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e-flux Journal

Paglen, Trevor, "Society of the Psyop," *e-flux Journal*, September 2024

Society of the Psyop

Part 1: UFOs and the Future of Media

Trevor Paglen



Trevor Paglen, *Near Windy Hill (undated)*, 2024.

Issue #147

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We once looked at pictures. Then, with the advent of computer vision and machine learning, pictures started looking back at us. Now, something even stranger is happening. Generative AI, Adtech, recommendation algorithms, engagement economies, personalized search, and machine learning are inaugurating a new relationship between humans and media. Pictures are now looking at us looking at them, eliciting feedback and evolving. We've entered a protean, targeted visual culture that shows us

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what it believes we want to see, measures our reactions, then morphs itself to optimize for the reactions and actions it wants. New forms of media prod and persuade, modulate and manipulate, shaping worldviews and actions to induce us into believing what they want us to believe, and to extract value and exert influence.

What does it mean to live in a media environment that knows our wants, needs, vulnerabilities, emotional ticks, kinks, and cognitive quirks far better than we do? That notices which kinds of stimulus induce what kinds of precognitive responses, and uses machine learning to develop, A/B test, and deploy custom-generated cognitive injections designed to manipulate us even further, all without us consciously perceiving what's happening? And what does it mean to live in a media environment where this is all-pervasive: not only news and websites, videos and movies, but driving assistants in cars, AI-generated customer service representatives, search engines and chatbots, virtual HR managers, gas-station pumps, smart houses and phones, and even washing machines ... a media landscape where your refrigerator, vibrator, and toothbrush collude with insurance companies, advertisers, political campaigns, and big retailers, using computer vision, machine learning, and biometric feedback to influence your behavior and worldview?

Every day, we are subject to subtle and not-so-subtle mind-control experiments. Through nearly imperceptible experiments and machine learning-enabled analysis, coupled with various types of sensors (from simple "like" buttons and engagement metrics to cameras and other sensors designed to measure preconscious responses), the media we interact with seeks to develop a sense of—and make alterations to—each of our own unique neurological makeups.

If the postwar media landscape was characterized by spectacle, and the late twentieth and early twenty-first century by an age of surveillance, then we are entering a new phase. One marked by affective computing, machine learning-enabled optimization, neuroscience, and cognitive psychology. A mediascape that has little use for distinctions between real and fake, signifier and signified. That assumes no distinction between perception and reality even as it attempts to intervene as directly as possible into the brains and emotional makeups of its experiencers.

Society of the psyop.¹



US Army Challenge Coin (collection of author).

How did we get here? This three-part essay traces a brief history of media, technologies, and techniques that take advantage of the malleability of perception, capitalizing on quirks in human brains to shape reality. It is a story about the manufacturing of hallucinations and the fact that, under the right conditions, hallucination and reality can become one and the same.

¹ I'd like to acknowledge the concept of "psyop realism" developed separately by artists Jak Ritger and Brandon Bandy and journalist Günseli Yalcinkaya. Echoing Mark Fisher's term "capitalist realism," "psyop realism" describes the aesthetic experience of inhabiting a post-irony online landscape that Ritger characterizes as "a lack of meaning or possible revolutionary action during climate collapse and the condition of growing up in the most heavily policed and advert-saturated online experience yet," at a time of "intense suspicion and conspiracism, where the term 'false flag' is used widely." See Jak Ritger, "Because Physical Wounds Heal," *Punctr.Art*, February 7, 2024 [⇒](#); Günseli Yalcinkaya, "We're Entering an Age of 'Psyop Realism,' But What Does That Mean?," *Dazed*, January 26, 2023 [⇒](#); and Brandon Bandy, "Psyop Realism," exhibition, Phyllis Gill Gallery, University of California Riverside, November 14–17, 2022 [⇒](#).

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Doty

I first met Richard Doty in 2022. I was anxious. I could feel my unease rising as his silver SUV pulled into the parking lot across from the makeshift film studio where I was working at the University of New Mexico.² A paunchy man wearing a red polo shirt emerged. I wasn't afraid of physical violence. Rick Doty wasn't known for that. I was worried about my own sanity. Doty was known for that.³

Doty conducted elaborate psyop programs for the US Air Force in the 1970s and '80s. One of his targets, a defense contractor, was so consumed by paranoia after being subjected to Doty's craft that he was committed to a mental institution. There was also a well-respected journalist who, after enduring one of Doty's psychological operations, spent the remainder of her career babbling about reptoids, cover-ups, and ancient alien conspiracies. A third target, a former UFO investigator who collaborated with Doty, publicly confessed to participating in a military disinformation campaign and retreated into self-imposed obscurity. We would be spending the next two days together. It turned out that I liked the guy.

I had sought out Doty because I wanted to learn about the particular form of media-making he practiced to such dramatic effect. My intuition was that Doty's career as a cultural producer could shed some light on what media might be like in an age of recommendation algorithms, personalized news feeds, information bubbles, and generative AI.



Trevor Paglen, *Doty*, 2023, (excerpt). Single channel video projection, black and white, stereo mix. Dimensions variable, 66 min.

For the next two days, Doty explained the finer points of military interrogations and influence operations, the theory and practice of psyops, and how he'd created and used folklore about UFOs to develop counterespionage missions designed to protect classified Air Force assets. But in Doty's retelling of the work he did on behalf of the US military, there was a strange inversion. Yes, he created misinformation about UFOs to conceal the existence of secret US military projects. But he also

² I want to thank Stewart Copeland, director of the ARTs lab at the University of New Mexico, Jessica Metz, Daniel Neves, and the Department of Art at UNM for making this project possible.

³ I'm deeply indebted to Mark Pilkington both personally and professionally for his guidance and inspiration. His book *Mirage Men* is the definitive account of the use of UFOs by military and intelligence agencies to conduct psychological operations. See Mark Pilkington, *Mirage Men: An Adventure into Paranoia, Espionage, Psychological Warfare, and UFOs* (Orion Books, 2010).

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described creating false stories about classified Air Force technologies to cover up the existence of actual UFOs (internally known as “Cardinals,” he claims). Upon retirement from the US Air Force, Doty became a self-styled whistleblower, recounting details of the real UFO program he claims to have had a hand in covering up. He told stories of a secret film documenting the existence of crashed saucers, a classified warehouse at Bolling Air Force Base containing the remnants of those UFOs, and the cultural life of captured pilots from the Zeta Reticulli star system.

Doty began working for the Air Force Office of Special Investigations (AFOSI) in the late 1970s. AFOSI is an outfit analogous to an in-house FBI, charged with investigating criminal activity in the military and conducting counterintelligence work to ensure the security of military installations and assets. After completing his training in the Washington, DC area, Doty was assigned to Kirtland Air Force Base in Albuquerque, New Mexico.

Kirtland is a massive base encompassing over fifty thousand acres, extending from a collection of runways and hangars adjacent to the Albuquerque airport to vast tracts of land to the east and south. Its neighbors are a veritable who’s-who of conspiracy theories and UFO lore. Nestled among the mountains ninety miles to the north is Los Alamos National labs, where World War II-era scientists worked in secret to develop the world’s first atomic bomb. To the south is the Trinity Site, where that atomic bomb was first detonated, turning the desert surface into a radioactive glass called “trinitite.” Still further south is the White Sands Missile Range, where US forces transported Nazi rocket scientists in the aftermath of World War II as part of Operation Paperclip. The alleged Roswell UFO crash site is a two-hour drive southeast.



Trevor Paglen, *Doty*, 2023, (excerpt). Single channel video projection, black and white, stereo mix. Dimensions variable, 66 min.

In the late 1970s, Kirtland Air Force Base’s acknowledged tenants included the Air Force Weapons Laboratory, charged with research and development on advanced weapons systems, directed-energy weapons, and the effects of nuclear fallout. Another outfit, Sandia National Labs, designed and tested components for nuclear weapons. Such weapons were stored and managed in a facility in a restricted section in the eastern part of the base. Kirtland also played host to a handful of unacknowledged tenants, including a detachment from the National Security Agency (NSA).

When Doty arrived in 1979, Kirtland was synonymous with top-secret military technology experiments. In 1973, base engineers had succeeded in using a ground-based laser to shoot down an airplane, and were busy developing a directed-energy weapon that could be fired from an airborne platform. Elsewhere on the base, the Air Force trained Special Forces units, conducted

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advanced helicopter training, and tested experimental weapons systems. Doty's job was to keep all of this secret.

In the late 1970s, a military contractor named Paul Bennewitz, who lived on Kirtland's northern border, started seeing and photographing unusual lights and movements over the restricted range adjacent to his house. He came to the conclusion that they must be UFOs. An avid electronics enthusiast, Bennewitz made recordings of bizarre radio emissions he believed to be coming from the objects. Bennewitz offered to help the military repel what he believed to be an extraterritorial harassment campaign: he collected his evidence, sent it to the AFOSI team, and in the fall of 1980 was invited to present his findings. Evidently, it wasn't an alien invasion that Bennewitz had discovered, but a top-secret NSA program. The case landed on Rick Doty's desk.⁴

Doty took a creative approach to the problem: rather than "neither confirm nor deny" the existence of UFOs or secret intelligence programs at the base, he staged an elaborate deception and cover-up operation to encourage Bennewitz's imagination. A source he'd recently recruited from the UFO research community would be a huge help.

In the summer of 1980, Doty made a pitch to this source, named William Moore, who was the coauthor (with Charles Berlitz) of the 1980 book *The Roswell Incident*. Doty's proposal was this: Doty would provide Moore with incontrovertible proof of extraterrestrial contact in exchange for Moore's help in conducting AFOSI investigations and reporting on the activities of amateur UFO groups. The deal was irresistible, and Moore cooperated.

Doty began using Moore as a proxy. Doty gave Moore doctored top-secret documents to pass along to Bennewitz, alluding to government knowledge of an extraterrestrial presence on earth. Furthermore, the documents implied that Bennewitz's discoveries were relevant to an above-top-secret program called "Aquarius," administered by a shadowy group called "MJ Twelve."

⁴ The Bennewitz story is most comprehensively documented in Greg Bishop, *Project Beta: The Story of the First US Space Contact* (Paraview Press, 2005).

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REF: REQUEST FOR PHOTO IMAGERY INTERPRETATION YOUR MSG 292030Z OCT 80.
SUBJECT CASE NR: 8017093-126 HQ CR 44
1. SUBJECT NEGATIVES, FILM WERE ANALYZED BY HQ IVT AND 7602 AINTELG IT AND THE FOLLOWING RESULTS WERE FOUND:

A. NEGATIVE #1: DEPICTING C-5A AIRCRAFT ON APPROACH AND STRIKING UNIDENTIFIED AERIAL OBJECT IN LOWER RIGHT PORTION OF FILM. FILM FOUND TO BE UNALTERED. SIZE DIFFERENTIAL WAS NOT CONSISTENT WITH SIZE OF AIRCRAFT. CONCLUSION: INCLUSIVE

B. NEGATIVE #2: DEPICTING CYLINDER SHAPED UNIDENTIFIED AERIAL OBJECT IN UPPER LEFT PORTION OF PHOTO. FILM FOUND TO BE UNALTERED. FILM SHOWN OBJECT TO BE CONSISTENT WITH FIELD DEPTH AND CONSISTENT WITH RELATIVE SIZE OF FIXED OBJECTS. CONCLUSION: LEGITIMATE NEGATIVE OF UNIDENTIFIED AERIAL OBJECT.

C. NEGATIVE #3: DEPICTING IRREGULAR SHAPED UNIDENTIFIED AERIAL OBJECT IN SEVEN FRAMES OF 8MM FILM. BECAUSE OF THE SIZE AND APPARENT SPEED OF OBJECT NO FURTHER CLASSIFICATION OR CONCLUSION COULD BE DRAWN. FILM SHOWN TO BE UNALTERED.

D. 3/4 INCHES OF 8MM FILM: DEPICTING AIRBORNE CONE-SHAPED OBJECT MOVING IN FRONT OF STILL CAMERA. FILM FOUND TO BE UNALTERED. ANALYSIS INDICATED OBJECT TO BE WITHIN 1500M OF CAMERA. OBJECT WAS NOT CONSISTENT WITH RELATIVE SIZE OF FIXED OBJECTS OBSERVED FOR SEVERAL SECONDS IN FILM. CONCLUSION: INCLUSIVE.

E. ORIGINAL NEGATIVE DEPICTING UNIDENTIFIED OBJECT. FILM FOUND TO BE UNALTERED. BECAUSE OF A LACK OF FIXED OBJECTS IN THE FILM, NO DEPTH ANALYSIS COULD BE PERFORMED.

CONCLUSION: LEGITIMATE NEGATIVE OF UNIDENTIFIED AERIAL OBJECT.

2. REF YOUR REQUEST FOR FURTHER INFORMATION REGARDING HQ CR 44. THE FOLLOWING IS PROVIDED: CAPT GRACE 7602 AINTELG INS CONTACTED AND RELATED FOLLOWING: (S/WINTEL) USAF NO LONGER PUBLICLY ACTIVE IN UFO RESEARCH, HOWEVER USAF STILL HAS INTEREST IN ALL UFO SIGHTINGS OVER USAF INSTALLATION/TEST RANGES. SEVERAL OTHER GOVERNMENT AGENCIES, LEAD BY NASA, ACTIVELY INVESTIGATES LEGITIMATE SIGHTINGS THROUGH COVERT COVER. (S/WINTEL/FSA) ONE SUCH COVER IS UFO REPORTING CENTER, US COAST AND GEODETIC SURVEY, ROCKVILLE, MD 20852. NASA FILTERS RESULTS OF SIGHTINGS TO APPROPRIATE MILITARY DEPARTMENTS WITH INTEREST IN THAT PARTICULAR SIGHTING. THE OFFICIAL US GOVERNMENT POLICY AND RESULTS OF PROJECT AQUARIUS IS STILL CLASSIFIED TOP SECRET WITH NO DISSEMINATION OUTSIDE OFFICIAL INTELLIGENCE CHANNELS AND WITH RESTRICTED ACCESS TO 'MJ TWELVE'. CASE ON BENNEWITZ IS BEING MONITORED BY NASA, INS, WHO REQUEST ALL FUTURE EVIDENCE BE FORWARDED TO THEM THRU AFOSI, IVOE.

4. REF YOUR REQUEST FOR TECHNICAL ASSISTANCE. BECAUSE OF A CHANCE OF PUBLIC DISCLOSURE, NO KNOWLEDGEABLE PERSONNEL WITH SVA WILL BE PROVIDED. CONTINUE TO RECEIVE ASSISTANCE FROM INDIVIDUALS MENTIONED IN YOUR MESSAGE, MILLER, FUGATE. BECAUSE OF THE SENSITIVITY OF CASE, REQUEST THEY BE THOROUGHLY DEBRIEFED AT REGULAR INTERVALS.

BT
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DOWNGRADE 17NOV2020

SECRET

Facsimile of document given to Bennewitz.

(S/WINTEL) USAF no longer publicly active in UFO research, however USAF still has interest in all UFO sightings over USAF installation/test ranges. Several other government agencies, led by NASA, actively investigates [sic] legitimate sightings through covert cover. (S/WINTEL/FSA) One such cover is UFO Reporting Center, US Coast and Geodetic Survey, Rockville, MD 20852. NASA filters results of sightings to appropriate military departments with interest in that particular sighting. The official US Government Policy and results of Project Aquarius is still classified top secret with no dissemination outside official intelligence channels and with restricted access to 'MJ Twelve'. Case on Bennewitz is being monitored by NASA, INS, who request all future evidence be forwarded to them through AFOSI, IVOE.

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The operation against Bennewitz snowballed: according to William Moore, in the summer of 1981, AFOSI arranged for Bennewitz to receive a computer he could use to decipher the “alien” signals. The doctored computer spat out long streams of quasi-nonsensical text as if it were a chatbot in a trance or fugue state:

WE CANNOT TELL MILITARY OF THE US MAKING HUMANOIDS REASON FOR HATE IS YOU ARE GOOD—WE TRUST YOU TAKE VAST PORTION UNIVERSE AGAINST OUR AGGRESSION THE NUMBER OF OUR CRASHED SAUCERS IS EIGHT NERVE YOU WE REALIZE TELL THE TRUTH

Then the operation against Bennewitz became more elaborate. Knowing that Bennewitz was an avid amateur pilot and that he suspected the existence of a top-secret alien captive near the town of Dulce, New Mexico, AFOSI installed surplus military equipment on the top of Archuleta Mesa so that Bennewitz would see it on one of his flyovers and be convinced of the existence of the secret base. The Air Force was crafting an alternate reality to feed Bennewitz’s predilections and ensure that he believed what they wanted him to believe.

With the Bennewitz project underway, Doty began a second operation. Linda Moulton Howe was an award-winning television journalist who’d recently completed *A Strange Harvest*, a documentary on the “cattle mutilation” phenomena. In the wake of that success, Howe received a contract from HBO to make a second documentary on the topic of UFOs. Doty got in touch with Howe and invited her to Kirtland Air Force Base for a briefing. At the AFOSI offices, Doty explained that Howe was onto something big and that AFOSI was prepared to help. He then pulled out a dossier and instructed Howe that its contents were for her eyes only: she could read the documents but take no pictures. Other AFOSI officers observed her reaction from behind a one-way mirror.

Doty presented Howe with a dossier entitled “Briefing Paper for the President of the United States.” The documents therein told a remarkable story of an ongoing extraterrestrial presence on earth, UFO crashes at Roswell and other locations, and a surviving alien being held at Los Alamos. Moreover, the US government had reason to believe that aliens had genetically intervened in the human race and guided our development using various techniques, such as the creation of a great spiritual leader approximately two thousand years ago. Echoing the documents fed to Bennewitz, the dossier reiterated that the “MJ Twelve” group was responsible for the UFO and extraterrestrial program.

Doty explained to Howe that this was only the beginning. In return for Howe’s coordination with AFOSI on her documentary, he promised footage from a top-secret film documenting an apocryphal 1964 UFO landing at Holloman Air Force Base in southern New Mexico, and offered her access to an Air Force colonel who had allegedly handled one of the surviving aliens from the Roswell crash. Howe was thrilled. Weeks passed. Then months. No footage arrived, no interviews materialized. HBO killed the project. Howe’s documentary on the UFO phenomenon was not going to happen.

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Trevor Paglen, *Doty*, 2023, (excerpt). Single channel video projection, black and white, stereo mix. Dimensions variable, 66 min.

The 1988 edition of the US *Army Field Manual* outlines ten principles of military deception. The “Monkey’s Paw” principle states that the number of people with knowledge of a particular deception operation should be minimized, even if it means misleading one’s own forces. “Jones’s Dilemma” holds that deception becomes more difficult as the number of information channels available to the target increases, with the caveat that the greater number of *controlled* channels the target has access to, the more likely the deception will be successful. “Cry Wolf” holds that repeated mis-predictions of an event will desensitize the target to warnings of it. (This principle cites intelligence failures around the US Tet Offensive in Vietnam, which arose from repeated warnings that did not bear out.) Other principles involve the correct design and sequencing of misinformation, the importance of holding materials in reserve, and attention to the limits of human information processing.⁵

Doty’s operation chiefly used a combination of three other principles: “Magruder’s Principle—The Exploitation of Perceptions,” the “Choice of Types of Deception” maxim, and “The Importance of Feedback.” Both the field manual and Doty himself agree that the most important of these principles is “Magruder’s Principle—The Exploitation of Perceptions.” Named after the Confederate general John B. Magruder, it holds that “it is generally easier to induce the deception target to maintain a pre-existing belief than to deceive the deception target for the purpose of changing that belief.” In this case, the preexisting belief that Doty capitalized upon was the existence of extraterrestrials and a government cover-up of that knowledge. The “Choice of Types of Deception” maxim holds that the “deception planner should . . . reduce the uncertainty in the mind of the target” and should “force him to seize upon a notional world view as being correct—*not making him less certain of the truth, but more certain of a particular falsehood*” (emphasis in original). To achieve this deception, Doty chose media tailored to each of his targets: for Bennewitz the engineer and pilot, he provided an advanced computer and a Potemkin base on a remote mesa; to Howe the journalist, he supplied false top-secret official documents and the promise of on-the-record sources with knowledge of the alien conspiracy.

Finally, the field manual emphasizes “The Importance of Feedback,” the significance of which is “virtually self-evident.” Feedback answers the question “Is anybody listening? (Is this channel effective?)” This is where William Moore, author of *The Roswell Incident*, came in. Moore was both a means of distribution and a feedback mechanism, a sensor that could judge the

⁵ *Army Field Manual*, FM 3-13.4, “Army Support to Military Deception,” Department of the Army, February 2019; also *Army Field Manual* FM 90-2, “Battlefield Deception,” Department of the Army, October 3, 1988.

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responses these particular media elicited. Doty could then gauge the reactions, amplify the signal that elicited the strongest feedback, and send back the amplified signal.



Trevor Paglen, *Near Kidney Lake* (undated), 2024.

The outcome was a path to insanity. Paul Bennewitz became ever more paranoid about alien surveillance, accusing his wife of being controlled by aliens and eventually barricading himself in his house. In August 1988 he would be hospitalized for a mental breakdown. The next summer, William Moore publicly confessed to participating in a disinformation campaign against Bennewitz and colluding with the US government to betray the UFO community. He faded into obscurity soon after. For her part, Linda Moulton Howe doubled down on her project to seek “the truth” about extraterrestrials. To this day, she claims that there are 168 advanced civilizations in the Milky Way, that multiple species of extraterrestrials inhabit earth and can manipulate time, that there exists an alien presence under the ice sheets of Antarctica, that crop circles and cattle mutilations have something to do with it, and that a vast government conspiracy is covering it all up.

The information Doty fed to these three people gave life to what’s known in UFO circles as the “darkside hypothesis.” The story he told made its way through the UFO subculture and popped out into the mainstream as the plot of the television show *The X-Files*.

At this point, we might ask a simple question: Why? Was the top-secret NSA program at Kirtland so sensitive as to warrant the incredible resources spent to steer Bennewitz into a reality populated by aliens? Did Linda Moulton Howe’s reporting actually come close to something so important that the AFOSI had to derail her by producing a vast and detailed otherworldly conspiracy? And why bother recruiting William Moore, a prominent figure in the UFO community with only a marginal influence on the broader culture? And why use UFOs? There are no good answers to most of these questions, but we have a better answer for why UFOs became Doty’s primary mimetic device.

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It turns out that US military and intelligence agencies have a long history of using UFOs as a psychological instrument, having discovered their hyper-mimetic qualities in the 1950s. Decades before Doty's variations on the theme, UFOs were a well-known self-replicating cultural trope capable of infecting individual and cultural consciousness and spreading like a virus.

The discovery of the UFO hyper-meme took place in the 1950s, against the backdrop of a massive effort by US military and intelligence agencies to develop ways to manipulate people's minds. It was an era of CIA mind-control experiments, covert operations inspired by magic and illusionism, and extensive research into using computers, artificial intelligence, and electronic warfare to shape the experience of reality, and therefore reality itself.

To be continued in "The Society of the Psyop, Part 2: AI, Mind Control, and Magic"

Trevor Paglen is an artist whose work spans image-making, sculpture, investigative journalism, writing, engineering, and numerous other disciplines. Paglen's work has had one-person exhibitions at the Smithsonian Museum of American Art, Washington D.C.; Carnegie Museum of Art, Pittsburgh; Fondazione Prada, Milan; the Barbican Centre, London; Vienna Secession, Vienna; and Protocinema Istanbul; and participated in group exhibitions the Metropolitan Museum of Art, the San Francisco Museum of Modern Art, the Tate Modern, and numerous other venues.

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Taylor, Mark, "Gallery Highlights; Curated by Mark Taylor," *SF Arts*, September/October, 2024

Gallery Highlights

CURATED BY MARK TAYLOR

Trevor Paglen, "Near Pole Line Road" (undated), 2024, Pigment print, 8 x 12 in. Courtesy Altman Siegel



CARDINALS

September 5 → November 2

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As an artist whose work often explores surveillance, secrecy, conspiracy, and aerospace technology, Trevor Paglen has spent a lot of time looking at the sky. This collection of *CARDINALS*, the Air Force's unofficial code name for UFOs, has a surprisingly retro feel. The objects captured appear in the classic saucer shape, so much so they feel comically unreal, though the artist informs us that the images are undoctored. The exhibition makes us question not only what we are looking at, but the nature of reality itself.



Blue, Max, "Trevor Paglen looks to the heavens in latest SF exhibition," *San Francisco Examiner*, November 28, 2023

SPOTLIGHT

Artist Trevor Paglen looks to the heavens in latest SF exhibition

By Max Blue | Special to The Examiner |



Trevor Paglen, "UNKNOWN #81111 (Unclassified Object Near the Eagle Nebula" (2023)

Courtesy the artist and Altman Siegel.

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‘Is there anybody out there?’ has long been the refrain of those who turn their gaze to the heavens and wonder at the vast, apparently empty expanse. Artist Trevor Paglen’s latest exhibition of photographs from his series “Unids,” on view at Altman Siegel, answers this query with an unshakable “Yes.” What is out there, though, is both known and unknown and may tell us more about ourselves and our place in the universe than anyone or anything else. The term “unid,” coined by amateur astronomers, refers to objects in orbit around Earth that these communities have failed to identify. Many unids, however, have been identified, or at least acknowledged, by the United States — and subsequently classified. While their nature remains secret, the consensus is that many unids are surveillance satellites placed in orbit by the US or other nations (existing U.S. satellites became classified in the 1990s). Paglen has long been interested in surveillance and government secrecy. He never fully dons the tinfoil hat but rather offers it. In an early project, he photographed military bases located in remote areas of the American deserts. In another, he collected military patches associated with secret operations. In “Unids,” he turns his gaze on another hotbed of mysterious conspiracy and makes it at once more and less familiar. The four large-scale black-and-white gelatin silver prints included in the exhibition — all around 4 feet by 6 feet — initially appear as a series of breathtaking pictures of the night sky. The celestial views from Mono Lake, near Yosemite, show the majestic cloud forms of swirling nebulae and clusters of explosive individual stars, wringing all the sublime awe from the subject that anyone who has gone stargazing would come to expect. But beauty is a secondary concern for Paglen; it’s almost a red herring. Look closer, and you will find a single object in orbit in each photograph, which registers photographically as a short line across the night sky, carrying sinister associations. A photograph traditionally makes an objective claim — but here, it’s an unnerving question: What am I looking at? In the text accompanying the exhibition, Paglen offers the best answer he can muster: “We don’t know, but someone does.” That’s almost worse than knowing nothing at all. Space is often representative of the limits of human understanding. Here, the metaphor is extended to include our place not in the universe but in the social order as an equally alien position. In the instances of unids whose identity we can be sure of — surveillance satellites — the answer is far from reassuring. But the discomfort one feels at having the camera turned back at them is just a taste. Paglen’s paranoia seems fitting for a time when the globe is more connected than ever, and information is readily available — though not always to the direct benefit of individual citizens. Privacy is often traded away in the name of connectivity and search engine and social media data is mined and sold for profit, both to advertisers and government agencies. The catch is that these entities often aren’t interested in users as individuals but rather as datasets, and the inhumanity of the transaction is the most frightening aspect. Maybe you’re being watched, but who you are and who’s watching hardly matters. “You’re here, and it’s there,” Paglen writes, “and maybe that’s as much certainty as anyone can hope for.” There’s something oddly reassuring about the existential position this attitude reflects. We exist in relation to others, whether we understand them fully or not. That’s as true of aliens and spy satellites as it is of our friends and strangers on the sidewalk. In that sense, they do walk among us.

DAZED

Yalcinkaya, Günseli, “Is it psyop? A government cover-up? Aliens have entered mainstream discourse again, but it’s hard not to question the motives behind how this information is being fed to us – and why,” *Dazed*, August 1, 2023



UFOria: how aliens are fuelling a new era of disinformation

LIFE & CULTURE - FEATURE

Is it a psyop? A government cover-up? Aliens have entered mainstream discourse again, but it’s hard not to question the motives behind how this information is being fed to us – and why

Text Günseli Yalcinkaya

1st August 2023

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The US government is stashing dead alien bodies in its congressional closet, or at least that's what whistleblower David Grusch wants us to believe following the [UFO hearing](#) in Washington last week. The former intelligence officer went viral last month for claiming that the Pentagon is in possession of "intact and partially intact" alien vehicles, a statement that he refused to elaborate on other than to tease "non-human biological pilots" found at several alleged crash sites. Grusch openly admits to first getting into aliens after reading the now-discredited 2017 [New York Times](#) report, yet the ever-alluring promise that intelligent life beyond our planet is just out of reach – or, at least hidden behind many layers of top-level government clearance – has resurfaced in recent years to increasing mainstream attention. Even NASA is taking it seriously.

Mass spectacle aside, the public hearing marks a first in US history. Historically it's been the case that only the military and national security has access to information about UFOs, or UAPs (unidentified aerial phenomena). Yet, since the pandemic, we've seen an uptick in official alien-speak: [the Pentagon has opened a new office](#) tasked with investigating UFO reports, there's an independent, UFO-assessing committee [set up by NASA](#), which is holding public meetings ahead of its final report. There's even a private company Enigma Labs releasing a [UFO report-tracking app](#). There's been reports of an alien meteor thought to be found at the bottom of the Pacific Ocean and [a large metal cylinder found](#) off a remote beach in Australia. Not to mention the [800-plus UAPs](#) reportedly spotted by airline pilots, the videos of which have been kept out of public reach.

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In this new and uncharted era of disinformation, it's easy to see how stories of technologies of unknown origins, non-human intelligence and unexplained phenomena can fan the flames of cover-ups and conspiratorial thinking (the American public has a right to know!). The idea that the Pentagon is actually in possession of UAPs evokes mental scenes of flashy, *X-Men*-adjacent Hollywood plots, which is a way easier option than to pause and consider the actual manmade horrors on our shores. Yet, the recent hearing also marks a huge shift in the depiction of aliens across culture, from kooky counterculture to legitimate government narrative. For all this talk of phenomena, mysterious and unexplained, it's hard not to question the motives behind how this information is being fed to us – and why.

The relationship between alien sightings and government distrust has been around since the very beginning, with early examples such as the 1947 [Roswell incident](#) fanning the conspiratorial flames, bringing to light the question of official narratives, who they benefit and why – is it an alien spacecraft or a high-altitude spy balloon? Similarly, extraterrestrial threats have long stood in for geopolitical power, with contemplations of alien existence used as a mask for the development of spy planes. Key figures like Richard Doty, a former Air Force Office of Special Investigations agent, [openly admitted to passing fake documents](#) to UFO researchers in the 80s and 90s.

"It's not surprising to me that we're talking about aliens in a moment where it's getting really, really hard to figure out what's real" – Trevor Paglen

"This UFO belief is intrinsically tied to notions of a government and military cover-up, and is powerful and pervasive within society," agrees [Mark Pilkington](#), the author of [Mirage Men](#). One particular angle is the relationship between UFOs and the history of military and defence technology development: "Amplifying concerns about unknown, possibly unfriendly objects flying over US skies is of great benefit to the defence industry." This is no doubt supported by the shift in language in recent years away from UFO, which is wrapped up in green-man-sci-fi connotations, to the more technical-sounding and abstract Unidentified Aerial Phenomena, which accommodates for all matter of unknowns, from surveillance drones to [spy balloons](#), unusual weather or other natural phenomena – "all of which are important in the military domain," he adds. "It also keeps the discussion grounded in science and credible for those – still the majority – who are not on board with the alien narrative."

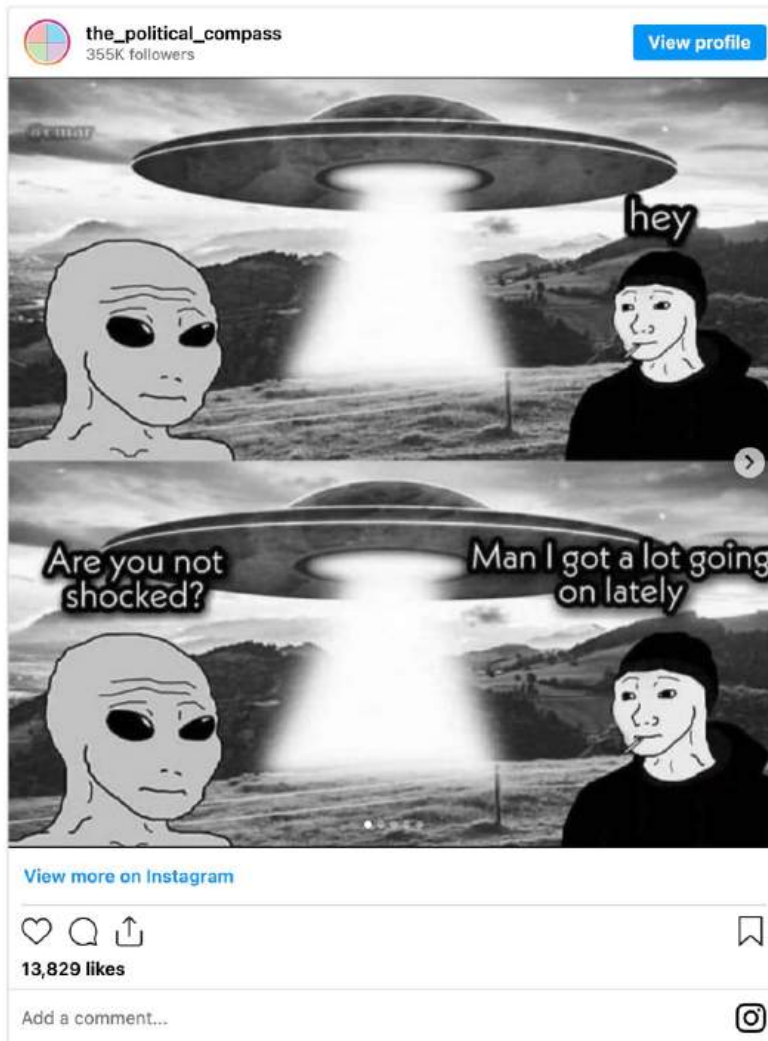
This doesn't only apply to geopolitical threats but to the individual, too. UFO-speak can be used to manipulate or [psyop](#) individuals, capitalising on our differences in perception to create confusion, making it harder to organise counter-narratives against what the government drip-feeds us. This is particularly true as social media chips away at any notion of a consensus reality – young people are increasingly turning to [alt media platforms like TikTok](#) as their main news source – which amplifies fringe beliefs and makes it harder to distinguish what's real or not. "It's not surprising to me that we're talking about aliens in a moment where... it's getting really, really hard to figure out what's real," says artist [Trevor Paglen](#), whose work tackles ideas of mass surveillance and government disinformation.

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Even the positioning of UAP sightings as classified information plays into this narrative, with officials capitalising on our collective distrust of mainstream media to uncover hidden truths – as one official said at last week’s congressional hearing, “we can’t be afraid of asking questions and we can’t be afraid of the truth”. So, whether there are actually intelligent aliens out there communicating with a secret part of the Deep State or not, there’s a gamification involved in unearthing classified information, which only adds further incentive to the cause. Paglen elaborates, “It presents itself as a secret that’s being revealed, and that secret is more likely to be true than the bullshit that’s already been given to you.”

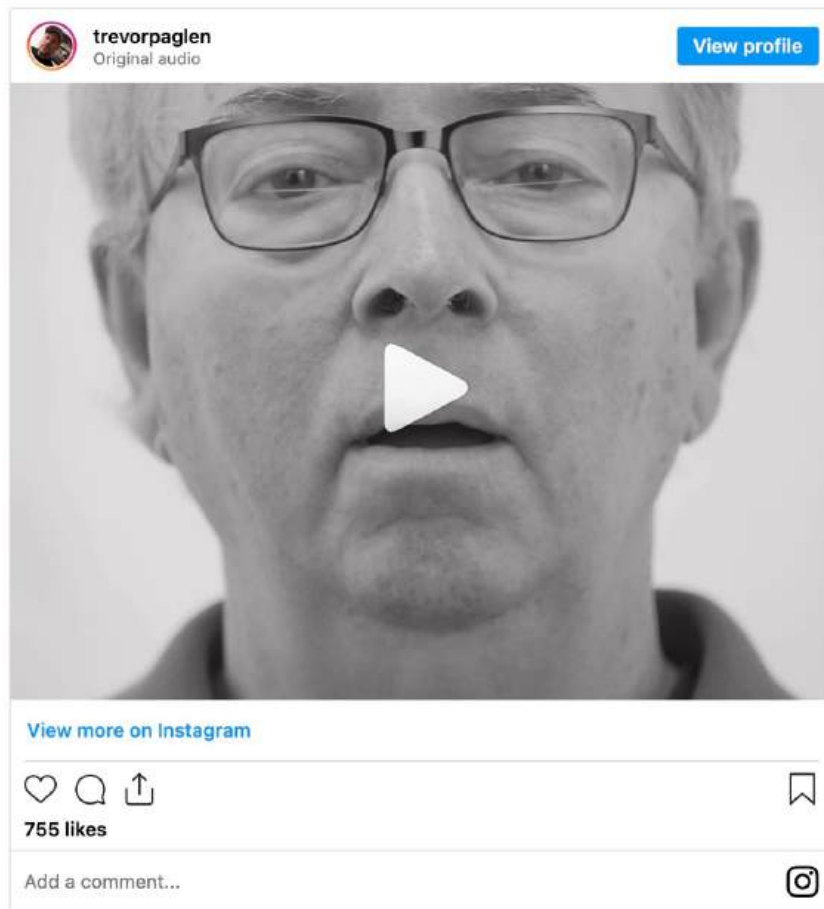
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When everyday life begins to resemble a sci-fi plot and news headlines hail new scientific breakthroughs that challenge our preexisting assumptions of the world, let alone time itself, the idea that aliens might walk among us doesn't seem all that strange. Even better, it poses a quasi-scientific belief system that's literally endorsed by the government and NASA. Tin hat or not, it's important to consider why these conversations are entering the mainstream now – and it's not a coincidence that it's during a time when space tourism is on the rise and conversations around AI and non-human intelligence are reaching their peak and posing very real existential threats.

With the unimaginable existing everywhere, it's hard not to get sidetracked when listening to the congressional hearing, its high-profile, intentionally confusing spectacle setting the stage for further speculation, while keeping us distracted from anything more shadowy beneath the surface. As with all conspiracies, there is an element of truth: yes, we're facing huge existential threats, and yes, there are unidentified aerial phenomena flying around in the air (though apparently only in the US). But perhaps we need to consider the very real threats on Earth before shooting our troubles into the skies.

artnet news

Dafoe, Taylor, "Artist Trevor Paglen Sounds the Alarm on Our New Era of 'Psy-Ops Capitalism' in a Reality-Testing Show at Pace Gallery," *Artnet News*, May 23, 2023

On View

Artist Trevor Paglen Sounds the Alarm on Our New Era of 'Psy-Ops Capitalism' in a Reality-Testing Show at Pace Gallery

We're moving from "surveillance capitalism" to an even more manipulative era, the artist said.

Taylor Dafoe, May 23, 2023



Trevor Paglen, *Because Physical Wounds Heal...* (2022). © Trevor Paglen. Courtesy of Pace Gallery.

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Remember “the dress” from 2015? For a few weeks that year, a low-res image of a random frock fomented a seemingly inescapable internet debate over whether its colors were blue and black or white and gold.

It all seemed like a bit of fun. Taylor Swift weighed in; so did every uncle with a Facebook account. Studies and peer-reviewed papers eventually got to the bottom of the science behind the split in interpretations, but by that point, most people were tired of talking about it. In the end, we were left with a simple fact: people can look at the same object and see different things.

But what if this basic physiological phenomenon could be weaponized against us in the name of spycraft or commerce? (The dress debate proved to be good business for social media platforms and media outlets—Buzzfeed even based its editorial strategy around it.)

For Trevor Paglen, an artist who has made a career of looking at the sly ways in which technology has shaped our view of the world around us, this is a question of when, not if.

“In the extremely near future,” the artist said, “you and I will watch what is ostensibly the same show on Netflix, but we will each see a different movie.” The streaming platform, he explained, “will be generating a different movie for us based on, one, the things we want to see; and two, what it thinks will be the most effective way to extract some kind of value from us.”

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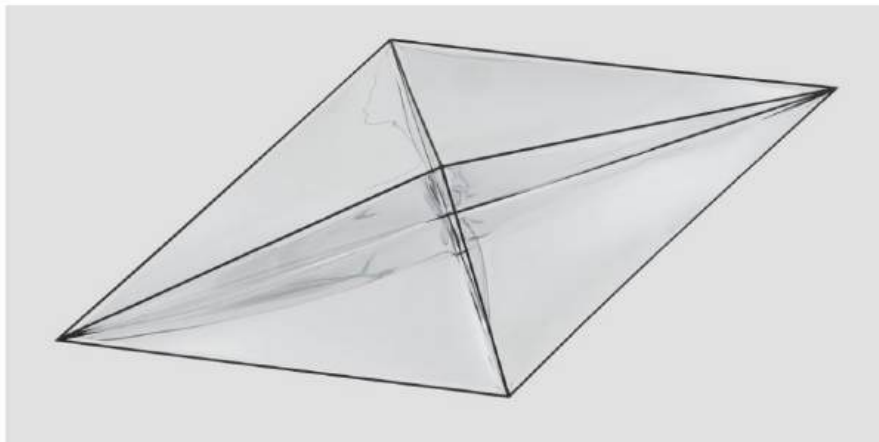


Trevor Paglen, *UNKNOWN #85237 (Unclassified object near The Eastern Veil)*
(2023). © Trevor Paglen. Courtesy of Pace Gallery.

The dress anecdote may seem like an odd place to start an article about Paglen's new show at Pace Gallery, which has nothing to do with clothes or Netflix and is instead about a wide range of heady political topics like electronic warfare and the effects of military influence operations on American culture. But we begin here because, if there's one central theme that ties this otherwise disparate exhibition together, it is, in Paglen's words, that "perception is malleable."

"You've Just Been F*cked by PSYOPS" is the name of the show. Its title is taken from a phrase frequently found on challenge coins, which are small tokens made to commemorate special military and police units who use unconventional tactics of persuasion to achieve a particular objective—also known as psychological operations, or psy-ops. (Taking the form of currency, these mementos also make eerie metaphors for the military-industrial complex writ large.)

If you've heard about psy-ops, chances are it was in the context of science fiction or conspiracy theory. But the phrase is about to become much more common in our collective lexicon, Paglen said. If the last decade was defined by "surveillance capitalism"—a term coined by scholar Shoshana Zuboff to connote the practice of corporations harvesting and selling our personal data—then we're about to enter what Paglen calls the era of "psy-ops capitalism."



Trevor Paglen, (*PALLADIUM Variation #4*) 2023. © Trevor Paglen. Courtesy of Pace Gallery.

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Sure enough, a scary character features prominently in Paglen's own version of a challenge coin, which is a centerpiece of the show. The sculpture, which is roughly 50 times the size of a coin, is made from steel, bullets, and resin; in the middle is a menacing skull with glowing red features. (Real challenge coins are inscribed with their units' insignia—typically symbols of patriotism or violence. Skeletons and dragons are popular choices, Paglen pointed out.)

Elsewhere in the show are several large-scale photographs of "unids," or unidentified objects floating in orbit around the earth, which the artist imaged using infrared telescopes in remote locations. It can be hard to spot these unids, though. Paglen's prints are also packed with stellar remnants, stars, and gaseous clouds. So much so, in fact, that the pictures could just as easily be read as musings on the vast mysteries of outer space.

To Paglen, they kind of are. "I think that space itself as a concept is kind of a psy-op," he said, only half joking. Because of its radical unknowability, space becomes a backdrop onto which we project our fantasies, he said.

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Trevor Paglen, *UNKNOWN #90007 (Classified object near Dreyer's Nebula)*
(2023). © Trevor Paglen. Courtesy of Pace Gallery.

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Think about this idea in the gallery and you'll begin to wonder: Can I trust anything on view, or is the artist employing the same techniques that he's exploring? Am I seeing deception or am I being deceived?

This question gets even knottier with the one video piece, *Doty* (2023). The 66-minute film features interviews with Richard Doty, a former member of the Air Force Office of Special Investigations, who discusses his work recruiting spies, running surveillance operations, and spreading false information within UFO communities to cover up secret work conducted at New Mexico's Kirtland Air Force base, where he was stationed.

Whether or not Doty is a reliable narrator is never quite clear; nor is his agenda. For every moment when it feels like he's whispering state secrets into our ears, there are others that feel like he's spinning yarns that are just a little too neat to be true—a magician's assistant distracting from the trick.



Trevor Paglen, *Doty* (2023). © Trevor Paglen. Courtesy of Pace Gallery.

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Suspended above the gallery is the artist's other sculpture in the show, the kite-like *PALLADIUM Variation #4* (2023). It's based on satellites designed by military and intelligence agencies to confuse enemy radars, but unlike those objects, which are ultra-sophisticated pieces of deception technology, Paglen's imitation is primitive—just steel and foil. More than a weapon, it invokes the work of the mid-century minimalists, say, or Light and Space artists like Larry Bell.

The sculpture's inutility leaves its meaning unclear. That's the case with many of the artworks on view in the exhibition. Straightforward and spare—a printed photograph, a single-channel video—they exude none of the complexities of the systems they invoke. How they all fit together remains a mystery. The whole thing is fraught with ambiguity.

This, according to the artist, is intentional. The show asks viewers: "What is this ambiguity? How are we susceptible to being taken advantage of in these moments?"

"Our impulse is to try to resolve that ambiguity, to make sense of it," he went on. But for Paglen, the show is meant to remind us that our "inability to live with ambiguity might be a means by which we can be manipulated."

*"Trevor Paglen: You've Just Been F*cked by PSYOPS" is on view now through July 22 at Pace in New York.*



Way, Katie, “Why Are Pictures of Space So Powerful?,” *Vice*, July 15, 2022

Why Are Pictures of Space So Powerful?

Artist Trevor Paglen, who loves the sky and doesn't trust the government, breaks down our fascination with the new NASA photos.



PHOTOS FROM NASA AND GRANT FAINT VIA GETTY IMAGES

Anyone who has ever gazed slack-jawed at a clear night sky full of stars knows the rush of feeling that comes with being awed by outer space: a mix of childlike wonder and existential terror, delight and horror at the scale of our own little lives measured against the endless expanse of the entire fucking universe.

The photographs that NASA released on Tuesday from the world's most powerful telescope, the James Webb Space Telescope, evoke the same feeling. The five images—some of light that is literal billions of years old, others of structures like the Carina nebula and the galaxies in Stephan's Quintet, previously captured by the Hubble telescope in much less detail—are dazzling in terms of the depth of their window into the great beyond. They are also very pretty to look at.

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These images, like space itself, provoke questions on a subjective level even as they provide answers on a scientific one. What makes the whorls and flashes of the James Webb Space Telescope's first public dispatch so moving? Why do images of space resonate with us at all? Instead of turning these questions over until worn smooth in the rock tumbler of my mind, I talked to Trevor Paglen, an artist and geographer who uses the medium of photography to consider the sky, space, and human passage through both. Paglen has used telescopes while photographing sites and technologies classified by the U.S. government (think drones and Area 51) in his work on the surveillance state. He's also a MacArthur genius who has literally launched his work into space on multiple occasions; a temporary satellite reflective enough to be visible from Earth, and a disk etched with 100 images, including cityscapes, people dancing, and Trotsky's brain, designed to orbit our planet permanently and explain the essence of humanity to whoever visits it after we're gone. We spoke about why the color of star stuffs matters, NASA's place in the U.S. popular imagination, and the human impulse to look to the sky for answers.

VICE: What was your gut reaction to seeing these images?

I was excitedly awaiting these images for a very long time. I watched the release on Monday night of the initial one, and I was like, *This is amazing*. I was surprised that the deep field image was the first one that they released, because in a way, it's a very technical image. It's also a really beautiful image, but it's very much all about the details. I was surprised that they didn't release something like a big pillar that was more obviously comparable to the popular Hubble images. That deep field image was super interesting, both from a technical perspective, but then also kind of a philosophical perspective, but then also a philosophy of images perspective.

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Can you, uh, elaborate—

Yeah, here's what I mean by that. Images don't exist in a vacuum, right? They're always packaged for us and we're always prompted in terms of how we should look at them. Some of those prompts are conscious, and some of those prompts are unconscious. Some are explicit, and some are implicit. For example, I show you that image of the deep field and I say, "This is a picture of the beginning of time and the farthest reaches of the Universe." That's literally the context that it's presented with, that it's present within. So you're approaching that image, looking for something that is universal, looking for something that is timeless, and that you're looking for a kind of transcendental truth in that image. That is a very powerful thing to claim about an image. If you package an image in that way, you're asking people to approach the image with a huge amount of curiosity and reverence.

It's not so dissimilar from, say, if you go see the Mona Lisa. In your head you're going, *Oh, this is this incredibly expensive—supposedly—incredibly important art historical object.* You approach that image with a huge amount of reverence. [NASA] is doing the same thing with the James Webb Space Telescope photos. The point is, that has an effect on you—you experience that emotionally as well as intellectually. And that's a very powerful emotion, an emotion that religions play on all the time.

If I had taken the same exact image and showed it to you, and I'm like, "Oh, here's some interesting stuff I saw in a microscopic slide of pond scum," it would look, probably, really similar. But you'd be like, "OK, that's cool. Nice microscope," or whatever. You wouldn't be like, "Oh, my God, this is the origin of all reality!" I think that's where part of this feeling comes from.

Can you tell me a little bit about what makes these images so special on a technical level? How did this new telescope create something so much more in-focus and spectacular than what we can capture with, say, a regular camera?

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When we look at those Hubble images, and when we look at the JWST—JWST even more than Hubble—that telescope doesn't really look at visible light. It can see some light, a little bit in the orange and red. But most of the light it is collecting is not visible to your eyes. It's infrared light. It's photographing sulfur clouds and oxygen and hydrogen, elements that are reflecting light and emitting light at wavelengths that we can't see.

If you're building a telescope, and you want to see the stuff that the universe is made out of, most of that stuff is not visible in visual wavelengths. Neither are the other things happening in the universe—all of the galaxies, and all the structures in the universe are flying apart from each other, and as they fly apart from each other, it stretches out the photons, and so it shifts everything to the red, too. Even a star that, if you were next to it, would be visible, if that star's flying away from you super, super fast, the light at that star shifts into the red to the point where you can't see it. That's all a background as to why they built the telescope to collect with light that we can't see.

That's great context. You also mentioned these images operate on an aesthetic level to evoke the strong reaction we're seeing—and one that I think many people felt on a personal level. What about these images creates that response?

The aesthetic part of it is also historical, and weirdly, specifically American. When you collect all this light that we can't see through these photographs of different wavelengths, you need to translate those wavelengths into wavelengths that are perceptible to us. When you do that translation, it's basically arbitrary: "Here's these infrared wavelengths, let's translate that into this visible color." There's actually a dude at NASA whose job it is to do this—his name is Joe DePasquale. For me, it's kind of interesting that NASA literally employs someone to do this art. And the way that Hubble does it, they have something called the Hubble palette—the conventions that they use to do that conversion. For Hubble, the palette says sulfur emissions are red, hydrogen is green, and oxygen is blue.

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The palette that they're using is very much a palette that comes from Western landscape painters and Hudson School painters. It's a palette that is very much associated with artists like Albert Bierstadt—look up Bierstadt paintings and you'll see exactly what I mean. A professor at Stanford, Elizabeth Kessler, wrote a whole book about this Hubble palette and its ties to Western landscape painting, *Picturing the Cosmos: Hubble Space Telescope Images and the Astronomical Sublime*. This brings us to a second point about the philosophy of images—we always bring a context to the images that we're looking at. The second part of that context here is the fact that we, subconsciously, are associating these forms and these colors with a particular tradition of imagining the West that comes from a really American 19th century [perspective].

So, at least in the American context, this is really powerful subconscious stuff. It's very much pulling on some particular strings in the collective unconscious of the frontier and colonialism, that whole myth of the West in the United States in particular. That's not to say that they're not incredible images. It's just, analyzing them, I'm thinking about: What are the buttons that these images are pushing?

On that note, I'm wondering what you think of NASA and of the fact that we're getting these transcendently beautiful images from the government.

That's a whole 'nother layer of stuff. NASA has done such an amazing job of PR. It's incredible. They're super conscious about it, intensely self aware about what their public image is. Somehow, they've managed to fashion themselves into being what in many people's minds is the only part of the government that seems functional and reasonable. I think that in the popular imagination of the United States, NASA is held in an incredibly high regard. I've even been in a car with NASA guys—we got pulled over and got a ticket, and someone I was with was like, "Tell the cop that you're from NASA!" and the NASA guys were like, "What? OK..." and told him, and the cop was like "Oh, you work for NASA? OK, you're good, just a warning."

Oh my God!

Right? They have this kind of singular place among government institutions in a sense that they've very carefully crafted. I think that particularly at a moment like this, it's really tragic, but there is probably an aspect of the release of these images that is speaking to the desire of so many people in the U.S. to have a functional government.

I feel like it would be a bit too simplistic to call it propaganda, but it's hard not to think about our current state of affairs as the backdrop here.

Absolutely, absolutely. And I mean this in the opposite of a conspiratorial way: I don't think these images are distracting. It's more that there's some extra juice that those images have, because they are the product of a government program that seems to benefit everybody in this kind of uncontroversial way. I think there's like a desire among so many people to have that be a paradigm of government in general, especially at a moment where that is so clearly not the case—with what the Supreme Court is doing, and the general dysfunction and really the maliciousness that we see on the part of the state at the moment.

OK, let's zoom out a bit. You've photographed the sky many times. Why do you think we are so moved by images of the sky—sunsets, clouds, stars, the moon—to the point that we're compelled to produce them ourselves? Where do you think that comes from?

I would put astronomy photos in a different category than my cloud photos—that's just me, personally—but when we're looking at space, images of space are like stars and the cosmos. People have always looked to the cosmos to try to answer the big questions: What is the past? What is the future? Who are the humans? Where did we come from? That goes back to Babylonian astronomy and astrology, thousands and thousands of years back, trying to divine and explain our place in the universe by trying to decode patterns in the sky—in the stars, specifically. You could say the same exact thing about Hubble or James Webb, right. When we're looking at these pictures, we're trying to understand, where did the universe come from? What's our place in it? What is the structure of reality, you know, and what's going to happen? Weirdly, the exact same questions.

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What would you use the James Webb Space Telescope to take pictures of if they gave you the wheel?

Oh, that's a good question. I'm not an astronomer in that way. That telescope was designed to make images of things and to try to answer questions that I'm not even in the position to be able to articulate. I'm just more interested in how these infrastructures work than the cosmos itself. I'm much more interested in things like photographing telescopes themselves. For very, very long amounts of time, I've been trying to photograph things in the sky that aren't there in one way or another, either because they're classified or because people don't know what they are. I'm much more interested in the ways in which we have transformed the night sky—adding satellites to it or building infrastructures in space. What does it say about our moment in time that not only do we look to the sky for our origins and answers, but also that we're actively transforming it?

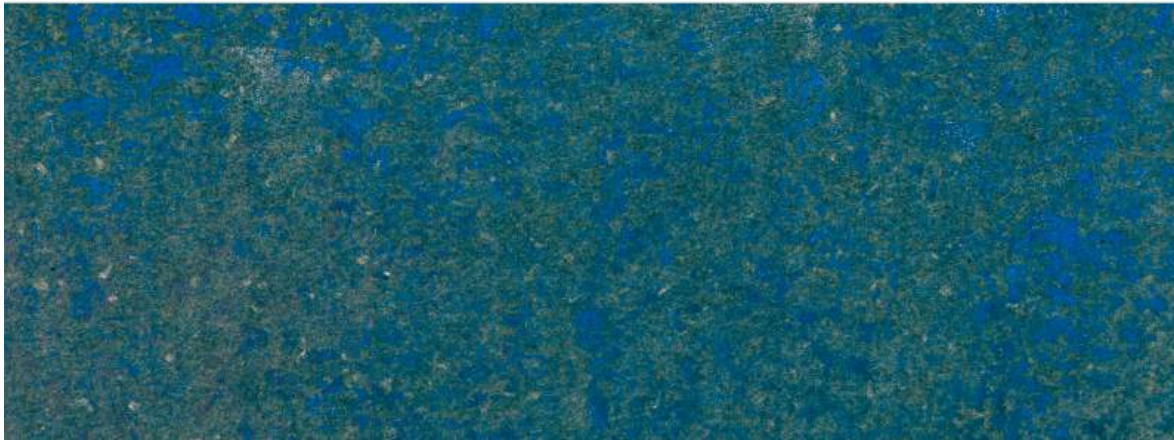
ART PAPERS

Courtney McClellan, "Trevor Paglen: Vision After Seeing," *Art Papers*, March 2022

Trevor Paglen: Vision After Seeing

Athenaeum, University of Georgia, Athens, GA

Text / Courtney McClellan



Vision After Seeing investigates the fallacies of surface as a means to address geopolitical complexity. The exhibition consists of a silent video, five large-scale photographs, and artist-designed wallpaper. The works appear to offer concision, yet upon further inspection, each initiates a story about boundaries and disclosure.

Paglen, an internationally recognized artist who served as the 2019–2020 University of Georgia Dodd professional chair, toys with the homophones *sight* and *site* by partaking in a centuries-long visual art conversation: landscape. Like 19th-century plein air painters, the artist records his environment and collapses vast space into two-dimensional form. Unlike his historical counterparts, Paglen renders the environment by using contemporary image-making tools: cameras, scanners, satellites, and drones. In doing so, Paglen positions photography not as a medium that promises representative fidelity but, instead, as a method with which to collect evidence.



Trevor Paglen, *The Last Pictures (an Entangled Bank)*, 2012, C-print, 48 x 60 inches [courtesy of the Athenaeum]

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Drone Vision (2010) is Paglen's early exploration into what machines see. It is a pixelated, silent projection that pulses with measurements, metrics, and a telescopic vernier. The imagery, collected by an amateur satellite hacker, surveys unnamed terrains. According to the video's associated text, Paglen said, "Every kind of technology has an inbuilt vision of a society, and it creates that society." In this work, the viewer is placed behind the unidentified scope of a camera—or, perhaps, a weapon.

On one wall are three lush but seemingly docile images: a diffused-light seascape without a horizon; dense greenery reflected in water; a soft blue sky streaked by a now-absent plane. The images, void of the human figure, appear as familiar descriptions of place. Yet they produce an unease, a lurch in the stomach. The dissonance between what you see and what you *feel* is described by the wall text. In the case of *The Last Pictures (an Entangled Bank)* (2012), the text tells the following story: Paglen selected 100 images, many from the public domain, and launched them into space on a unique archival disc he designed with scientists at Massachusetts Institute of Technology. The photographs are projected to circle the earth for the next billion years, outlasting the world and the humans who made it. This grand, ominous, orbital trajectory exists in contrast with the ordinariness of the presented images.

Perhaps the greatest enigma in the exhibition is *Blue #3 (Chelsea)* (2016), a rich, abstract blue-green speckled photograph. Unlike the distant, arial vantage point in many of the other works, this image explores proximity as a means of obfuscation. The source material is a courtroom sketch from the 2013 trial of Chelsea Manning, a US Army intelligence analyst and whistleblower, who leaked classified documents and was sentenced to 35 years in federal prison. Paglen repeatedly documented the drawing at a granular level with a microscope lens. By stitching the photographs together into a large abstraction, Paglen acknowledges Manning while providing her with anonymity. Manning's sentence was commuted in January 2017, and she was released four months later.



Trevor Paglen, *Vision After Seeing*, installation view, 2020 [courtesy of Athenaeum]

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Bloom (2020), the most recent work on view, was created for this exhibition during the Covid-19 lockdown. The large-scale brown and pink floral image covers the gallery's entrance wall. The work depicts the idea of flowers, as opposed to their reality. A composite, the photograph was created by computer vision algorithms after analyzing portions of actual photographs. The colors are distorted, aged as if created with a sepia-tone filter. Here, the familiar beauty of a blooming flower was not found but constructed.

Nature continues to escape the limitations of human sight. Paglen considers how technology fails to recapture the natural world. Paglen wields transgression to become an unexpected storyteller whose work implements narrative and image without relying upon illustrative allegory. Each work speaks to topography but expands upon the visual environment to include the problems of statehood and ongoing ecological disaster. Landscape—here contained within a rectangular frame—recalls romanticism but, more importantly, is where tactical bids for control and dominance often go unseen. For Paglen, description is contentious.

Vision After Seeing is the inaugural exhibition at the Athenaeum, a kunsthalle-style gallery in downtown Athens, GA. The Athenaeum is an airy 5,000-square-foot exhibition space that is affiliated with the University of Georgia and curated by Director of Galleries in the Lamar Dodd School of Art Katie Geha. In addition to the gallery, the site includes workspace and a reading room featuring audiovisual materials relevant to the current show, selected by UGA Art Librarian Lindsey Reynolds. Talks, performances, and other related programming will activate the gallery throughout the run of its exhibitions. The Athenaeum promises to be an exciting destination in the American South for globally relevant contemporary art.



Trevor Paglen, *Bloom*, installation view, 2020 [courtesy of Athenaeum]

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Left, Center: Early rockets were based on Nazi V-2 designs and developed in collaboration with German scientists after World War II.
Right: The "Peacekeeper" ICBM was designed to shower Earth with multiple nuclear warheads from space.

It's naïve to think that space was ever about much more than creating planetary weapons systems. The first spacefaring vehicles—Nazi V-2 rockets—were designed for mass murder. After the war, the US and Soviet Union famously imported German rocket scientists to develop their own generation of rockets. The launch vehicles that put the first satellites in orbit weren't designed to explore the universe; they were designed to deliver nuclear weapons. In a very real sense, spaceflight is a byproduct of global war. But some of the outlines began to change with the new millennium.

Over several years observing satellites, I began to notice that the weaponization of space was entering a new phase. Nuclear weapons and strategic reconnaissance were still very much a part of it, but warfare in space itself seemed poised to get a lot more active. The American military in particular was taking a much more aggressive stance towards the domination of orbital space. It began in 2001 when the US pulled out of the Anti-Ballistic Missile Treaty and continued in 2004, when the US Air Force articulated a policy of "Offensive Counterspace Operations..." designed to target an "adversary's space capability... using a variety of permanent and/or reversible means."¹ In 2006, the US cast the single dissenting vote against a UN General Assembly resolution prohibiting all weapons in space. As the new millennium developed, the United States continued to veer away from international conventions about the use of space, developing much more aggressive attitudes towards operations in space.

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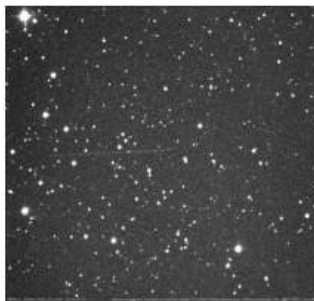
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This new era in the weaponization of space isn't just a collection of policies. It involves new weapons, new spacecraft, and new mission profiles. In 2005, the US launched a spacecraft called XSS-11 (Experimental Satellite System-11), a small satellite designed to intercept other satellites in low-earth-orbit. The following year, a pair of satellites called MiTex (Micro-Satellite Technology Experiment) were deployed to geostationary orbit. Like XSS-11, these were interceptors designed to surreptitiously inspect (and potentially covertly attack) other satellites.² Early 2007 saw China demonstrate its own anti-satellite weapons, shooting down one of its own Fengyun weather satellites and creating over 2,000 pieces of trackable debris. The US responded in turn by shooting down one of its own failing military satellites, USA-193. Since then, there's been a new and largely secret space-race between China, Russia, and the United States to develop overt and covert anti-satellite capabilities and assert dominance over the heavens.



MiTex 1 photographed by astronomer Marco Langbroek

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This is the context that *Orbital Reflector* emerged from. In my work as an artist I'm always trying to find ways that allow us to see forms of power and infrastructure that we otherwise blindly accept as given fact. One method for doing that is to stage a provocation. The stated goal of *Orbital Reflector* (and the series of "nonfunctional satellite" sculptures I began exhibiting in 2012) has always been to create a satellite that has no military, commercial, or scientific function. A satellite whose only purpose is to reflect sunlight in the night sky and to harmlessly disintegrate in the upper atmosphere after a few months. In other words, *Orbital Reflector* was designed to be the opposite of every other satellite that's ever been built.³ In doing so, my intention has been to bring some awareness about how profoundly compromised space has become by the world's militaries and corporations.

I want people to ask questions about the legitimate uses of space. I want people to think about who should have the right to put what into space, and to what ends. I want people to ask why the secret USA-276 satellite was buzzing the International Space Station last year. And I want to ask why the fuck anybody at all is ok with Elon Musk sending a Tesla-shaped advertisement out towards the asteroid belt.

So let's get pissed off about *Orbital Reflector*, and then let's get pissed off about Russia's Object 2014-28E, the US' X-37B, and the weaponization and privatization of space... And then let's look back down at earth and spend some time thinking about how to create the world we want.

And if we can do that, I'll call *Orbital Reflector's* two-month mission a resounding success.

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Notes:

[1] "Counterspace Operations." Air Force Doctrine Document 2-2.1. August 2, 2004. Available [here](#) from the Federation of American Scientists.

[2] I wrote an article about all of this at the time. Entitled "[What Greg Roberts Saw](#)," it goes into a lot more detail about the politics of these spacecraft. See Paglen, Trevor "What Greg Roberts Saw: Visuality, Intelligibility, and Sovereignty—36,000 km over the Equator" in Mirzoeff, N. (ed.) *The Visual Culture Reader*, London: Routledge, 2013.

[3] A few commentators have imagined that light reflected from OR could interfere with astronomic observations. For numerous reasons, this is incredibly unlikely. First of all, the likelihood of OR passing through the field of view during an optical astronomical observation is infinitesimally small. Secondly, few astronomical observations are even conducted by single-point optical telescopes anymore. Third, OR has a very short lifespan. (With tens of thousands of pieces of space-debris currently in orbit, anyone doing optical astronomy or photography—myself included—is already very acquainted with mitigation techniques). Another critique of OR is that I'm putting "useless" things into space. To that charge, I plead guilty. I think public art is a good thing. The "uselessness" of public art doesn't bother me at all. In fact, it's one of the things that makes it worthwhile.

...

*Orbital Reflector is co-produced with the [Nevada Museum of Art](#).
It is scheduled to launch in November 2018*

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The New York Times

Haigney, Sophie, "'Impossible Objects' That Reveal a Hidden Power," *The New York Times*, September 9, 2020

'Impossible Objects' That Reveal a Hidden Power

The artist Trevor Paglen peers into the history of photography and its relationship to state surveillance.



The American artist Trevor Paglen, whose work explores the power and ubiquity of surveillance technology.
Credit...Aubrey Trinnaman for The New York Times

By Sophie Haigney

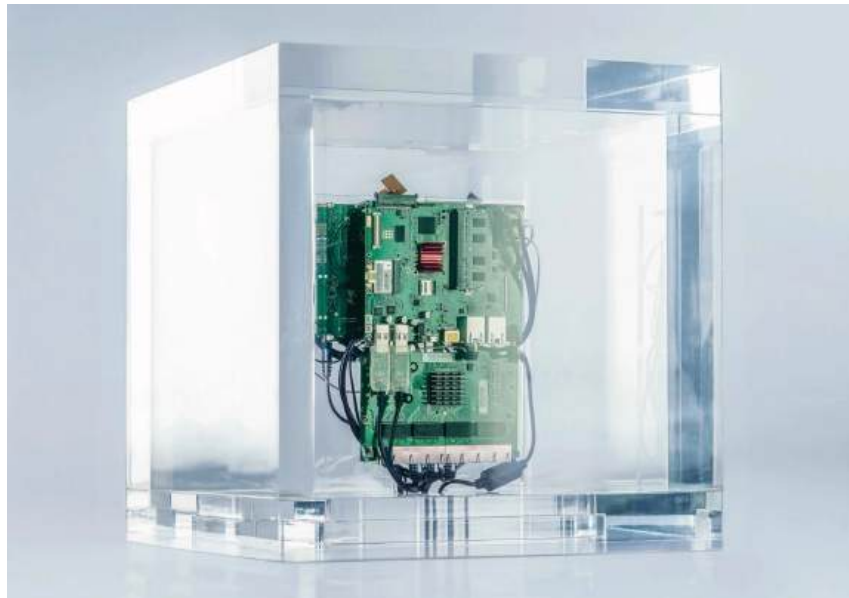
Tucked into a small gallery in the Carnegie Museum of Art in Pittsburgh is a plexiglass cube filled with computer parts. It's about 16 inches on each side, reminiscent of a Donald Judd box, updated for the digital era.

It's also an open Wi-Fi hot spot to which you can link your phone. But before your phone connects to the internet, it routes traffic through the Tor Project's network, which anonymizes your phone, location and activity. Once you connect, you can move through the museum totally untraced. This sculpture, titled "Autonomy Cube," is the kind of object for which Trevor Paglen, 45, has become known, as one of the foremost artists drawing attention to the power and ubiquity of surveillance technology.

"It's part of a series that I think about as impossible objects," he said of his latest work in a recent phone interview. He has also launched a satellite sculpture into space that he described as "a giant mirror in the sky, with no commercial or scientific value, one with purely aesthetic value."

He has also sent a time capsule with 100 images from throughout human history into perpetual orbit, micro-etched onto a disc and encased in a gold-plated shell. These objects might be thought of as "impossible" because there is no incentive for their creation in a world where technological development has been commercialized, where surveillance is commonplace and where space remains largely militarized. Is making them, then, an act of optimism?

"I wouldn't use the word 'optimistic', but what you're getting at with that word is there," Mr. Paglen said. "They're very self-contradictory and contradictory of the systems they're in."



Mr. Paglen's "Autonomy Cube" (2015), at the Carnegie Museum of Art in Pittsburgh, doubles as a Wi-Fi hot spot. Credit...Trevor Paglen and Metro Pictures, New York

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“Autonomy Cube” is installed at the Carnegie Museum in an exhibition of Mr. Paglen’s work titled “Opposing Geometries.” Organized as part of the 2020 Hillman Photography Initiative, an incubator for innovative thinking about photography, the show will be on view until March 2021.

Like almost all of Mr. Paglen’s work, the exhibition takes contemporary technologies as its central subject, but many of the works here look backward too. The show, which features photographs, overarchingly demonstrates that even though “surveillance” and “computer vision” and “machine learning” have become today’s buzzwords, they have a long history that is bound up with photography.



His “Beckett,”(from the 2017 series “Even the Dead Are Not Safe”), a portrait of Samuel Beckett generated by mixing images that facial recognition programs tagged as him.Credit...Trevor Paglen and Metro Pictures, New York

The exhibition includes images from Mr. Paglen’s series “They Took the Faces From the Accused and the Dead ...” which assembled thousands of photos from a National Institute of Standards and Technology database, an archive of mug shots that was used to test early facial recognition software programs without the subjects’ consent. In Mr. Paglen’s versions, parts of the subjects’ faces are blocked out, leaving haunting square-shaped holes that are at once a reference to their stolen identities and also a means of returning them to anonymity.

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An image from Mr. Paglen's "They Took the Faces From the Accused and the Dead...," 2019, a series that assembled photos from the American National Standards Institutes database, an archive of mug shots that was used to test early facial recognition software programs without the subjects' consent. Credit...Trevor Paglen and Pace Gallery, New York

"The show is looking at historical forms of photography and the relationship between those forms of photography and different kinds of police power or state power," Mr. Paglen said. "What is that relationship between photography and power?"

The multiplicity of meanings in Mr. Paglen's work are part of their appeal to technologists and thinkers. "There's lots of rhetoric about how A.I. is going to change the world, and people don't realize how much technology has already changed the world and then when they do come to realize it, they often have the reaction of being scared or otherwise feeling powerless," said David Danks, a philosophy professor at Carnegie Mellon University whose work focuses on ethics and technology, and who is on the creative team of the Hillman Photography Initiative. "I think a really important aspect of Trevor's work is that it doesn't just elicit a reaction, it doesn't just educate. I think Trevor's very good about indirectly giving people clues about how to be empowered."

Many of the works in this show are extensions of Mr. Paglen's longtime interest in the relationship between photography and artificial intelligence — including his ImageNet Roulette, a digital art project and app that went viral last fall and allowed users to upload their faces to see how A.I. might label them. Often the results were racist, sexist and otherwise stereotypical — a shock to users, which prompted ImageNet, a leading image database to remove half a million images.

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In “Opposing Geometries,” though, Mr. Paglen — who has a Ph.D. in geography and an M.F.A. — is thinking about the history of images as well as the future. “If you look at these histories of technical image-making, they’re always, if not part of a military project, adjacent to one and nurtured by it, so in some ways we have these very contiguous histories,” he said.



“The Black Canyon Deep Semantic Image Segments,” 2020, dye sublimation print. Credit... Trevor Paglen and Altman Siegel, San Francisco



Karnak, Montezuma Range Haar; Hough Transform; Hough Circles; Watershed, 2018, a triptych of gelatin silver prints that are part of Mr. Paglen’s ongoing exploration of the history of photography and the American West. Credit... Trevor Paglen and Metro Pictures, New York

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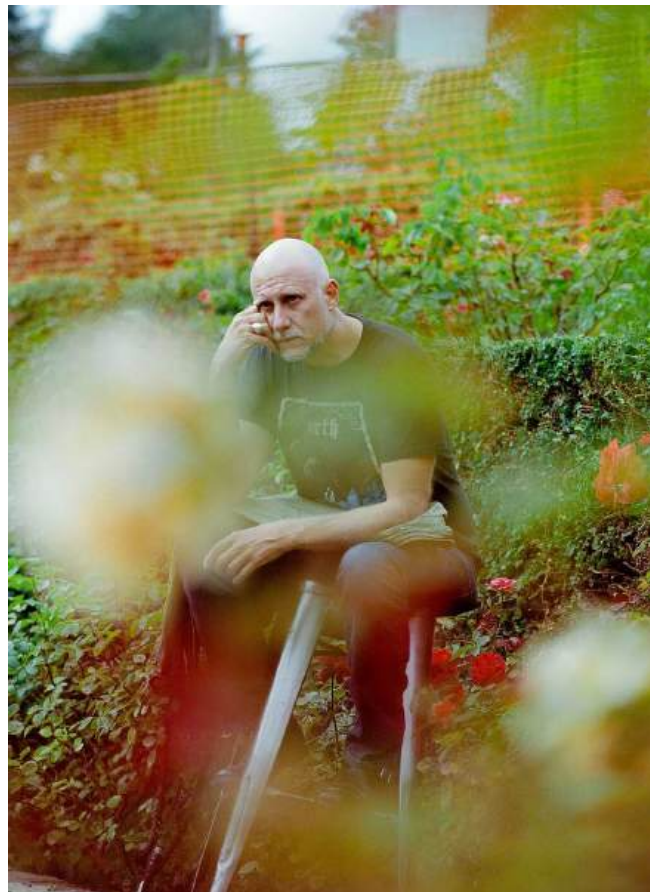
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Among these intertwined histories are that of photography and the settlement of the American West. While indelible images of places like Yosemite taken in the 1860s have long been ingrained in American mythmaking, Mr. Paglen is interested in them as early assertions of military control. The War Department (now known as Defense) funded several reconnaissance missions into the West in the 1860s and 1870s and sent photographers as part of a push to capture the new territory. Yet these sublime photos, Mr. Paglen said, were like “the eyes of the state on a new territory,” a theme he explores in his Carnegie Museum exhibition.

Some of Mr. Paglen’s photographs do look uncannily like Carleton Watkins’s early photographs of Yosemite, and were in fact created using a historical printing process called albumen. But he also ran the photographs through computer vision algorithms, which struggle to identify objects in their natural environment, generating instead lines and shapes on the images’ surface. The resulting photos are once hyper-modern and antiquarian, tying the past and present through technology.

“There are more pictures today made by machines for machines to interpret than all the pictures that have existed for humankind,” said Dan Leers, the curator of “Opposing Geometries.” “But rather than throwing his hands up, Trevor is going back through the history of photography, and in some cases specifically reusing existing images, and in other cases, acknowledging historical processes in his making of these pictures.”



“The show is looking at historical forms of photography and the relationship between those forms of photography and different kinds of police power or state power,” Mr. Paglen says of his current exhibition at the Carnegie Museum of Art in Pittsburgh. Credit...Aubrey Trinnaman for The New York Times

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This is the first new exhibition that will open at the Carnegie Museum post-lockdown, and its themes have particular resonance after months when our lives moved mostly online. Mr. Paglen, whose main studio is in Berlin, and who normally travels frequently, spent the lockdown in Brooklyn, where he has a secondary studio.

“I’d never used Zoom before this,” he said. “So what is this layer of technology that has become so much a part of the ways in which we interact with each other? Especially when these forms of technology are also surveillance platforms, and are highly invasive tools.”

During that time in New York, he made a series of new works that responded to the natural world in full-blown spring but also to the ways the pandemic was reshaping life and death. An exhibition of these works, titled “Bloom,” will be on display at Pace Gallery in London beginning Sept. 10.

In Pittsburgh, even the physical layout of the exhibition highlights the ubiquity and insidiousness of certain aspects of virtual life. The works are placed in three main spaces around the museum, and the intent is to mimic.

“For us that was really important because it gives an idea of infiltration,” Mr. Leers, the curator, said. “The surveillance that happens through algorithms and photography is quite hidden, and requires digging and sleuthing to find out how it’s working.”

Someone wandering through the museum might stumble serendipitously on Mr. Paglen’s work, getting a glimpse of how the systems of surveillance are built seamlessly into the fabric of our everyday lives.

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Art in America

Chayka, Kyle, "Algorithms Can't Automate Beauty," *Art in America*, September 21, 2020

ALGORITHMS CAN'T AUTOMATE BEAUTY

By Kyle Chayka

September 21, 2020



Trevor Paglen: Bloom (#9b746d), 2020, dye sublimation print, 40½ by 54 inches.
COURTESY TREVOR PAGLEN AND PACE GALLERY

You feel the subtle effects of algorithms while using digital platforms: Spotify automatically plays another song based on what you already like; Instagram shows you the stories first from the accounts you interact with most often; and TikTok, dispensing with agency entirely, just gives you a feed of videos “For You,” no choice about who to follow required. Algorithms are designed so that you don’t necessarily recognize their effects and can’t always tell whether or not they’re modifying your behavior. A new body of work by the interdisciplinary artist and technology activist Trevor Paglen—on view at Pace Gallery’s London venue, with a virtual version online—attempts to visualize their workings.

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“Bloom” is a series of high-resolution photographs of flowering trees. The sprays of blossoms are tinted different colors in variegated sections, a slightly nauseating spectrum of reds, yellows, blues, and purples. The colors are the biggest sign that something inhuman has happened: they don’t seem to follow a single logic and their arrangements are too granular to have been executed by hand. As Paglen explains in a video published by Pace, the colors have been assigned by machine-learning algorithms developed by his studio that dissect the images’ textures and spatial arrangements, then apply colors to mark differences. Flowers might stay bright white while the trees’ leaves and branches recede into blues. Looking at the images means trying to decode what the computer was evaluating when adding color.

Flowers are a perennial artistic subject, from the Dutch Baroque memento mori that Paglen references in the video to Andy Warhol’s screen prints. But his visualize how a machine perceives an image. The algorithms interpret no symbolism; there’s no ephemerality or tragedy latent to a springtime blossom. The colors emerge from a mathematical process that could be applied to any other image. The elegiac quality of the series comes from the contrast between the content of the images, familiar to human viewers, and the coldness of the machine’s gaze. We don’t really know what it’s looking for, or at.



View of Trevor Paglen’s exhibition “Bloom,” 2020, at Pace Gallery.

COURTESY TREVOR PAGLEN AND PACE GALLERY. PHOTO DAMIAN GRIFFITHS

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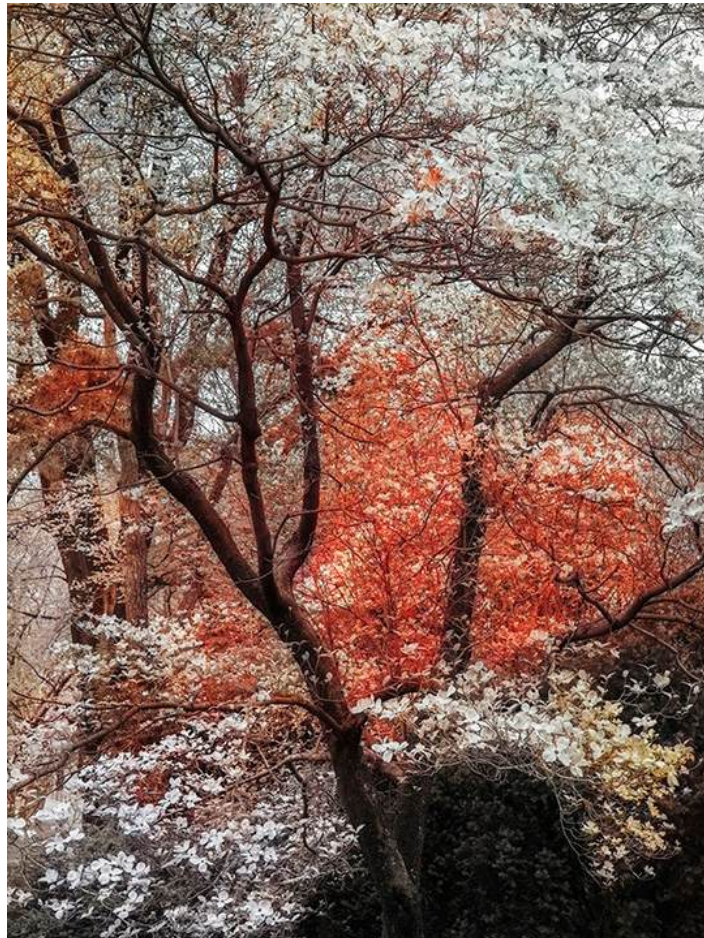
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Paglen’s recent work, both at Pace and in a concurrent exhibition at the Carnegie Museum of Art, evokes the uncanniness that we feel when using Spotify, Facebook, or Tinder. These platforms purport to calculate our judgements and tastes and then replicate them, serving us our own desires so quickly that we don’t have time to consider how well our identities are being reflected by the algorithms’ decisions. Over the past decade, since he earned a PhD in geography in 2008 from the University of California at Berkeley, Paglen has become famous for using his practice to reveal things that are hidden, making media headlines as much as exhibitions. He moves between formats—photography, collage, renderings, and installations of technological devices—to expose contemporary artifacts like the physical cables that undergird the Internet and souvenir badges from classified Pentagon programs. In recent years he has shifted his attention to artificial intelligence, exploring how machine vision is shaping our perception of the world.

“Bloom” shows that beauty can’t be automated—at least, not by the technology we currently have. More than a series of visual alignments or colors, beauty lies in our memories of the world, the connection of a flower to the experience of spring inevitably passing. Algorithms lack any understanding of this context; they can only approximate it.



Trevor Paglen, Bloom (#79655d), 2020, dye sublimation print, 26 by 19½ inches.

COURTESY TREVOR PAGLEN AND PACE GALLERY

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In his “CLOUD” series (2019), Paglen uses algorithms to analyze transcendental photos of the sky; he has continued exploring this technique using the mountainous landscapes in the American West, as seen in the Carnegie exhibition. He applies calculations like Hough Circle Transform, first introduced in 1962 to detect circles in images, and then retains the results on the print so that the viewer knows what the machine has seen: thin white circular outlines with dots at the center identify patterns that the human eye would otherwise pass over. The algorithmic lines recall the jokey meme in which the golden ratio is superimposed on any image and always fits something, like Donald Trump’s hair. Paglen’s series appears ominous—machines attempt to perceive beauty by reducing it to straight lines and perfect shapes—but it’s also a little goofy. The patterns don’t change our understanding of the photographs, and the photographs don’t educate us about the algorithms. They function as illustrations.

Paglen tends to hide his critical epiphanies in sumptuous visuals. Viewers may get lost in color or pattern and turn away after a few seconds. Paglen’s activist bent—the artist as investigative journalist or social educator—competes with his urge to make compelling objects. In the best examples, like the “Bloom” series, these goals merge. Art history meets the technological filter through which we now experience much of visual culture, via iPhone cameras, Instagram posts, and TikTok feeds. Once we learn to recognize the influence of algorithms, Paglen hopes, we might figure out how to counter it and reclaim some of the humanity of our vision.

The QUIETUS

WWW.THEQUIETUS.COM

Barry, Robert, "A Politics Of the Image: An Interview With Trevor Paglen," *The Quietus*, October 12, 2019

Craft/Work

A Politics Of The Image: An Interview With Trevor Paglen

Robert Barry , October 12th, 2019 08:09

With his new installation, *From Apple To Anomaly*, just opened at London's Barbican Centre, Trevor Paglen talks to Robert Barry about AI, machine vision, and shutting down the internet



Portrait of Artist Trevor Paglen. The Curve, Barbican. 26 September 2019 – 16 February 2020 © Tim P. Whitby / Getty Images

Running Trevor Paglen's face through the Image Net Roulette app he developed with researcher Kate Crawford, the little green tag labels him a "micro-economist, micro-economic expert." This is not, of course, an accurate description of the American author, artist, and digital provocateur's profession. Since ... he has... . But then accuracy of description was never quite the point of Image Net Roulette.

The website, which allowed users to upload photos to be classified by a deep-learning framework trained on Image Net's fourteen million-plus photographs into one or more of the 2,833 subcategories recognised by the widely-used picture data set, is intended to show what Paglen calls, "the deep forms of bias, prejudice, and cruelty that can be built into machine learning systems that classify people."

As he wrote in the essay 'Excavating AI', coauthored with Crawford and published online at the same time as the app, Image Net Roulette was intended to "shed light on what happens when technical systems are trained using problematic training data." Contestants in an annual machine vision competition have managed to achieve a 97.3% success rate recognising objects using neural networks trained on the data set. But that contest specifically excludes items in Image Net's 'person' subcategory. With pictures tagged by anonymous Amazon Mechanical Turk users paid an average of two bucks an hour, Image Net's non-object subcategories range from the seemingly innocent ("Boy Scout", "Cheerleader", "Grandfather") to the more subjective – even offensive ("Hypocrite", "Jezebel", "Fucker", not to mention a whole swathe of racist and misogynist slurs).

But then chatting to Paglen in the Barbican's Curve Gallery, I started to wonder if this leaky system hadn't succeeded, in spite of itself, in recognising something behind the artist's mild-mannered demeanour and silvered goatee. Clearly the man has a head for figures and an eye for detail – possesses, too, a politician's knack for batting away personal or provocative questions with an easy chuckle and a deft swerve back to the pre-prepared spiel.

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So do you think there's nothing redeemable at all about the whole online world? I asked him at one point in the conversation, more or less trying to get a rise out of him. Scrap the whole thing? Burn it down?

"I think that's a very legitimate question," he replied, with studied equanimity, "and I think it's a conversation that we need to seriously have. It's long overdue that we take a collective step back and understand that if we build systems to do certain kinds of things, how will that shape the societies that we live in, and do we want societies to be shaped in those ways?"



Trevor Paglen: *From 'Apple' to 'Anomaly'*. Installation view. *The Curve*, Barbican. 26 September 2019 – 16 February 2020 © Tim P. Whitby / Getty Images

We met at the press view for his latest installation, *From 'Apple' to 'Anomaly'*, which layers the Curve's snaking walls with some 30,000 photographs from the Image Net library, progressing in

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grouped clumps from the humble fruit to the more elusive identifier of the work's title, via such potentially tricky tags as 'bottom feeder', 'redneck' and 'creep'. Along the way there are pictures of anchovies, orchards, and open-cast mines, of 'porkers' and positivists and pipe smokers.

Along the way, there are a few oddities. A man clutching a Casio VL-Tone keyboard is labelled 'programmer'. Jimi Hendrix and Meryl Streep are controversially both dubbed 'money grubber'. Barack Obama turns up in a remarkable number of categories – under 'oligarch', 'racist', 'drug addict' and 'traitor' among others ("definitely the Where's Waldo figure of the installation," Paglen says, before pointing out that the Image Net set dates back to 2009, around the height of Obama's newsworthiness "And so you see that moment in history built into the substrate of any machine learning system that would be built on this database").

This being a gallery sourced online, naturally, all the suns are in the midst of setting and there is a teeming profusion of cats. It is also notable that the group marked 'drug addict' skews overwhelmingly black and latinx, the 'hunk's are overwhelmingly white, and almost every 'artist model' is female and Asian.

"I think a lot of us would look at images of apples and we would all agree, that's a picture of an apple," Paglen says. "But as you go through the arc of the installation, those categories get more and more abstract and more and more relational, to the point where it ends on the concept of an anomaly. Now 'anomaly' is a very different type of noun than 'apple' is. And yet it is a category that is built into the training set. And as you go through this arc of nouns and how concrete those nouns are and what kinds of images are included in those categories, I think you start to get a sense of the worldview and the forms of politics that are built into the machine learning systems that are trained on this particular dataset."

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Trevor Paglen: *From 'Apple' to 'Anomaly'*. Installation view. *The Curve*, Barbican. 26 September 2019 – 16 February 2020 © Tim P. Whitby / Getty Images

But Paglen isn't content just to gradually chip away at our certainties. "There's a catch," as he says. Right from the get-go a seed of doubt in the possibility of ever comfortably classing image sets – and it's twist that links *From 'Apple' to 'Anomaly'* to concerns that have animated art history for much of the past century.

"*Ceci n'est pas un pomme*," – 'This is not an apple' – wrote Magritte over his Braeburn portrait, *The Treachery of Images*. But Image Net disagrees. At the start of Paglen's Curve installation stands a copy of Magritte's painting that's been put through the Image Net Roulette app. The familiar green box girds the fruit. "Red and green apple," it asserts confidently. "That image really encapsulates a lot of what the installation is about," Paglen tells me, "which is about:

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what is an image? Who gets to decide what the meaning of an image is? And what's at stake in those decisions?"

"In the past, images required people to look at them in order to come into existence somehow. That's not true anymore. You can build computer systems that look at images and interpret them for you – one of the things I'm really interested in, of course, is what forms of politics are built into that. Ways of seeing always have cultural assumptions built into them. The meaning of images change over time as societies change, as the stories we tell ourselves change. And the meaning of images changes according to who is looking at them. So I want to see, in technical systems, how those kind of processes repeat themselves."

Trevor Paglen's From 'Apple' to 'Anomaly' is at The Barbican's Curve Gallery, London, until 16 February 2020



THE ART NEWSPAPER

Ruiz, Cristina, "Trevor Paglen on questioning the intelligence of AI," *The Art Newspaper*, October 2, 2019

INTERVIEW | TREVOR PAGLEN

Trevor Paglen on questioning the intelligence of AI

US artist's new show at the Barbican continues his exploration into how artificial intelligence is shaping how organisations control us

CRISTINA RUIZ

2nd October 2019 14:54 BST



Paglen says the surveillance conversation must extend beyond computer scientists Photo by Tim P. Whitby/Getty Images for Barbican Centre

Trevor Paglen explores the unseen networks of power that monitor and control us, documenting secret US government bases, offshore prisons and surveillance drones. In the run up to his show at Milan's Fondazione Prada (until 24 February 2020), Paglen collaborated with the artificial intelligence researcher Kate Crawford to launch ImageNet Roulette, an online interactive project which revealed the often racist or misogynistic ways in which ImageNet—one of the largest online databases that is widely used to train machines how to read pictures—classifies images of people.

At London's Barbican, Paglen is again examining ImageNet's classifications, starting from everyday objects like apples and moving towards more abstract concepts to arrive at the category of "anomaly". We spoke to him about surveillance, AI and how we can begin to imagine a different future.



Tim P. Whitby/Getty Images for Barbican Centre

The Art Newspaper: In 2015, I joined you on a scuba-diving expedition off the coast of Florida to see the fibre-optic cables that carry internet communications between continents. You found them as part of your exploration into how governments spy on their citizens. Is your latest research related to that inquiry?

Trevor Paglen: All of these projects morph from one to the next. Looking for the ocean cables was a result of being involved with *Citizenfour* [the documentary about the whistleblower Edward Snowden] and trying to understand the infrastructures of surveillance. There's the National Security Agency and the Central Intelligence Agency but there is also Google, which modulates our life in different ways but is much bigger.

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Looking at how large-scale computing and data collection platforms incorporate images leads to a whole series of questions: what are the practices that go into machine learning applications? What are the politics of collecting photographs on an enormous scale? What happens with that shift away from people reading photographs?

There are two ways in which training sets of images for machine learning are made. One is done by universities and shared through people doing research and we can look at those sets—for example, ImageNet, which was created by researchers at Stanford and Princeton in 2009. These sets were made with images taken from people's Flickr accounts without their permission. They were then labelled [by crowdsourced workers], sometimes in really misogynistic or racist ways. Ethically, it is very murky. What does it mean to go out and appropriate these images, label them and then use them in machine-learning models that are ubiquitous? What are the politics behind it?

The other training sets are created by companies like Facebook and Google, and are proprietary.

These machine-learning sets are used for facial recognition technologies. Won't this increased surveillance make us all safer?

We have a desire to want to find technological solutions to questions that are political and sociological. Technology is seductive. It offers the promise of a quick fix or the illusion that it is objective and less messy than the hard work required when thinking about very difficult cultural questions. I want to think very carefully about what problems you are trying to solve with this kind of technology. The other thing to bear in mind is that we're not talking about machine learning in the abstract in a conceptual vacuum. Google, Amazon, Facebook and Microsoft are companies that are in the business of making money.



At his Barbican show the US artist embarks on a journey into ImageNet's classifications, beginning with everyday objects like an apple and progressing towards abstract categorisation © Trevor Paglen, Courtesy of the Artist, Metro Pictures New York, Altman Siegel, San Francisco

And yet we all freely choose to give them our data.

I don't think we consent to giving all our data to these platforms all the time. I could not do my job without a smartphone. So, I am compelled to use Apple or Google and give them my data. The more these technologies become a part of our lives, the less ability we have to actively consent to participating in them. We cannot change things on an individual level: if one person throws away their smartphone, it's not going to change the business model of the internet. We should think about larger, regulatory structures. I'm not saying this has to be done on a government level, but it's certainly not on an individual level.

There are a lot of different levels on which these debates can take place. There are widespread, public conversations that involve a lot of people. That's important. Another important conversation is among technology professionals, the people building these systems trying to critique these problems. Within the arts it is also very important to think about these issues. We are the people who make images. We can think of facial recognition as political portraiture attached to law enforcement.

It's important to bring people who have relevant expertise but don't necessarily have a background in computer science to bear on this because these conversations are often restricted to computer science departments where people don't necessarily have the expertise to think about how societies and images work; so it's really vital that we are all engaged.

So, what's an alternative vision for the future?

It's important to imagine futures in which things are not inevitable. Right now, it feels like it is inevitable that Facebook and Amazon and Google are going to suck up data; we think it's inevitable that we are going to be under surveillance and policed. We should not accept this. We don't really give our information to Facebook. Facebook and other platforms take it. They don't even know why; they just think it might be useful in the future. There's nothing inevitable about that. What do we want our mobile phones to do? How do we articulate a response to surveillance capitalism? We need to think about this.

• [Trevor Paglen: From "Apple" to "Anomaly", the Curve at the Barbican Centre, London, until 16 February 2020](#)

Loos, Ted, "Artist Trevor Paglen Takes the Long View," *Cultured*, 2018

CULTURED

ART

ARTIST TREVOR PAGLEN TAKES THE LONG VIEW

TED LOOS

PHOTOGRAPHY BY WOLFGANG STAHR



The artist Trevor Paglen has taken up surveillance as one of his great subjects, but he doesn't seem too concerned when I turn on my iPhone's voice recorder during our interview at Metro Pictures, his New York gallery, in Chelsea. After all, he has bigger things to worry about: This month, he's launching his own satellite into space—not something you hear every day— as part of his deep exploration of how technology and science are influencing life as we know it.

You could say he's not overly insecure about being un-secure. Even though, yes, he's one of those people who has the camera on his laptop covered up. "One of the guys that I work with in the studio is really much more secure than I am, which means he doesn't have a cell phone, doesn't have an email address," says Paglen, smiling. "Basically, he can never communicate."

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As an artist, Paglen must communicate, and these days, he is doing extraordinarily well at that. A couple of weeks after our chat, he's awarded a MacArthur Fellowship, a.k.a. a "genius grant." In other words: Paglen has struck a nerve, and his approaches and ideas are being recognized.

At 43, with a bushy beard and a bald pate, the confident and thoughtful Paglen could be any successful creative dude in Brooklyn—a furniture maker or marketing executive. Instead he is a lauded thought leader operating between Berlin, New York and San Francisco. The largest exhibition of his work to date, "Trevor Paglen: Sites Unseen," will be on view at the Smithsonian American Art Museum in Washington, D.C. from June 21 through January 6, presenting the last decade or so of his practice. He also has a show at Altman Siegel Gallery in San Francisco on view through May 5.



TREVOR PAGLEN'S *THEY WATCH THE MOON*, 2010.

There is perhaps some irony in a Smithsonian show, given that it's a government museum and much of what Paglen tackles in his work is the overreach of the state into our lives. "Exactly," he says when I bring this up. "The Smithsonian museums are free, open to the public. They are among the most visited museums in the world. So it's great to be able to have that kind of platform." Although sincere, Paglen doesn't come across as too eager to please, either. His ideas are his ideas, take them or leave them.

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Certainly his satellite, *Orbital Reflector*, is his highest-profile piece—in all senses of the word: It will circle in low Earth orbit at a distance of some 350 miles up. “It’s a kind of giant diamond structure that’s 100 feet long and 6 feet high,” Paglen explains, “and it is just designed to reflect sunlight down to Earth. It will be up there for about two months.” The launch, from California’s Vandenberg Air Force Base, will be on one of Elon Musk’s SpaceX rockets, and the project is funded by the Nevada Museum of Art, a sponsor of important earthworks in the past. “Hopefully it’ll work,” Paglen says, laughing.

For the artist, what *Orbital Reflector* doesn’t do is the key. “The idea behind it is, ‘Can you build a satellite that has no military, commercial or scientific purpose?’” he says. “In other words, can you build a satellite that’s the exact opposite of every other satellite that has ever been made, one that is as close to a purely aesthetic gesture as possible?”

Orbital Reflector will be visible as a light in the night sky from time to time, and there will be “star parties” at museums for group viewing. Paglen will also document the project in a film.

Such work requires talents more akin to a project manager or foreman rather than the conventional artist skill set. Just the permissions involved in launching something into space were daunting, and there was the issue of insurance—turns out Prudential doesn’t have a standard policy for purely aesthetic satellites.

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TREVOR PAGLEN IN HIS STUDIO,
BERLIN, GERMANY.

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“The launch will be insured, so if the rocket blows up we’re good,” says Paglen. But insuring for a satellite that gets deployed but then doesn’t work? The cost of that was prohibitive. So he and his team got creative. “We figured out it’s cheaper to build two satellites and have one as a back-up than it would be to build one and then insure it.”

Born in Maryland, Paglen went to the University of California at Berkeley, returning there later for a PhD in geography; in between those stints, he got an MFA at the School of the Art Institute of Chicago. He had his first New York show, at a now-defunct gallery, only in 2006—in other words, he has come to prominence pretty fast.

At his Metro Pictures show last fall, he showed the impressive array of technology he deploys. He has had to harness it to warn us about the dangers of tech itself. There’s a temptation to imagine Paglen making these pieces in an underground lair surrounded by walls of rare equipment, but he sets me straight. Although it takes multiple machines and lots of hardware, he notes that “you can do it on your home computer.” He also acknowledges that “it’s expensive in terms of doing the research and development, and my power bill has tripled.”

Paglen is worried about what happens when humans are taken out of the decision-making process, particularly in matters related to artificial intelligence and mass surveillance. He’s one of a group of artists critically mining the same territory, including his friend and collaborator Laura Poitras, in whose former Berlin studio he now works.

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TREVOR PAGLEN'S NATIONAL SECURITY
AGENCY SURVEILLANCE BASE, BUDE,
CORNWALL, UK, 2014.

But Paglen employs a wicked sense of humor in his take on the subject, as when he trained two different algorithms to debate what he calls “monsters of capitalism.” One program, the “generator,” draws zombies, vampires and other subjects and the other, known as a “discriminator,” tries to read them. “So they go back and forth to the point where the generator makes an image and the discriminator says ‘Yes, I believe you, that’s what you say it is.’” The artworks that result from this include Vampire (Corpus: Monsters of Capitalism), 2017, a print hung on the wall that Paglen terms an “adversarially evolved hallucination”—and it is spooky indeed, with a horror-movie face and an even scarier back story.

A more straightforward-looking work in that show, *It Began as a Military Experiment*, also from 2017, is a grid of 10 photographic portraits, but when you know the piece’s genesis, it takes on a different cast: The images are of some people whose features are the basis for facial recognition software as developed by the Defense Advanced Research Project Agency. “They are like the Adams and Eves of facial recognition,” says Paglen.

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They are wholly average looking, and these placid faces are the ones who help computers to talk to each other. "You don't need the human seer anymore," says Paglen. "Most of the images made in the world are made by computers for other computers."

Paglen raises so many questions with each work that it can be dizzying at times; you're going to need wall texts, catalog essays and more to sift through and comprehend it all. But he can sum up his overall project pretty succinctly, too. "What forms of power do these systems amplify, and at whose expense?" he asks. "For me, that's the larger thing I'm trying to get at."



Gendall, John, "Meet the Artist Who Won the 2018 MacArthur Genius Grant," *Architectural Digest*, November 10, 2017

ART + AUCTIONS

Meet the Artist Who Won the 2018 MacArthur Genius Grant

Artist Trevor Paglen has many muses: the ocean floor, CIA black sites, and outer space, to name a few

TEXT BY [JOHN GENDALL](#) · Posted November 10, 2017

As the infrastructure of surveillance continues to proliferate around the world, artist Trevor Paglen continues to find new ways to locate and represent those seemingly invisible systems. In extreme ways, the setting of his work diverges—the ocean floor (where he photographed NSA-tapped internet cables), CIA black sites (which he photographed using ultra-long-distance lenses), or, as he is soon to focus on, outer space (where he will send an objet d'art into orbit)—but the subject remains consistent: that is, representing invisibility. Just last month, this growing body of work earned him a MacArthur Fellowship, the so-called "genius award." In anticipation of his upcoming project in outer space, and on the occasion of his MacArthur win, *AD* spoke with Paglen about his work.

Architectural Digest: Your CV has an unusual line item for an artist: PhD in Geography. How did that come about?

Trevor Paglen: I've always been part of a "landscape" tradition, very broadly defined. In other words, I'm obsessively curious about the basic questions: "How do humans shape the earth, and how are humans, in turn, shaped by the ways in which we've shaped the earth?" I've always done art, and did a PhD in Geography because I wanted to be able to ask questions and do research for my artwork with a level of seriousness that I didn't think would be possible without more formal training in social science. I'm basically just curious about the world and am always interested in how different fields of knowledge approach very similar kinds of questions from different perspectives.

AD: Your work defies easy categorization. How do you place yourself in an art history context?

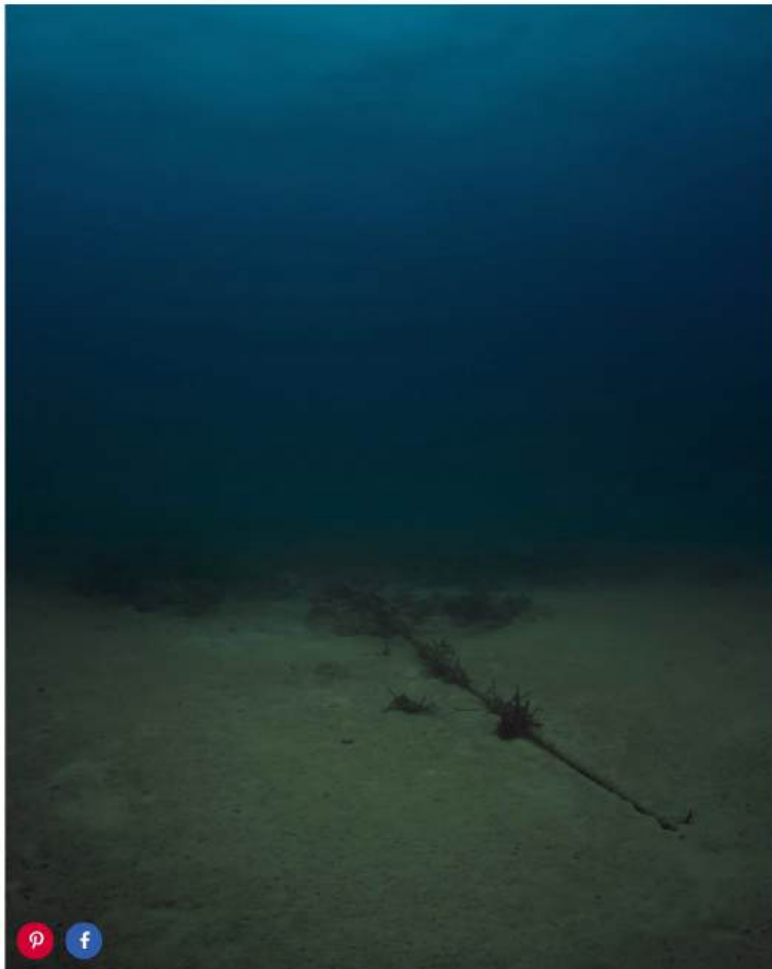
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TP: I think that when you're making art, you're in a conversation with the other humans that are alive today but you're also in a conversation with your ancestors and your descendants. That conversation across history is what we call Art History. History always rhymes, to paraphrase Mark Twain, and I learn a lot from seeing how artists in the past responded to moments in political and social history that may rhyme with our own. At the moment I've been thinking a lot about surrealism, on one hand, and Russian avant-gardism, on the other. Lately I've been making images using artificial intelligence networks. There's a kind of gothic-surrealist aesthetic that emerges, which feels like it very much speaks to the moment in history we find ourselves in—a strange world where facts seem to have been unmoored from reality and are floating on an ocean of horror.



Trevor Paglen Bahamas Internet Cable System (BICS-1), NSA/GCHQ-Tapped Undersea Cable, Atlantic Ocean, 2015, c-print, 60 x 48 inches.

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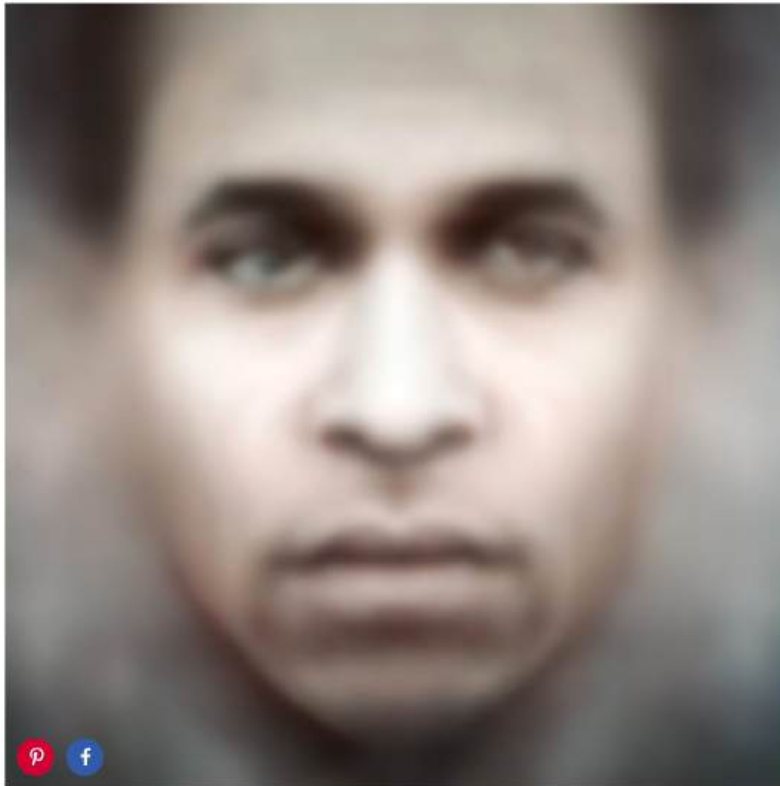
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AD: The subject of your work is so resonant now, with secrecy and surveillance a growing part of our landscape. Can you comment on the political context of your artistic curiosities?

TP: What I want out of art is things that help us see the historical moment we find ourselves living in. I see my job as literally trying to see what the world looks like and learn how to see some of the forces that are strongly shaping it. I think it comes from a commitment to engage with the world. Unlike the abstract painters of yesteryear, I'm not someone who goes in the studio everyday and imagines a world for myself. My projects come out of an engagement with the world "out there."



Trevor Paglen "Fanon" (Even the Dead Are Not Safe), Eigenface, 2017, dye sublimation metal print, 48 x 48 inches.

Photo: Courtesy of Trevor Paglen and Metro Pictures, New York

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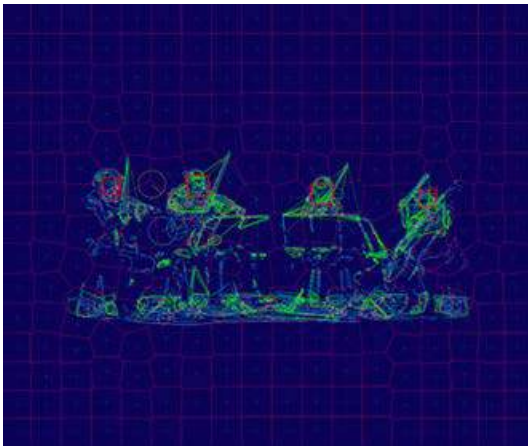
AD: Your definition of “out there,” though, is more expansive than most. Your work has taken you to some remote spots like the ocean floor and CIA black sites. Can you tell us about your upcoming project—in outer space?

TP: Orbital Reflector is a project to design and develop a satellite whose only purpose is to be an art object. It's a small satellite that inflates into a 100-foot-long diamond-like shape in space that will reflect sunlight down to earth. It's been in development for many years, and I'm excited that we're going to be launching in summer of 2018 on a Falcon 9 rocket.

T THE NEW YORK TIMES STYLE MAGAZINE

Baumgardner, Julie, "A String Quartet Concert, With an A.I. Assist," *T: The New York Times Style Magazine*, January 13, 2017

"I really don't think art is good at answering questions — it's much better at posing questions, and even better at simply asking people to open their eyes," says the artist Trevor Paglen. With a rigorous practice involving investigation, technology and image-making, Paglen has spent his career crossing boundaries, both disciplinary and physical — "which, for me, is kind of the point of art," he says.

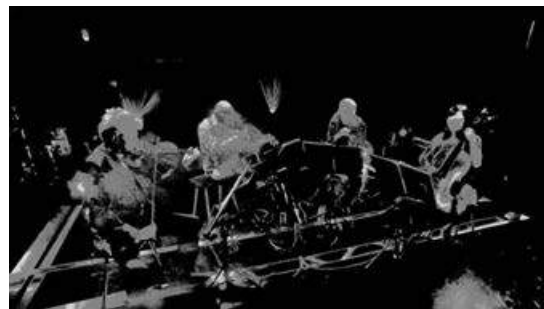


A rendering of "Sight Machine," the artist Trevor Paglen's upcoming multimedia piece that visualizes a performance by the Kronos Quartet in real time using A.I. technology.

To date, Paglen is best known for his work on government surveillance and data collection, in particular an investigation into the C.I.A.'s "extraordinary rendition" program. (His practice has led to far-flung places, including space: he launched a collection of 100 images, titled "The Last Pictures," into space on the EchoStar XVI satellite in 2012 for aliens to find.) As of Jan. 1, he's also the artist-in-residence at Stanford University's Cantor Arts Center; and this Saturday, he's staging his first multimedia performance on Pier 70 in San Francisco's Dogpatch district. "He just thinks so big," says Paglen's longtime gallerist, Claudia

Altman Siegel, who was offered the location by Alison Gass, chief curator of the Cantor. "I brought it to Trevor, like, 'Here's this construction site, what do you want to do?' And the next day, he comes up with a performance with the Kronos Quartet."

The performance, titled "Sight Machine," combines image-making and artificial-intelligence technology: On Saturday, the avant-garde string quartet will play a concert while Paglen's own A.I. mapping system projects machine-generated images of the musicians behind them in real time. Paglen programmed code, akin to surveillance A.I. algorithms, which processes a live video feed of the performance to create "images of what a particular algorithm is 'seeing,'" he says, which in this case is the musicians' movements. "I wanted to make an artwork that really underlined the contradiction between how machines see and how humans see," Paglen explains. "Because music is so affective and is just as corporeal as it is cerebral, I thought coupling a music performance with machine vision adds up to something that work on an emotional, aesthetic and intellectual level."



An alternative rendering of "Sight Machine."

However, Paglen's piece is no awe-struck homage to the capabilities of technology. "There's a profound shift happening in visual culture, which has to do with the fact that most images nowadays are primarily made by machines for other machines. I think that as the audience experiences the overall

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piece, they'll get the sense that the machine-vision and A.I. systems that are 'watching' the same performance are experiencing something entirely different than the humans are," he says. "By pointing out that discrepancy, I want to plant some doubts about the exuberance I see around me over an increasingly automated society."



Trevor Paglen.

While A.I. may be associated with flashy futurism, Paglen wants to remind us that one thriving branch of the technology — machine-to-machine image-making — is very much part of day-to-day society. How can people breeze through toll lanes every morning? Images generated by a machine are sent to another machine, with no human ever intervening. These "invisible images," as Paglen calls them, warrant our attention. "Image-making, along with storytelling and music, is the stuff that culture is made out of," he says. "We're now handing over the ability to tell those stories to artificial intelligence networks and machine-vision systems," which in turn "strongly influence our social and political relationships." Every new technology, whether the wheel, a superconductor or an iPhone, is designed with intention, and often not with its abuses in mind. Paglen's work on machine vision, he says, "has to do with learning how to ask the right questions about the new relationships between images and power that we see developing throughout society."

Later this year, Paglen will use the same title, "Sight Machine," for a series of work he'll develop at the Cantor, immersing himself into the university's A.I.

and machine-learning labs to bolster his technical capabilities in understanding software architecture. "In the very near future, I guarantee that the pictures you post on social media will affect your credit rating, health and auto insurance policies, and much more. It will all happen automatically. In a very real way, our rights and freedoms will be modulated by our metadata signatures," he says. "What's at stake, obviously, is the future of the human race! I'm actually serious here."

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An image of a Soyuz rocket launch in Kazakhstan, which Trevor Paglen sent into space on a communications satellite in 2012 as part of his series "The Last Pictures."



Paglen, photographed in Berlin with a 3D model of his Orbital Reflector satellite. Janina Wick

ART

Art for a Post-Surveillance Age

By MEGAN O'GRADY AUG. 29, 2017

"Are we being watched?" I ask Trevor Paglen at his central Berlin studio. The prewar apartment was once surely the most surveilled place in the city, having formerly belonged to his friend Laura Poitras, the director who helped Edward Snowden go public. "We're always being watched," he replies. The space is filled with computers: Against one wall, an assistant writes code while another researches data used to train artificial intelligence. Opposite is a long credenza filled with art monographs and topped by a slightly sinister collection of *objets*: a Dungeons & Dragons-style dragon trophy with a shield and saber; a toy model of the stealth submarine U.S.S. Jimmy Carter; and "Black Ops" military patches, including some Paglen made himself. In one of them, dinosaurs of the future look up in wonder at the derelict satellites left behind by extinct humans.

There's a certain irony in the artist and author being based in the former G.D.R., where citizens were once pressured into spying on one another for the Stasi, which left behind miles of documents when the wall fell in 1989. Fifteen years later, Paglen, who already had an M.F.A. from the School of the Art Institute of Chicago, was working on his doctorate in geography at the University of California, Berkeley, when he saw redacted portions of a map of the Mojave Desert and began photographing classified military installations, outfitting cameras with special lenses used in astrophotography. Ever since, he's been documenting the ways in which humans have transformed the surface of the Earth, and how we, in turn, have been transformed by those changes. (A survey of his career will go on view at the Smithsonian next summer.) The resulting photographs are vertiginous and strange, illuminating the increasingly uneasy space between ourselves and our perceived

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world: a tiny, is-it-a-seagull-no-it's-a-drone set against a Technicolor sunset; the dystopian white radomes of a surveillance station tucked into an English pastoral; a placid seascape, beneath which lies a key communications choke point. "People like to say that my work is about making the invisible visible, but that's a misunderstanding," Paglen says. "It's about showing what invisibility looks like."

Paglen was already well known for his surveillance pieces when Snowden leaked a trove of NSA documents in 2013, but even he was stunned by the revelations — both their magnitude and their specificity. "I just sat, jaw dropped, for 14 hours straight, reading," says the 42-year-old, who is both affable and ultra-intense, with blue eyes, close-shorn blond hair, motorcycle boots and a kind of native restlessness. His footage of NSA bases was included in "Citizenfour," Poitras's Academy Award-winning documentary about Snowden.

Paglen, who has lived in Berlin since 2015, travels frequently to give talks about the many ways in which secrecy "nourishes the worst excesses of power," as he wrote in one of his six books. He is one of art's more unusual figures, a kind of adventurer-philosopher whose work is often conceptual and highly technical, but can also be delightfully gonzo: He learned to scuba dive in order to photograph fiber-optic internet cables snaking across the ocean floor. After being questioned in Germany for shooting classified sites, he held a contest for the best photos of "landscapes of surveillance" in that country. He made a cube-shaped sculpture from irradiated glass sourced from Fukushima. He sent a time capsule into deep space of images etched on a silicon disc chronicling human history — from the Lascaux cave paintings to political protests. For a series he's including in his show opening this month at **Metro Pictures** gallery in New York, Paglen is examining the automation of vision itself, and the way in which the kinds of technologies used in facial recognition software, self-driving cars and social media are creating an entirely new landscape of pictures we never see, whose judgments we can't challenge. "I don't have fantasy projects," he tells me, "because I'm stupid enough to think that you can actually do this stuff."

Paglen is currently at work on his most radical project yet. This spring, he plans to send a satellite — a reflective, faceted Mylar inflatable — into low orbit, where it will be visible at night from Earth for eight weeks or so, literally twinkling like a

diamond in the sky before it disintegrates in the atmosphere. If all goes according to plan, it will be the world's first space sculpture, unprecedented in contemporary art.

The Orbital Reflector, as Paglen calls it, seems at first glance almost romantic, even deliberately naïve. It has no scientific purpose; it doesn't even carry a camera. But under closer scrutiny, it can be seen as an elaboration of the artist's ongoing thesis about art, technology and the impossibility of separating either from a specific moment in time. "It began as a thought experiment in which we imagined that spaceflight was the opposite of what it actually is," he explains over lunch at Soho House, at a table overlooking the Berlin TV tower, with its iconic dome evoking Sputnik, Earth's first satellite. In the American mind, space is a frontier: "We imagine going to the moon and planting a flag, going to an asteroid and mining, going to Mars and setting up a colony," he says. "And I think that expansionist mentality is very self-destructive, especially given the kind of precarious relationship we now have to the ecosystem here on Earth, because it allows us to imagine that Earth is disposable." Billionaire entrepreneurs may dream of colonizing Mars, but in fact, space is not going to save us. Aliens are not going to grant us absolution. "People expect this kind of profound cosmic altruism, which is very religious in a way. Space is completely wrapped up with this kind of stuff, which is what makes it interesting."

The Orbital Reflector draws a clear parallel between contemporary art and space exploration: the ideal of a purely visionary gesture, and the less starry reality. While the satellite — a small, five-kilogram box called a CubeSat, from which a 100-foot-long inflatable structure will deploy — has no commercial or military purpose, its success depends on the very systems of power Paglen has spent more than a decade critiquing. Built by an aerospace contractor called Global Western, it, likely along with a governmental reconnaissance satellite, will launch from California's Vandenberg Air Force Base on a Space X rocket into low orbit. The project illustrates how unfeasible it would be to execute any other way: For all the talk of civilian spaceflight, it remains a thoroughly militarized domain.

Managing the project is Zia Oboodiyat, a retired engineer who ran large communications satellite programs for the San Francisco-based Space Systems/Loral. He first met Paglen in 2011 while the artist was working on the time

capsule; Oboodiyat oversaw the construction of the satellite the disc was attached to and advocated for the project. When Paglen approached him about the Orbital Reflector, Oboodiyat immediately recognized its potential lyricism. “You don’t have to be rich to see it; you don’t have to be tall to see it,” he says. “You don’t have to be American. Anybody anywhere on Earth has equal opportunity to see something that gives humanity hope.”

Paglen’s partner in the project, the Reno-based Center for Art + Environment at the Nevada Museum of Art, is fund-raising to cover the \$1.3 million cost. The center’s collection includes extensive material from the giants of land art, including Walter de Maria and Michael Heizer. The Orbital Reflector places Paglen (for the moment, anyway) in this tradition — an artist defying the laws of nature and practicality in order to create a work larger than himself. “It is a high-risk proposition — rockets do explode; CubeSats sometimes fail to open,” says David Walker, the museum’s executive director. “But it’s exciting, too, because we see outer space as the ultimate mirror for human aspiration.” The Orbital Reflector is like the inevitable conclusion to the land art movement; Paglen’s work, like Heizer’s, may start in the desert, but will eventually leave the Earth entirely.

Paglen moved to Berlin partly for financial reasons — “I wanted to hire people, not spend \$10,000 a month on a studio in Sunset Park” — but seems to have found a home amid the city’s young expat artists and WikiLeaks types. At a Vietnamese restaurant, he bumps into a hacktivist friend who looks all of 17. “These guys have guts,” Paglen notes, after saying hello. “He was way up the butthole of the F.B.I. I probably shouldn’t talk about it.”

Paglen doesn’t describe himself as a dissident — “I’m as American as it gets, a product of these contradictions” — but it’s impossible not to connect the themes in his work to a childhood spent on military bases. His father was an Air Force ophthalmologist; his mother, one of the first female Episcopalian priests. In third grade, in the San Francisco Bay Area, Paglen got in trouble for skipping school to sneak into lectures on dinosaurs at Berkeley — the same lecture halls in which he’d later be working toward his doctorate. The family moved to Wiesbaden, Germany, when he was 12, and he spent two years in a German school in a nearby village,

where, as a foreign student, he was ostracized. “When you’re not the beneficiary of privilege, suddenly you see it for what it is,” he says.

An ongoing theme in Paglen’s more satirical work is the puerile machismo of military culture’s symbology and nomenclature, “the collective unconscious of this world of secrecy and violence,” as he puts it. One afternoon, Hanna Mattes, who oversees Paglen’s studio and helps manage its external production, is consulting with the artist on one of the sculptures he’s making for the fall show: an enormous dragon inspired by the small trophy in his studio. The trophy, Paglen explains, is presented to members of the 315th Network Warfare Squadron upon retirement. Paglen’s version will be a 12-foot sculpture inscribed in fetishistic detail, like medieval armor for the cyber age. The best way to preserve the details, they conclude, will be to 3D-print the mold in four sections, lightly polishing them to remove any marks. Another concern is the weight: The finished dragon, cast in bronze, will weigh two tons. Paglen mentions a crane. Mattes looks at him. “Maybe we should just paint the form for the exhibition.”

The dragon will be included in the 2018 Smithsonian exhibit. This year’s Metro Pictures exhibit will showcase Paglen’s ongoing work with different kinds of artificial intelligence technologies, taking viewers down a rabbit hole of imagery, from the now quaint-seeming pictures first made by humans in the early 1990s to train military facial recognition software, to the kind of “invisible images” computers hallucinate for themselves — say, when we post an image on Facebook — in order to make sense of the external world. “This is how an A.I. brain sees a shark,” Paglen says back in his studio, looking at a weirdly beautiful Abstract Expressionist-like swath of blues and grays that results from a computer creating a visual amalgam of thousands of images of the animal in water. The exhibit invites critical questions about the extent to which artificial intelligence algorithms, with their potential for programmed-in bias, are governing our reality. It’s also aesthetically provocative: “Man,” a distillation of figurative imagery, vaguely recalls a Francis Bacon portrait; “Rainbow” — a blend of cosmic-like rainbows — a Dali-esque dreamscape. “It’s like I’m relearning art history,” Paglen says.

So how does an artist who has devoted his career to empirical scrutiny of those things that will shape our future, from artificial intelligence to the annexation of

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space, respond rationally to a time in which reason itself — when it comes to political discourse, at least — seems to be increasingly endangered? “Those are foundational questions for me,” Paglen says. “Nothing that you make in the world exists in isolation from the social and political and ecological dimensions of it.” He hasn’t given up on art’s ability to spark the imagination — and to make us see the things we might prefer not to. The Orbital Reflector presented an opportunity to “get messy . . . to make something that’s beautiful, but also self-contradictory, and tries to challenge common sense.” It’s Carl Sagan meets Dada for a new millennium’s inhumanity.

As we talk, the sky darkens in Berlin, and the first blinking glimmerings appear. “For me, there’s something very romantic about going and looking at the stars and trying to photograph spy satellites,” Paglen says. “Ultimately, what it comes down to is looking at the sky and trying to understand something about one’s place in history. People have been doing this for tens of thousands of years. This is kind of a variation on that. What if we could imagine a sky that wasn’t out to get us, you know?”

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The artist Trevor Paglen uses various techniques to capture the surveillance state, including long-range astronomical photography to look at objects in the earth's orbit such as drones and spacecrafts. Here, "Untitled (Reaper Drone)," 2010.



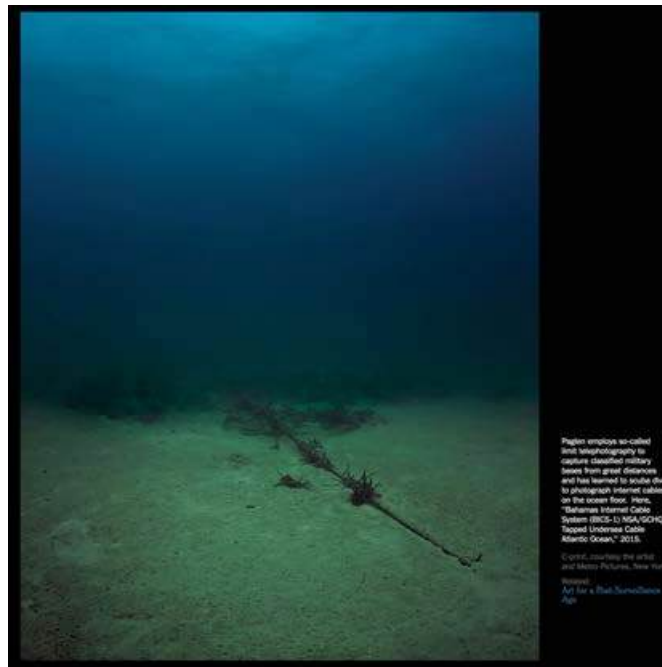
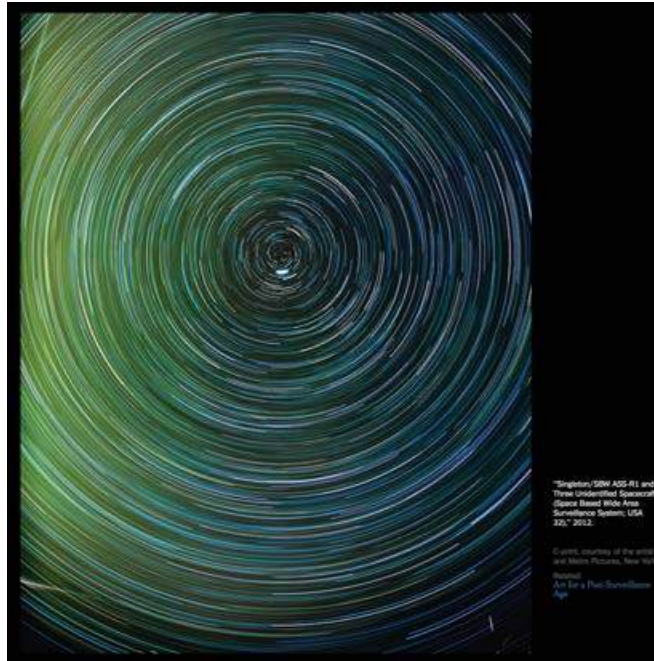
"Dead Military Navigation Satellite (Cosmos 985) Near the Disk of the Moon," 2012.

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"NSA/GCHQ Surveillance Base, Bude, Cornwall, UK," 2014.



"LACROSSE, QWY 8 Passing Through Draco Radar Imaging Reconnaissance Satellite, USA 66," 2007.
© 2014, Courtesy of the ARI and Mona Pelloni, New York.
Revised: Art for a Post-Surveillance Age.

theguardian

Adams, Tim, "Trevor Paglen: art in the age of mass surveillance," *The Guardian*, November 25, 2017



Trevor Paglen describes himself as a landscape artist, but he is no John Constable. The landscapes Paglen frames extend to the bottom of the ocean and beyond the blurred edges of the Earth's atmosphere. For the last two decades, the artist, a cheerful and fervent man of 43, has been on a mission to photograph the unseen political geography of our times. His art tries to capture places that are not on any map - the secret air bases and offshore prisons from which the war on terror has been fought - as well as the networks of data collection and surveillance that now shape our democracies, the cables, spy satellites and artificial intelligences of the digital world.

There is little abstract about this effort. Paglen has spent a good deal of his artistic career camped out in deserts with only suspicious drones for company, his special astro-telescopic lenses trained on the heavens or distant military bases. ("For me, seeing the drone in the 21st century is a little bit like Turner seeing the train in the 19th century.") He trained as a scuba diver to get 100ft beneath the waves in search of the cables carrying all of human knowledge. He recognises few limits to his art. In April, he will launch his own satellite and, with it, the world's first "space sculpture", a manmade star that should be visible from most places on the Earth for a few months, "as bright as one of the stars in the Big Dipper".

I meet Paglen in Berlin, in a prewar studio apartment, which is his current home and the centre of his operations. We sit in a high-ceilinged room among banks of computer screens and bookcases of art monographs. Two of his assistants, Daniel and Eric, are at work on an artificial intelligence project. Paglen is mostly either here directing that and five other projects with them, or "on airplanes trying to figure out how to pay the rent". In the week that we meet, that latter process has become a little easier as he is named one of this year's recipients of the MacArthur "genius grant", with its stipend of \$625,000 (£470,000) over five years.

Paglen likes to joke that the airy apartment itself is probably one of the "most surveilled" spaces in western Europe. It was formerly home to the documentary-maker Laura Poitras, Paglen's friend, who was instrumental in helping CIA whistleblower Edward Snowden go public about the staggering level of state-sponsored monitoring. Paglen's footage of National Security Agency bases was included in *Citizenfour*, Poitras's Academy award-winning documentary about Snowden. In some senses, being watched goes with the territory. The apartment is also a couple of hundred yards from the archives of the old East German Stasi: millions of pages of paper records in manila files that until recently would have represented the most comprehensive data collection in human history, before Facebook and Google, the NSA and the rest upped the ante.

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STSS-1 and Two Unidentified Spacecraft over Carson City (Space Tracking and Surveillance System, USA 205), 2010. Part of Trevor Paglen's project *The Other Night Sky*, in which he used long exposures to record the transit of satellites and space debris. Photograph: Courtesy Trevor Paglen/Metro Pictures, New York



Sitting on the edge of his seat, Paglen talks slightly reluctantly about his journey here. He is by turns animated and wary, excited by his projects but careful not to make them seem anything more than they are. "I am not a journalist or an academic," he says, "I don't feel it incumbent on me to make sense of everything. What I am saying is, 'This is an image of something in our world'. You might think you know what it is, but I am going to tell you something different..."

He resists autobiographical interpretations of his work, though you can't help but feel that a psychologist might at least see them as worthy of mention. Paglen was born at Andrews air force base, in Maryland, where his father was an ophthalmologist. As a boy, he lived on bases in Texas and California, before his family settled when he was 12 at the US army airfield in Wiesbaden, Germany, where he stayed with his father until university after his parents separated. His first experience of the ways in which politics can shape geography was in this divided country; he had not long started school here when the Wall came down.

Paglen's academic career, too, looks in retrospect like a perfect primer for his artistic practice. He studied the philosophy of religion, then fine art, then did a Phd in geography ("looking at the ways humans shape the surface of the Earth and how that in turn shapes us"). He also drifted a little, played unhinged bass in a punk band called Noisegate, and was into Californian surf culture.

Paglen first became interested in hidden places while studying at Berkeley with a project he did on the architecture of the American prison system, during the years in which mass incarceration became America's unspoken political philosophy ("a form of revenge against the civil rights movement," he says now). He photographed the enormous prisons out in the Californian desert and came to think of them as places that were both inside and outside American society. After 9/11, when it became clear that the US was setting up [secret prisons around the world](#), the most visible symbol of which was Guantánamo Bay, he started to see a resonance between his project and the war on terror.

That set him thinking about the history of secret places. In 2003, he made the first of many camping trips to the blueprint of all these off-grid locations, Area 51, the highly classified air force base in Nevada, pitching up on snow-topped Tikaboo Peak to see what he could see. That started him on his artistic odyssey into the world of "rendition and drones and extra-judicial spaces".



i Prototype for a Nonfunctional Satellite, 2013. Part of a series exploring the idea of launching a decorative sculpture into the night sky. The object would remain in low orbit for several weeks before burning up on re-entry. Photograph: Courtesy Trevor Paglen/Metro Pictures, New York



“I think a lot of that work was animated by a kind of anger,” he says. “But also equally by curiosity - what did these places look like?” When the Snowden files were released, he homed in on the fact that “nearly all the documents were about infrastructure - and they gave addresses”. He did a lot of work pinpointing the key underground and undersea junctions of cabling, where much of the listening took place, and photographing them. “Just trying to learn how to see the landscape of the internet as it were,” he says.

How often does his quest for this language brings him up against the authorities?

“Well, every time,” he says, with a laugh. “The military is quite predictable in a way though. What I am more wary of in the desert is coming across crazy people doing drugs or whatever. Those encounters are often the most disconcerting.”

In some ways, I suggest, it as if he is engaged on a postmodern “right to roam” protest, making a physical argument against official secrecy. What have been the personal highlights?

“I think the first time I worked out how to predict where a certain surveillance satellite would be and then went out and looked and it showed up,” he says - his ethereal photographs of the sky are traced with tell-tale dots and lines. He also recalls learning to see lethal [Reaper drones](#) in the Nevada desert air. They would watch him watching them. “It was one of those situations where you realise that if this was anywhere else in the world, that would probably be the last thing I would see,” he says.

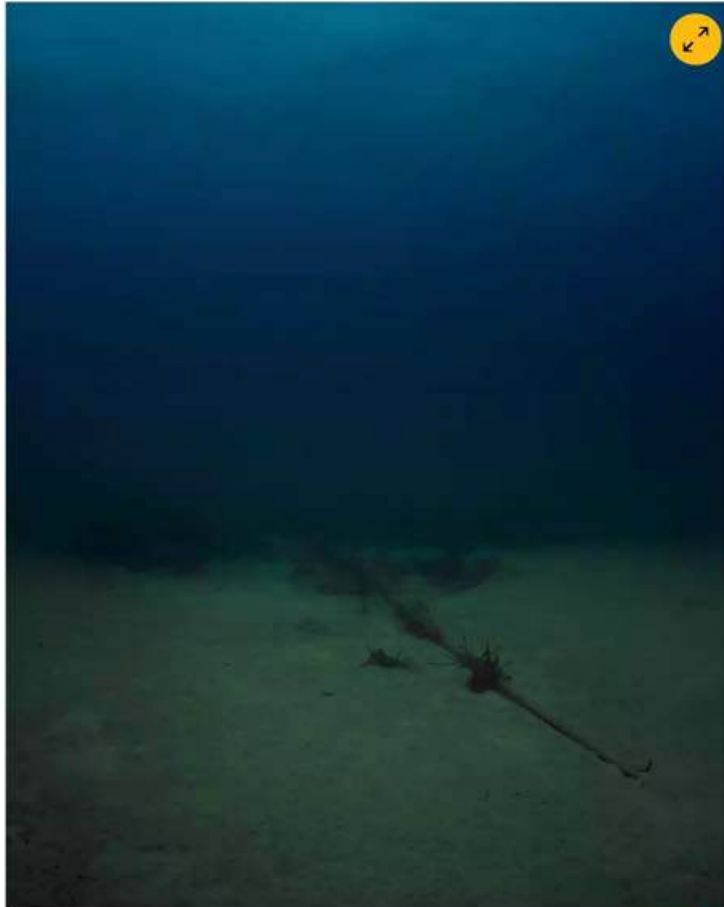
His pictures, often shot at distances of many miles, are snapshots of the known unknowns of our world. As he explains his practice to me over the course of an afternoon, he runs through a dizzying sequence of illustrative images on his desktop computer. It is a slideshow punctuated by my asking: “What’s that?” and him patiently explaining what we can see: a speck of a drone on the face of the sun; the white domes of the largest NSA station outside the US - at Menwith Hill near Harrogate; the beach at Bude in Cornwall under which a cable carrying the world’s data makes landfall.

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📍 Bahamas Internet Cable System (BICS-1) NSA/GCHQ-Tapped Undersea Cable Atlantic Ocean, 2015. Paglen learned to scuba dive in order to trace the internet cables that carry vast amounts of data across the world's ocean floors. Photograph: Courtesy Trevor Paglen/Metro Pictures, New York



Paglen's most recent work is another departure into that digital landscape, this time into the terra incognita of artificial intelligence. He is developing a program that can take, say, the algorithm that controls a laser-guided missile or a self-driving car and recreate what it "sees" of the world. Or he has deconstructed the Facebook intelligence that seeks to scan our uploaded photos for evidence of what we wear and what we buy (to sell to advertisers) and repurposed it as an intelligence that only looks at photographs in terms of objects important to Freudian psychoanalysis or late-stage capitalism.

He sees this in some ways as a new way of looking, one entirely appropriate to the times. "We live in a political moment where it seems reason has gone out the door," he says. "And at the same time we have these incredibly predatory institutions being created, whether it is white supremacy on one hand or Facebook on the other. It is kind of a surrealist moment. Everything is like Magritte's *Ceci n'est pas une pipe*. Nothing is what it seems."

In some ways, there is a kinship in Paglen's work to the paranoid surfaces of [Adam Curtis's](#) documentaries, or perhaps Don DeLillo's fiction, but he is also at pains to imagine how an alternative world might look.



Trevor Paglen: "You might think you know what it is, but I am going to tell you something different." Photograph: Courtesy of Trevor Paglen



A recent installation, *Autonomy Cube*, saw him demonstrate an internet with "the opposite business model", one that would still give you access to all the world's information, but would preserve anonymity and not collect your data. He is also looking at ways in which art might take that utopian principle into space.

In this sense, the forthcoming satellite project, what he calls the Orbital Reflector, is a kind of antidote to all he photographs. It will be followed in June by a major retrospective of Paglen's work at the [Smithsonian Museum in Washington, DC](#). The plan, a decade in the making, is to launch the first ever satellite "that has no military value, no scientific value, no commercial value, only aesthetic value". A satellite that is the opposite of what we have come to expect. Not something that observes our every move, but something that we can gaze up at in old-fashioned wonder, a little diamond in the sky.

The project is being sponsored, fittingly, by the Nevada Museum of Art. The sculpture will piggyback off a [Space X](#) rocket before being ejected. Once in low orbit, a simple mechanism is designed to open up an inflatable Mylar structure, about 100ft long and 6ft high, with highly reflective planes, which he insists will be visible to the naked eye as a twinkle in the night sky.

And what does he want people to think when, in April, hopefully, they gaze up at it?

"I just hope people enjoy it," he says. "There is no message behind it. Apart from the idea that maybe there are sometimes different ways of thinking about the world."

Trevor Paglen, "500 Words," with Andrianna Campbell, *Artforum*, July 20, 2017

Trevor Paglen

07.20.17



Trevor Paglen, *Sight Machine*, 2017. Performance view, Pier 70, San Francisco, January 14, 2017. Kronos Quartet. Photo: Joshua Brott, Obscura Digital.

Trevor Paglen is the first artist-in-residence at the Cantor Arts Center at Stanford University. The exhibition "The Eye and the Sky: Trevor Paglen in the Cantor Collection" places his photographic series of predator drones, "Time Study (Predator; Indian Springs, NV)," 2010, alongside photographs by artists such as Eadweard Muybridge, Edward Steichen, and Eve Sonneman from the Cantor's permanent collection. Earlier this year, the Cantor also commissioned Paglen's multimedia performance *Sight Machine*. Below, he discusses issues of surveillance in the show, which is on view through July 31, 2017, as well as in the performance. On July 25, 2017, Paglen will participate in a panel discussion on civil liberties in the age of hacking at the Solomon R. Guggenheim Museum in New York. His exhibition "A Study of Invisible Images" opens at Metro Pictures in New York on September 8, 2017.

MY TIME AT STANFORD has centered around a development in imagemaking that I think is more significant than the invention of photography. Over the last ten years or so, powerful algorithms and artificial intelligence networks have enabled computers to "see" autonomously. What does it mean that "seeing" no longer requires a human "seer" in the loop?

This past January, the Cantor commissioned *Sight Machine*, which I produced in collaboration with the Kronos Quartet. While the musicians performed selections by Bach, Raymond Scott, Laurie Anderson, and Terry Riley, among other composers, they were surrounded by cameras that all fed video into a rack of computers. The computers were programmed to run a large range of computer-vision algorithms, such as those used in self-driving cars, guided missiles, face detection and recognition software, and artificial intelligence networks used by Facebook, Google, and other companies to interpret images. While the Kronos Quartet played music, a projection behind them showed them as they looked to the array of algorithms watching them.

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At one time, to *surveil* implied "to watch over," and to *survey* was basically "to look." Between these two definitions we get a sense of how photographs can be manipulated for multiple aims. Eadweard Muybridge's *Sunset over Mount Tamalpais*, 1872, which gives you a vantage point to look at the Northern California landscape, is also a document of the move toward geopolitical dominance. That work is in "The Eye and the Sky," and Muybridge has been on my mind for some time. My photographic series in the show, "Time Study (Predator; Indian Springs, NV)," is made up of albumen prints of predator drones. They relate to Muybridge because they deal with conventions that we take for granted in landscape photography. During the residency, I worked with computer-vision and artificial intelligence students and researchers to further explore the largely invisible world of machine-to-machine seeing. We not only developed software that allowed us to see what various computer-vision algorithms see when they look at a landscape, but also were able to implement software that could be used in conjunction with artificial intelligence to "evolve" recognizable images from random noise—almost like a hallucination or the phenomenon of pareidolia, in which one sees faces in shapes such as clouds.

To "teach" AI software how to see various objects, you have to use enormous training sets of data. For example, if you want to build an AI program that can recognize pencils, keyboards, and cups, you need to give it thousands of pictures of each object. The AI technology teaches itself how to see the differences between these objects during a training phase of the software development. The libraries of the thousands of images you use to train an AI project are called training sets.

The implicit biases and values built into various training sets can have enormous consequences, and there are numerous examples of training sets creating AIs that reflect the unacknowledged forms of racism, patriarchy, and class division that characterize so much of society. A Google AI program described an African American couple as "a pair of gorillas," while other AIs technologies routinely assume that doctors are male and nurses are female. Indeed, in AI-based gender-recognition algorithms, subjects are invariably described as either "male" or "female"—the concept of nonbinary gender identities is utterly alien.

This brings me to what I am really fascinated by: a panoramic looking, or bird's-eye view, that you get with nineteenth-century landscape photography and that you begin to see manifested in the twentieth century as surveillance by machines. In the twenty-first century it involves total machine capture. At Stanford, we started developing training sets based on taxonomies from literature, psychoanalysis, political economy, and poetry. We built an AI program that can only see scenes from Freud's *The Interpretation of Dreams* and another that can only see monsters associated with metaphors of capital such as vampires and zombies. Another one is trained to see "American predators," from Venus flytraps to predator drones. With this body of work, I wanted to point to some of the potential dangers associated with the widespread deployment of AI and other optimization technologies.

In AI there are enforcement mechanisms that are even harder to discern. We are training machines in patriarchal histories or racist histories, etc. We know gender is fluid and race is a construct, but that is not the case with machine categorization. There is an assumption that the technology is unbiased, but it is not. These are not merely representational systems or optimization systems; they are set up as normative systems and therefore they become enforcement systems. The project to redefine the *normal* human is a political project. The contestation of those categories is essential before they become hard-coded into infrastructure. *Sight Machine* and my photographs included in "Time Study" address machine vision and the invisibility of these repressive visual regimes.

Read Trevor Paglen's *1000 Words in the March 2009 issue of Artforum* [here](#).

— As told to [Andrianna Campbell](#)

THE WALL STREET JOURNAL.

Wolfe, Alexandra "Photographer Trevor Paglen Turns Surveillance Into Art," *The Wall Street Journal*, June 10, 2016

From satellites to military infrastructure, the artist looks at the ubiquity of government surveillance in an exhibition called 'The Octopus.'

To get a picture of a U.S. military-communications satellite called PAN, photographer Trevor Paglen went to South Africa and set up his camera in the desert for a good view as the craft orbited above the Indian Ocean. The resulting photo, an abstract image of thin streams of white and blue, streaking through a black background, forms part of an exhibition about the ubiquity of government surveillance called "The Octopus."



'National Reconnaissance Office, Chantilly, Virginia' (2014) | Mr. Paglen flew over this intelligence agency in a helicopter. The show 'Octopus' is named after its logo, in which an octopus's tentacles reach around the globe.

"I can't imagine anything more beautiful on this planet than looking up at the stars and seeing a kind of artificial star moving through the night sky. But at the same time, you know that that artificial star is secret, and you don't know what it is doing, and perhaps it is doing something you don't agree with," says Mr. Paglen, 41, whose works sell for between \$10,000 and \$50,000.

Earlier this month, he won the Deutsche Börse Photography Foundation Prize for the show. (The award is fully funded by a philanthropy of the German stock-exchange operator.) Selections from "The Octopus" will remain on view at the Photographers' Gallery in London through July 3.

The title refers to a logo of an octopus taking hold of a globe, made for a 2013 satellite launch by the U.S. National Reconnaissance Office. The logo went on the rocket that carried the satellites, with the words "Nothing is beyond our reach." Mr. Paglen says, "The exhibition is looking at this allegorical octopus that is consuming the world."



'PAN (Unknown; USA-207)' (2010) | To take this photograph of a mysterious satellite carrying classified information above the Indian Ocean off

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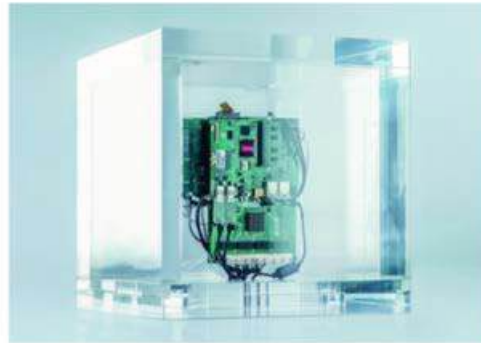
the coast of Somalia, Mr. Paglen traveled to South Africa where he shot the image from a desert conservatory. PHOTO: TREVOR PAGLEN

Born on a military base in Maryland as the son of an Air Force ophthalmologist, Mr. Paglen has been photographing intelligence and military infrastructure—often set in sprawling natural landscapes—since the early 2000s. The facilities include places where large amounts of fiber-optic cable converge and sites he identifies as National Security Agency listening operations. Mr. Paglen says he hopes viewers will wonder, “How has the sky been transformed by drones? How has the ocean been transformed by the fact that over 90% of the world’s information travels in underwater cables?”



'NSA-Tapped Fiber Optic Cable Landing Site, Marseille, France' (2015) | Mr. Paglen came across this landing site while working on the film 'Citizenfour,' a documentary about Edward Snowden. In Marseille, France, this landing site shows a 'choke point' where a huge amount of fiber optic cable converges in one place. PHOTO: TREVOR PAGLEN

Mr. Paglen’s training is in art, but he also has a Ph.D. in experimental geography and often interviews historians and scientists to find and understand surveillance spots. “In today’s world we have people with cameras everywhere...but [Mr. Paglen] is showing images we never see,” says Art Collection Deutsche Börse managing director and curator Anne-Marie Beckmann, who was one of four jurors who awarded Mr. Paglen the prize.



Trevor Paglen/Jacob Appelbaum's 'Autonomy Cube' (2015) | Displayed at the Berlin Biennale, this sculpture allows museum visitors to connect to an internet network that makes internet usage anonymous. By tapping into this network your IP address and search history can't be tracked. PHOTO: TREVOR PAGLEN/JACOB APPELBAUM/METRO PICTURES, NEW YORK/ALTMAN SIEGEL, SAN FRANCISCO

This month, Mr. Paglen’s work is also on view at the Berlin Biennale. Through Sept. 18, his “Autonomy Cube” there lets visitors connect to an anonymous internet network that doesn’t track browsing history or web addresses. He thinks it’s in keeping with the rest of his work by taking on government-surveillance technology in an artistic way. “I think that a lot of us subconsciously would like to live in a world in which good things were beautiful and bad things were ugly,” he says. “But that’s not how the world works.”



THE NEW INQUIRY

Trevor Paglen, "Invisible Images (Your Pictures Are Looking At You," *The New Inquiry*, December 8, 2016

OUR eyes are fleshy things, and for most of human history our visual culture has also been made of fleshy things. The history of images is a history of pigments and dyes, oils, acrylics, silver nitrate and gelatin—materials that one could use to paint a cave, a church, or a canvas. One could use them to make a photograph, or to print pictures on the pages of a magazine. The advent of screen-based media in the latter half of the 20th century wasn't so different: cathode ray tubes and liquid crystal displays emitted light at frequencies our eyes perceive as color, and densities we perceive as shape. We've gotten pretty good at understanding the vagaries of human vision; the serpentine ways in which images infiltrate and influence culture, their tenuous relationships to everyday life and truth, the means by which they're harnessed to serve—and resist—power. The theoretical concepts we use to analyze classical visual culture are robust: representation, meaning, spectacle, semiosis, mimesis, and all the rest. For centuries these concepts have helped us to navigate the workings of classical visual culture.

But over the last decade or so, something dramatic has happened. Visual culture has changed form. It has become detached from human eyes and has largely become invisible. Human visual culture has become a special case of vision, an exception to the rule. The overwhelming majority of images are now made by machines for other machines, with humans rarely in the loop. The advent of machine-to-machine seeing has been barely noticed at large, and poorly understood by

those of us who've begun to notice the tectonic shift invisibly taking place before our very eyes.



"Winona" Eigenface (Colorized), Labeled Faces in the Wild Dataset, 2016

The landscape of invisible images and machine vision is becoming evermore active. Its continued expansion is starting to have profound effects on human life, eclipsing even the rise of mass culture in the mid 20th century. Images have begun to intervene in everyday life, their functions changing from representation and mediation, to activations, operations, and enforcement. Invisible images are actively watching us, poking and prodding, guiding our movements, inflicting pain and inducing pleasure. But all of this is hard to see. Cultural theorists have long suspected there was something different about digital images than the visual media of yesteryear, but have

had trouble putting their finger on it. In the 1990s, for example, there was much to do about the fact that digital images lack an “original.” More recently, the proliferation of images on social media and its implications for inter-subjectivity has been a topic of much discussion among cultural theorists and critics. But these concerns still fail to articulate exactly what’s at stake.

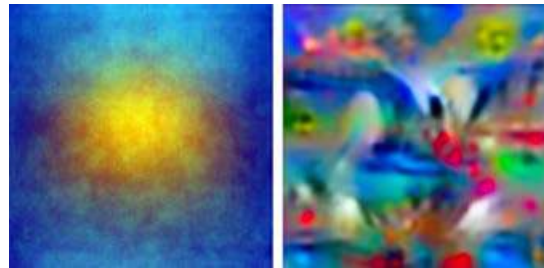


Lake Tenaya, Maximally Stable External Regions; Hough Transform, 2016

One problem is that these concerns still assume that humans are looking at images, and that the relationship between human viewers and images is the most important moment to analyze—but it’s exactly this assumption of a human subject that I want to question. What’s truly revolutionary about the advent of digital images is the fact that they are fundamentally machine-readable: they can only be seen by humans in special circumstances and for short periods of time. A photograph shot on a phone creates a machine-readable file that does not reflect light in such a way as to be perceptible to a human eye. A secondary application, like a software-based photo viewer paired with a liquid crystal display and backlight may create something that a human can look at, but the image only appears to human eyes temporarily before reverting back to its immaterial machine form when the

phone is put away or the display is turned off. However, the image doesn’t need to be turned into human-readable form in order for a machine to do something with it. This is fundamentally different than a roll of undeveloped film. Although film, too, must be coaxed by a chemical process into a form visible by human eyes, the undeveloped film negative isn’t readable by a human or machine.

The fact that digital images are fundamentally machine-readable regardless of a human subject has enormous implications. It allows for the automation of vision on an enormous scale and, along with it, the exercise of power on dramatically larger and smaller scales than have ever been possible.



“Goldfish,” Linear Classifier, ImageNet Dataset, 2016; “Fire Boat”; Synthetic High Activation, ImageNet Dataset, 2016

II.

Our built environments are filled with examples of machine-to-machine seeing apparatuses: Automatic License Plate Readers (ALPR) mounted on police cars, buildings, bridges, highways, and fleets of private vehicles snap photos of every car entering their frames. ALPR operators like the company Vigilant Solutions collect the locations of every car their cameras see, use Optical Character Recognition (OCR) to store license plate numbers, and create databases used by police, insurance companies, and the like.[footnote: James Bridle’s “How Britain Exported Next-Generation Surveillance” is an excellent introduction to APLR.] In the consumer

sphere, outfits like Euclid Analytics and Real Eyes, among many others, install cameras in malls and department stores to track the motion of people through these spaces with software designed to identify who is looking at what for how long, and to track facial expressions to discern the mood and emotional state of the humans they're observing.



(Research Image), "Disgust," Custom Hito Steyerl Emotion Training Set

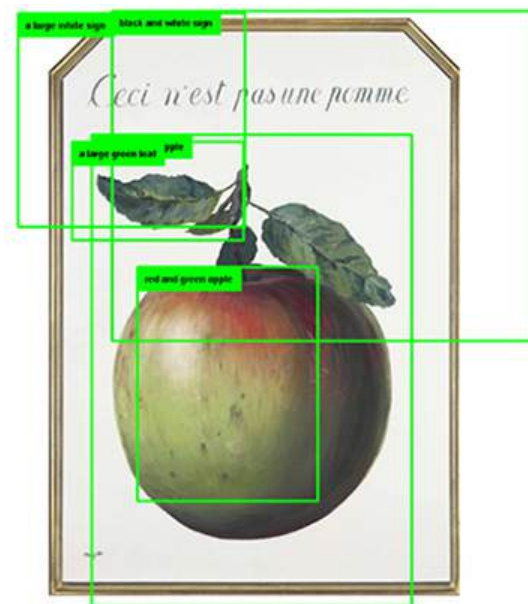
Advertisements, too, have begun to watch and record people. And in the industrial sector, companies like Microscan provide full-fledged imaging systems designed to flag defects in workmanship or materials, and to oversee packaging, shipping, logistics, and transportation for automotive, pharmaceutical, electronics, and packaging industries. All of these systems are only possible because digital images are machine-readable and do not require a human in the analytic loop.

This invisible visual culture isn't just confined to industrial operations, law enforcement, and "smart" cities, but extends far into what we'd otherwise—and somewhat naively—think of as human-to-human visual culture. I'm referring here to the trillions of images that humans share on digital platforms—ones that at first glance seem to be made by humans for other humans.

On its surface, a platform like Facebook seems analogous to the musty glue-bound photo albums of postwar America. We "share" pictures on the Internet and see how many

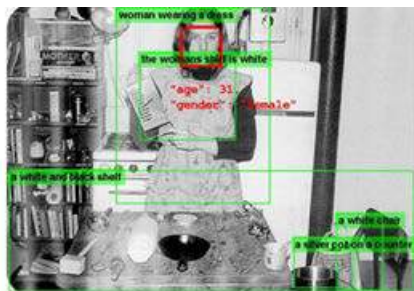
people "like" them and redistribute them. In the old days, people carried around pictures of their children in wallets and purses, showed them to friends and acquaintances, and set up slideshows of family vacations. What could be more human than a desire to show off one's children? Interfaces designed for digital image-sharing largely parrot these forms, creating "albums" for selfies, baby pictures, cats, and travel photos.

But the analogy is deeply misleading, because something completely different happens when you share a picture on Facebook than when you bore your neighbors with projected slide shows. When you put an image on Facebook or other social media, you're feeding an array of immensely powerful artificial intelligence systems information about how to identify people and how to recognize places and objects, habits and preferences, race, class, and gender identifications, economic statuses, and much more.



(Research Images) Magritte

Regardless of whether a human subject actually sees any of the 2 billion photographs uploaded daily to Facebook-controlled platforms, the photographs on social media are scrutinized by neural networks with a degree of attention that would make even the most steadfast art historian blush. Facebook’s “DeepFace” algorithm, developed in 2014 and deployed in 2015, produces three-dimensional abstractions of individuals’ faces and uses a neural network that achieves over 97 percent accuracy at identifying individuals— a percentage comparable to what a human can achieve, ignoring for a second that no human can recall the faces of billions of people.



(Research Images) Rosler

There are many others: Facebook’s “DeepMask” and Google’s TensorFlow identify people, places, objects, locations, emotions, gestures, faces, genders, economic statuses, relationships, and much more. In aggregate, AI systems have appropriated human visual culture and transformed it into a massive, flexible training set. The more images Facebook and Google’s AI systems ingest, the more accurate they become, and the more influence they have on everyday life. The trillions of images we’ve been trained to treat as human-to-human culture are the foundation for increasingly autonomous ways of seeing that bear little resemblance to the visual culture of the past.

III.

If we take a peek into the internal workings of machine-vision systems, we find a menagerie of abstractions that seem completely alien to human perception. The machine-machine landscape is not one of representations so much as activations and operations. It’s constituted by active, performative relations much more than classically representational ones. But that isn’t to say that there isn’t a formal underpinning to how computer vision systems work.



(Research Images) Opie; Dense Captioning, Age, Gender, Adult Content Detection

All computer vision systems produce mathematical abstractions from the images they’re analyzing, and the qualities of those abstractions are guided by the kind of metadata the algorithm is trying to read. Facial recognition, for instance, typically involves any number of techniques, depending on the application, the desired efficiency, and the available training sets. The Eigenface technique, to take an older example, analyzes someone’s face and subtracts from that the features it has in common with other faces,

leaving a unique facial “fingerprint” or facial “archetype.” To recognize a particular person, the algorithm looks for the fingerprint of a given person’s face.

Convolutional Neural Networks (CNN), popularly called “deep learning” networks, are built out of dozens or even hundreds of internal software layers that can pass information back and forth. The earliest layers of the software pick apart a given image into component shapes, gradients, luminosities, and corners. Those individual components are convolved into synthetic shapes. Deeper in the CNN, the synthetic images are compared to other images the network has been trained to recognize, activating software “neurons” when the network finds similarities.

We might think of these synthetic activations and other “hallucinated” structures inside convolutional neural networks as being analogous to the archetypes of some sort of Jungian collective unconscious of artificial intelligence—a tempting, although misleading, metaphor. Neural networks cannot invent their own classes; they’re only able to relate images they ingest to images that they’ve been trained on. And their training sets reveal the historical, geographical, racial, and socio-economic positions of their trainers. Feed an image of Manet’s “Olympia” painting to a CNN trained on the industry-standard “Imagenet” training set, and the CNN is quite sure that it’s looking at a “burrito.” It goes without saying that the “burrito” object class is fairly specific to a youngish person in the San Francisco Bay Area, where the modern “mission style” burrito was invented. Spend a little bit of time with neural networks, and you realize that anyone holding something in their hand is likely to be identified as someone “holding a cellphone,” or “holding a Wii controller.” On a more serious note, engineers at Google decided to deactivate the “gorilla” class after it

became clear that its algorithms trained on predominantly white faces and tended to classify African Americans as apes.

The point here is that if we want to understand the invisible world of machine-machine visual culture, we need to unlearn how to see like humans. We need to learn how to see a parallel universe composed of activations, keypoints, eigenfaces, feature transforms, classifiers, training sets, and the like. But it’s not just as simple as learning a different vocabulary. Formal concepts contain epistemological assumptions, which in turn have ethical consequences. The theoretical concepts we use to analyze visual culture are profoundly misleading when applied to the machinic landscape, producing distortions, vast blind spots, and wild misinterpretations.

IV.

There is a temptation to criticize algorithmic image operations on the basis that they’re often “wrong”—that “Olympia” becomes a burrito, and that African Americans are labelled as non-humans. These critiques are easy, but misguided. They implicitly suggest that the problem is simply one of accuracy, to be solved by better training data. Eradicate bias from the training data, the logic goes, and algorithmic operations will be decidedly less racist than human-human interactions. Program the algorithms to see everyone equally and the humans they so lovingly oversee shall be equal. I am not convinced.

Ideology’s ultimate trick has always been to present itself as objective truth, to present historical conditions as eternal, and to present political formations as natural. Because image operations function on an invisible plane and are not dependent on a human seeing-subject (and are therefore not as obviously ideological as giant paintings of Napoleon) they are harder to recognize for what they are: immensely

powerful levers of social regulation that serve specific race and class interests while presenting themselves as objective.

The invisible world of images isn't simply an alternative taxonomy of visibility. It is an active, cunning, exercise of power, one ideally suited to molecular police and market operations—one designed to insert its tendrils into ever-smaller slices of everyday life. Take the case of Vigilant Solutions. In January 2016, Vigilant Solutions, the company that boasts of having a database of billions of vehicle locations captured by ALPR systems, signed contracts with a handful of local Texas governments. According to documents obtained by the Electronic Frontier Foundation, the deal went like this: Vigilant Solutions provided police with a suite of ALPR systems for their police cars and access to Vigilant's larger database. In return, the local government provided Vigilant with records of outstanding arrest warrants and overdue court fees. A list of "flagged" license plates associated with outstanding fines are fed into mobile ALPR systems. When a mobile ALPR system on a police car spots a flagged license plate, the cop pulls the driver over and gives them two options: they can pay the outstanding fine on the spot with a credit card (plus at 25 percent "service fee" that goes directly to Vigilant), or they can be arrested. In addition to their 25 percent surcharge, Vigilant keeps a record of every license plate reading that the local police take, adding information to their massive databases in order to be capitalized in other ways. The political operations here are clear. Municipalities are incentivized to balance their budgets on the backs of their most vulnerable populations, to transform their police into tax-collectors, and to effectively sell police surveillance data to private companies. Despite the "objectivity" of the overall system, it unambiguously serves powerful government and corporate interests

at the expense of vulnerable populations and civic life.

As governments seek out new sources of revenue in an era of downsizing, and as capital searches out new domains of everyday life to bring into its sphere, the ability to use automated imaging and sensing to extract wealth from smaller and smaller slices of everyday life is irresistible. It's easy to imagine, for example, an AI algorithm on Facebook noticing an underage woman drinking beer in a photograph from a party. That information is sent to the woman's auto insurance provider, who subscribes to a Facebook program designed to provide this kind of data to credit agencies, health insurers, advertisers, tax officials, and the police. Her auto insurance premium is adjusted accordingly. A second algorithm combs through her past looking for similar misbehavior that the parent company might profit from. In the classical world of human-human visual culture, the photograph responsible for so much trouble would have been consigned to a shoebox to collect dust and be forgotten. In the machine-machine visual landscape the photograph never goes away. It becomes an active participant in the modulations of her life, with long-term consequences.

Smaller and smaller moments of human life are being transformed into capital, whether it's the ability to automatically scan thousands of cars for outstanding court fees, or a moment of recklessness captured from a photograph uploaded to the Internet. Your health insurance will be modulated by the baby pictures your parents uploaded of you without your consent. The level of police scrutiny you receive will be guided by your "pattern of life" signature.

The relationship between images and power in the machine-machine landscape is different

than in the human visual landscape. The former comes from the enactment of two seemingly paradoxical operations. The first move is the individualization and differentiation of the people, places, and everyday lives of the landscapes under its purview—it creates a specific metadata signature of every single person based on race, class, the places they live, the products they consume, their habits, interests, “likes,” friends, and so on. The second move is to reify those categories, removing any ambiguities in their interpretation so that individualized metadata profiles can be operationalized to collect municipal fees, adjust insurance rates, conduct targeted advertising, prioritize police surveillance, and so on. The overall effect is a society that amplifies diversity (or rather a diversity of metadata signatures) but does so precisely because the differentiations in metadata signatures create inroads for the capitalization and policing of everyday life. Machine-machine systems are extraordinary intimate instruments of power that operate through an aesthetics and ideology of objectivity, but the categories they employ are designed to reify the forms of power that those systems are set up to serve. As such, the machine-machine landscape forms a kind of hyper-ideology that is especially pernicious precisely because it makes claims to objectivity and equality.

V.

Cultural producers have developed very good tactics and strategies for making interventions into human-human visual culture in order to challenge inequality, racism, and injustice. Counter-hegemonic visual strategies and tactics employed by artists and cultural producers in the human-human sphere often capitalize on the ambiguity of human-human visual culture to produce forms of counter-culture—to make claims, to assert rights, and to expand the field of represented peoples and positions in visual

culture. Martha Rosler’s influential artwork “Semiotics of the Kitchen,” for example, transformed the patriarchal image of the kitchen as a representation of masculinist order into a kind of prison; Emory Douglas’s images of African American resistance and solidarity created a visual landscape of self-empowerment; Catherine Opie’s images of queerness developed an alternate vocabulary of gender and power. All of these strategies, and many more, rely on the fact that the relationship between meaning and representation is elastic. But this idea of ambiguity, a cornerstone of semiotic theory from Saussure through Derrida, simply ceases to exist on the plane of quantified machine-machine seeing. There’s no obvious way to intervene in machine-machine systems using visual strategies developed from human-human culture.

Faced with this impasse, some artists and cultural workers are attempting to challenge machine vision systems by creating forms of seeing that are legible to humans but illegible to machines. Artist Adam Harvey, in particular, has developed makeup schemes to thwart facial recognition algorithms, clothing to suppress heat signatures, and pockets designed to prevent cellphones from continually broadcasting their location to sensors in the surrounding landscape. Julian Oliver often takes the opposite tack, developing hyper-predatory machines intended to show the extent to which we are surrounded by sensing machines, and the kinds of intimate information they’re collecting all the time. These are noteworthy projects that help humans learn about the existence of ubiquitous sensing. But these tactics cannot be generalized.

In the long run, developing visual strategies to defeat machine vision algorithms is a losing strategy. Entire branches of computer vision

research are dedicated to creating “adversarial” images designed to thwart automated recognition systems. These adversarial images simply get incorporated into training sets used to teach algorithms how to overcome them. What’s more, in order to truly hide from machine vision systems, the tactics deployed today must be able to resist not only algorithms deployed at present, but algorithms that will be deployed in the future. To hide one’s face from Facebook, one would not only have to develop a tactic to thwart the “DeepFace” algorithm of today, but also a facial recognition system from the future. An effective resistance to the totalizing police and market powers exercised through machine vision won’t be mounted through ad hoc technology. In the long run, there’s no technical “fix” for the exacerbation of the political and economic inequalities that invisible visual culture is primed to encourage. To mediate against the optimizations and predations of a machinic landscape, one must create deliberate inefficiencies and spheres of life removed from market and political predations—“safe houses” in the invisible digital sphere. It is in inefficiency, experimentation, self-expression, and often law-breaking that freedom and political self-representation can be found.

We no longer look at images—images look at us. They no longer simply represent things, but actively intervene in everyday life. We must begin to understand these changes if we are to challenge the exceptional forms of power flowing through the invisible visual culture that we find ourselves enmeshed within.