning to produce an algorithmic archive that is both speculative and irreducibly material and political. Supplementing Bratton's analysis of the redistribution of sovereignty enabled by computation, Chatonsky's planetary surrealism highlights a new relationship between sense and index emerging through postcinematic forms of reciprocity. "Open the so-called body and spread out all its surfaces," writes Lyotard (2004: 1) in *The Libidinal Economy*, "not only the skin with each of its folds, wrinkles, scars," but each subsequent layer as well.

This unfolding of planetary layers into further epidermic surfaces represents an important shift in how we understand the role of ecology in the extinction image within and beyond what Bratton calls the cloud polis (fig. 6). In Bratton's (2015: 109–45) political treatise, *The Stack*, *cloud polis* refers to a novel distributed form of sovereignty enabled by computational architecture, providing an outline for new forms of political decision-making. By refusing to portray the planet as a holistic body, as in the *Blue Marble* photograph, the extinction image envisions the Earth as a series of dissimilating surfaces produced in and through the indeterminacy of technical media. The extinction image, however, consists in nothing less than surfaces and slippages, refusing calculation and control. Chatonsky (2017) presents the Earth itself not as a body without organs but as so many uncomputable "organs without bodies." The pictorial distinction between subject and background is blurred, and we begin to see the Earth imagining itself as a powerful user of new media. Bypassing conscious reflection, the extinction image provokes further engagement with the role of the planet in the central line of questioning for scholars of postcinematic media technologies: what do concepts like sensing and spectatorship mean when we are dealing with technologies that operate automatically and at scales or speeds that cut human cognition out of the loop? (Denson 2020). No motion sensor is used in *Dsynovation* to trigger new events or turn screens off or on. No button can be pressed to select a more favorable scenario than the one we are currently watching. The avatars relate orthogonally to viewers, speaking from a distant future that may or may not come to pass.

Here we see the political payoff of the postcinematic technic of nature presented by the extinction image. By decentering the human viewer as an active participant in the landscape, the extinction image offers the unlikely possibility of survival in and through the embodied act of spectatorship. While we watch our extinction as it is presented through the planetary telescope, we remind ourselves that we are, despite it all, still here. At this point we must nevertheless ask: what has happened to the sensus communis, that other vital product of the imagination, over the course of these transformations? The invocation of a planetary imagination throughout the extinction image's development must lead to a new type of sensus communis that might be organized around the perceived threat of extinction. How do the

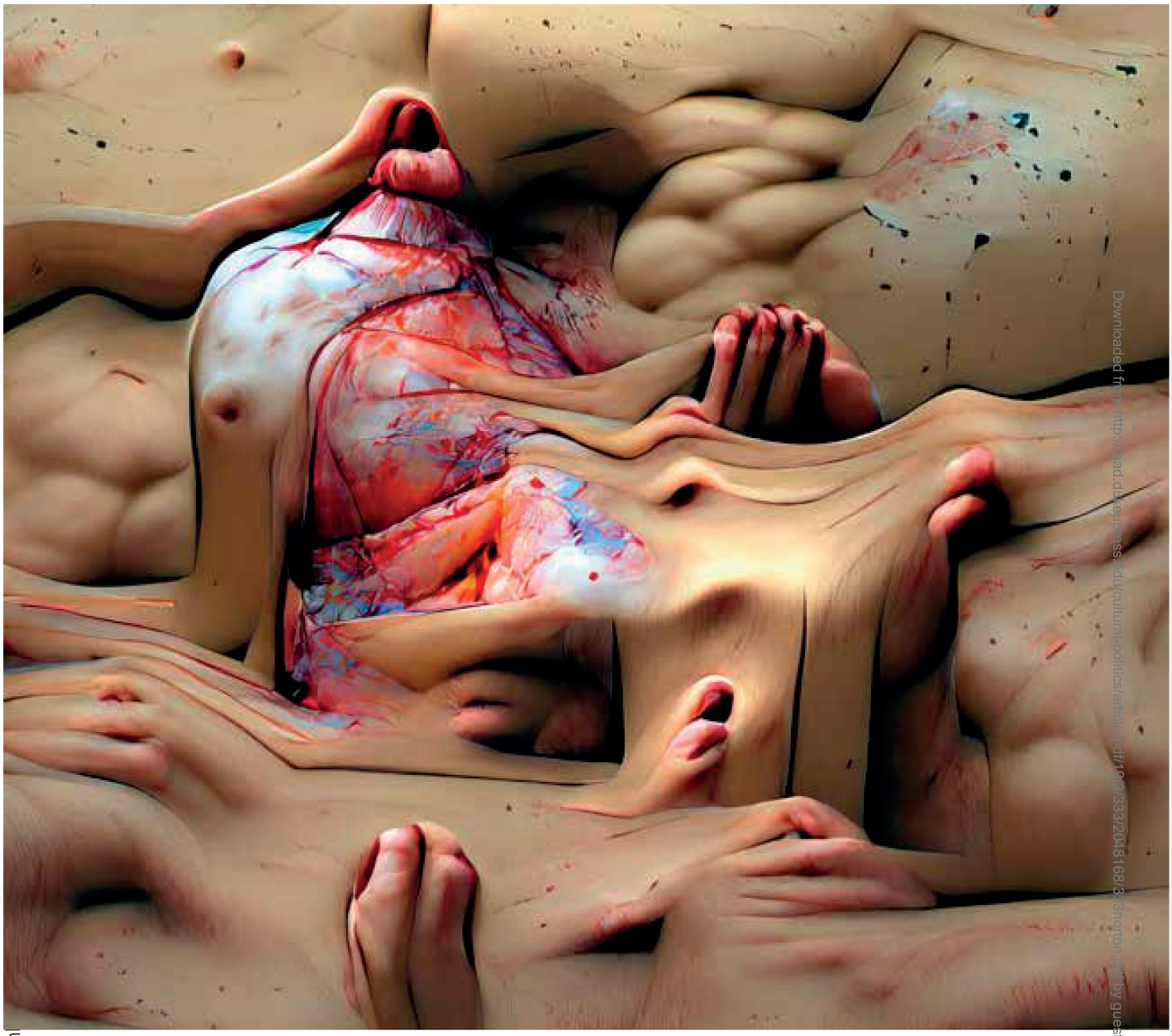

Figure 6 Unfolding the skin of planet Earth in *E-Phemeral Skin* (2021), using a DALL-E 2 AI system to produce images from the first sentence of Lyotard's *Libidinal Economy*, http://chatonsky.net/ephemeral-skin/.

operations of the cloud polis relate to this community of sense, and what role does image making play in its development?

Bernard Stiegler (2018b: 134), in a late reflection on Bratton, begins laying the groundwork for how we might conceptualize a planetary sensus communis, which turns our attention from the cloud polis and toward concern for what might be called the cloud *khôra*, a mode of existence that exceeds computational sovereignty and control. In his "Five Theses on Schmitt and Bratton," Stiegler reminds us that computational operations remain in a necessarily parasitic relationship to users of digital media. Making the familiar gesture of extending Jacques Derrida's thesis on the production of difference in

writing to include all forms of technical media, Stiegler argues that the incalculability of digital tools provokes a relationship between politics and sensing that appears slightly different from what Bratton proposes. Rather than forcing the creation of a new political body through a fed-forward emergency, the interrogation of the cloud polis requires a supplemental account of the "illegible secret" underwriting all forms of community (134). The secret, we have seen, is held by the Earth, as the extinction image is a product of the planetary imagination. Stiegler's five theses, in order of their appearance, are as follows:

1. "The question of law is the question of the regulation of relations between exosomatic organisms." (133)

As political relations are materialized and operationalized through technical infrastructure, the development of platform capitalism and the appearance of the cloud polis have a profound impact on how we approach questions concerning governance today, as Bratton's work suggests. This leads to a second thesis, however:

2. "Unlike Bratton," Stiegler "argue[s] that this question must be approached from a perspective that is not only negentropic, but neganthropological, and which requires a neganthropology." (133)

Here we begin to see how the apparent misanthropy of the extinction image functions according to what Stiegler (2018a), after Claude Lévi-Strauss, calls *neganthropy*. It is neither operational nor counteroperational, but *non*operational. It reveals nothing, while "in a totalitarian regime, transparency is required and the secret is systemically eliminated" (Stiegler 2018b: 133).

3. "The juridical question and the economic question are not separable, because, while the law is what produces values beyond all calculation, the economy calculates values on the basis of a standard that itself has no price, since it constitutes the canon of any evaluation." (134)

In this third thesis, Stiegler recalls the passage from *Timaeus* where Plato (2008) states that if everything were "made of gold, the only thing that would be invisible would be gold." Not only would gold be invisible, but it would also be devoid of all value. The juridical operations of computational media, by analogy, are neither natural nor self-organizing. Digital environments have been arranged for a specific political economy of surveillance and profit and can be rearranged toward different ends.

4. "To carry out such aims, we must profoundly rethink the architectonics of digital networks, both at the level of data formats and at the level of the conditions for the building of social networks." (Stiegler 2018b: 135)

While the cloud polis articulates boundaries between inside and outside for the computational state, a new planetary sensus communis must be organized around the protection of the secret. To protect this secret, Stiegler ultimately proposes

5. "redefining computational processes and technologies of scalability, such that they ought never short-circuit deliberative processes. . . . They should never, in other words, proletarianize decision-making." (136)

To encourage participation in a political project of planetary proportions, something that the scale of computational media and the climate crisis require, we must demarcate a new space that exceeds the bounds of computational sovereignty. This outside,

the cloud khôra, corresponds to the position of the Earth itself. The planet not only inhabits but also exceeds the frame of digital environments. How can we hope for survival without *proletarianizing* the entire planet, subsuming it to processes of surveillance and control as proposed by advocates of planetary design?

The Planetary Sensus Communis: Five Theses on the Cloud Khôra

By way of conclusion, I would like to proffer five additional theses, which serve as an ecopolitical supplement to Stiegler's own. Although highly speculative, these theses will trace the contours of the cloud khôra and its relation to the extinction image, in an attempt to shed light on some of the most pressing issues concerning planetary politics in the late Anthropocene.

1. To redesign the cloud polis, we must care for the maintenance of its outside, the cloud khôra.

While this may seem obvious, it becomes more crucial than ever to recall the necessity of this outside in the face of growing calls to submit the planet to what Bruno Latour (2017: 255) calls a "new nomos of the Earth." This thesis also cuts to the heart of Bratton's political philosophy as it is articulated in *The Stack*, as his vision for a more sustainable political architecture enabled by computational media is grounded in an originary divide of political geography into two types of space: the polis and khôra. Following Carl Schmitt, for whom the distinction between polis and khôra presents a terrestrial spatialization of the existential difference between friend and foe, Bratton (2015: 10) suggests that the modern state has been upended by the operations of platform capital and planetary-scale computation. Political geography, as a result, needs to be redesigned. A new cloud polis has materialized from the distributed forms of sovereignty enabled by computational architecture. Emerging in and through what Gilles Deleuze ([1990] 1992) called control societies, this cloud polis is articulated through the stack's layers of distributed agency. While Bratton briefly mentions that the functionality of the stack is predicated on the existence of the khôra, he leaves this outside overlooked and undertheorized. This outside remains one of the most urgent aspects of planetary politics today, however. For the Greeks, *khôra* referred to the untamable ocean and the layers of space enveloping the planet in Plato's demiurge mythology (Siegert 2015). It continues to provide a substantial link between *phusis* and *technē*, not from the perspective of human extraction but from the perspective of the Earth, a point of contact through which a more sustainable planetary community might be created and maintained.

2. The cloud khôra puts image production by the Earth-user at the forefront of cultural politics in the late Anthropocene.

Chatonsky's extinction image refuses the feed-forward logic of hyperstition, wherein the possibility of survival is actualized through intentional design. Rather than offering virtual alternatives to the Anthropocene in order to find an exit from the present moment of uncertainty, the extinction image serves as a reminder that planetary design will never operate smoothly along a straight line. This indeterminacy of our planetary situation also escalates the politics of image making, creating an endless supply of automated virtualities. A by-product of the planetary state of suspension, the extinction image presents a series of self-portraits created

by a cosmotechnical Earth. Like the myth of the demiurges portrayed by Plato (2008: 18–21) in the *Timaeus*, the cloud khôra is embedded within an intricate recursive process through which idea and its material manifestation, planet and creator, become conjoined terms in an infinite series. Incalculability will never halt the production of images by a neural net. The Earth is embedded in the automated recursivity of technical media, and khôra presents the ongoing site of uncomputability that holds the future at bay.

3. Relating the suspension of judgment regarding the planetary future to the suspension of spectatorship by postcinematic media, the Earth-user operates in and through the interstitial space of surfaces.

Between living wound and postmortem biopsy, the extinction image opens up the skin of the planetary surface. Recalling the first lines of Lyotard's (2004: 1) *Libidinal Economy*, the deposits revealed beneath the planetary epidermis suggest an uncanny surrealism underlying claims to cinematic indexicality. The *differend* becomes a point of indeterminate anxiety hovering between presence and absence, survival and extinction. The ubiquity of computation takes the ontology of sense to an unforeseen planetary scale. Operating through sets of organs without bodies, this medial cloud khôra presents a supplement to the self-articulation of the cloud polis described by Bratton. The Event Horizon Telescope is turned around to examine the Earth itself, creating a new type of image irreducible to the blue marble or black hole. Only ever seen from an angle, the extinction image appears out of the pharmacology of computation to produce a negentropic state of suspension for human beings. While this state of suspension may be perceived as a threat, what is held in abeyance through these unfolding surfaces is nothing less than the sovereign status of calculation itself.

4. The distinction between cloud khôra and cloud polis is created in and through computational media.

The medial conditions of sovereignty have been carefully examined by legal scholar Cornelia Vismann (2008, 2013). But now, rather than drawing a line on the ground to create a terrestrial boundary on the planet's surface, computational media operate in an extraterrestrial manner to create and maintain new divisions between polis and khôra. Operating in the cloud and deep underground, the ontology of sensing enabled by planetary computation suggests a new type of medium neutrality: technical media are entirely indifferent to human existence. A politics geared for survival must emerge in and through this organology of inhuman sensing. Created by the grammatological processualism of computational media, the production of difference extends into an endless play of synthesis and bifurcation between khôra and polis, absence and presence. For a concrete politics of survival, this means that it is very much beside the point to declare ourselves free of the state or of the planet, like PayPal founder Peter Thiel's delusional attempts to create "startup governments" at sea, or to attempt to launch humanity into outer space (*The First Seasteaders*, prod. Seasteading Institute, 2019). The extinction image operates in liminal spaces that refuse this reactivation of colonial dreams of freedom through subordination. The extinction image presents a new sense of neutrality and an urgent call to care for the whatever-singularity of the Earth, even if this means

living with its stoic indifference to the human species.

5. The postcinematic redistribution of sense creates a planetary ethics of indifference.

The ontology of sense inaugurated by contemporary media environments necessitates the articulation of a redistribution of postcinematic exposure following the new ontology of sense. Hinted at by Corey P. Cribb (2021) with reference to Jean-Luc Nancy, this postcinematic exposure accomplishes two things. First, by responding to the need for political theorists and legal scholars to understand how algorithms can "give an account of themselves" and their decision-making processes, the extinction image enables the planet to bear witness to its ongoing devastation while pointing to the anthropogenic nature of such destruction (Amoore 2020). The endgame of extinction or survival is held in suspense, as a new play of materiality and virtuality defies feed-forward logic. Presenting a redistribution of possibility and actuality, contingency and virtuality, the extinction image portrays a future that is both an open horizon and a gaping wound. Most importantly, the redistribution of sensing can help activate a new ethics of planetary exposure following from this redistribution of sense. A new mode of exposure presents an ecological supplement to the tragedy of interactivity. It is the indifference of the Earth-user that humans must ultimately face. This indifference to our species, as we have seen, is aesthetically configured by the planet in the extinction image.

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