Image Fictions: Fabricating Worlds

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Images play a central role in contemporary culture, and it is crucial that architects understand, control, and engineer their political forces.[1] From hyper-real simulations to machine vision, the structure and way that images are mobilized is changing. Photorealistic techniques and data-driven ones are entrusted as "objective" image types, often deployed to represent reality, truth, or facts, when in actuality, they can be used to call those into question through critical narratives. This paper investigates the potential of images to cultivate conversations about emerging technology's implications in architecture.

A pedagogical case study is put forward that frames critical, image-based narratives used in the examination of social, political, economic, or ecological issues within an urban territory. Each project addresses how the territory might interface with a selected emerging technology, including artificial intelligence (AI), autonomous vehicles (AVs), drones, automation, and augmented reality (AR). "Objective" image types are examined—both historical ones like construction documents, patent drawings, and diagrams, and contemporary ones like satellite imaging, video games, LiDAR, and photogrammetry—to foreground the following questions. How does architecture, a field tasked with confronting the "real," contend with the complex overlap of virtual and physical realms? How might our projections of future "realities" take on political positions rather than respond to the desires of capital?

> Architecture, more than other art forms, erroneously equates realism with reality. After all, architects build real places with materials to provide structure and enclosure for real people involved in real events. However, to label these aspects of architecture "realism"—when they are simply architecture's actuality—results in aesthetic confusion… realism is most vital as an aesthetic agenda when it calls attention to the differences and tensions between reality and its representation…Through realism, contemporary artistic practices generate an "aesthetics of doubt," opening up newly emergent political implications.[2]
>
> —Michael Young, *The Estranged Object*

IMAGE FICTIONS

In contemporary culture, the boundaries between "real" or virtual, fact or fiction, are increasingly blurring. We can generate images of convincing faces with no human analog, produce videos of speeches that were never delivered, and create immersive environments that never existed. Simultaneously, images are fundamentally restructuring our understanding of vision; artificial intelligence (AI) and machine vision turn an "objective" gaze toward a vast repository of images that are collected, analyzed, capitalized, and used to chart and regulate human behavior.[3] From visual media devoured by human audiences to image data gathered by non-human ones, images define the narratives of the present.[4]

Furthermore, fictions are the dominant media in the realm of emerging technology. Antoine Picon observes in *Smart Cities A Spatialised Intelligence*, there is a direct relationship between fiction and invention, wherein the "sociotechnical imagination" is predictive and catapults innovation.[5] Science fiction has long played the role of speculating on technology's future but is evermore blurring with everyday reality.[6] In some cases, novelists, scriptwriters, and film directors define these narratives, and in others, computer scientists do. [7] As Picon goes on to explain the relationship between the digital and the imaginary, or fiction, "Most self-fulfilling narratives emerge at the intersection of these two dimensions: communications and the everyday."[8] In a world full of communication technologies, fictions are powerful social levers.

FABRICATING WORLDS

This paper explores a pedagogical premise as a case study examining the power of images to fabricate worlds. *Image Fictions*, a representation seminar at Washington University in St. Louis, was designed and taught by assistant professor Constance Vale in Spring 2019 and 2020, who was joined by co-teachers assistant professor Kelley Van Dyck Murphy in 2019 and lecturer Ryan Abendroth in 2020. The project uses tactics of human visual culture to complicate perception while also interfacing with data-driven images that go beyond the boundaries of human vision. The seminar explores written and image-based narratives that examine the aesthetics of realism. Realism herein is deployed to confront a selected social, political, economic, or ecological issue within an urban territory's alternative past, present, or future and in relation to a nearby

Figure 1. *The Tower of Babel for Autonomous Vehicles* by Sheng Li in Constance Vale's section. Autonomous Vehicle Transit Hub. Precedent city and architecture: Rome, Italy, Piazza del Popolo, Carlo Rainaldi, Gian Lorenzo Bernini, and Carlo Fontana (1662-79), Campo Marzio, Giovanni Battista Piranesi (ca. 1774.)

speculative city.[9] The narratives are not didactic and do not represent an attempt to "save" the site; instead, they reveal their author's critical position.

Transformations alter built form and the matrix of rules and networks of relationships that govern the city. The ground's tectonic nature is explored wherein infrastructure and terrain may be hybridized. This tectonic understanding of the ground initiates a fictional archaeology of artifacts that appear in the narrative, rendering residual matter from various periods visible. Imagined ruins and relics are based on a close study of an infrastructural-architecture precedent and conceived as "compressed artifacts."

Special attention is paid to contemporary digital imaging and technology and its imagined repercussions in the alternative timeline. The narrative engages with a researched technology selected from the following list: AI, AVs, drones, automation, or augmented reality. Drawing and image types were calibrated to the chosen technology from the following realism-based types: (1) one informational or analytical image type like construction documents, patent drawings, mechanical drawings, and diagrams, and (2) one electronic image type, including satellite imaging, video game environments, Photoshopped images, LiDAR, and photogrammetry. These image types impact the output methods and are inflected within the territory, allowing their features to cross from the image's material realm to the implied picture.

For example, *The Tower of Babel for Autonomous Vehicles* by Sheng Li (figure 1) explores the social and ecological issues of a near future in which traditional cars have been entirely replaced by autonomous vehicles. Working within mechanical drawings and photogrammetric point clouds, his territory is transformed into a city-as-machine and, consequently, a critical reflection of Modernism's urban ambitions. In the fiction, Piazza del Popolo in Rome serves as a model for other cities, wherein the road has been converted to an entirely pedestrian realm with infrastructure pulled above grade. The architecture is a dense framework to accept autonomous vehicles that act as interchangeable rooms. The narrative reflects on the risks of solutionism in the fulfillment of architectural and technological desires.

Min Lin's *Energy: from Climate to Calories* (figure 2) addresses climate change in an increasingly dense Chicago that faces water and food shortages. Aerial transportation and a distributed network of pipes have replaced ground transportation. Food manufacturing and distribution, water purification, and waste management are robotically operated by a corporation that directs this new infrastructure network. The project uses video game environments as its representational lens and mobilizes a playful palette to draw attention to the sinister intertwining of climate change's ecological and economic issues. Corporations may game the system by both causing environmental degradation and profiting and gaining political power from it.

IMAGES IN ARCHITECTURE

While contemporary fictions appear in language, they have a special place in images. Within culture at large, the movement of "images is the gravity of our time." [10] As architects, we are

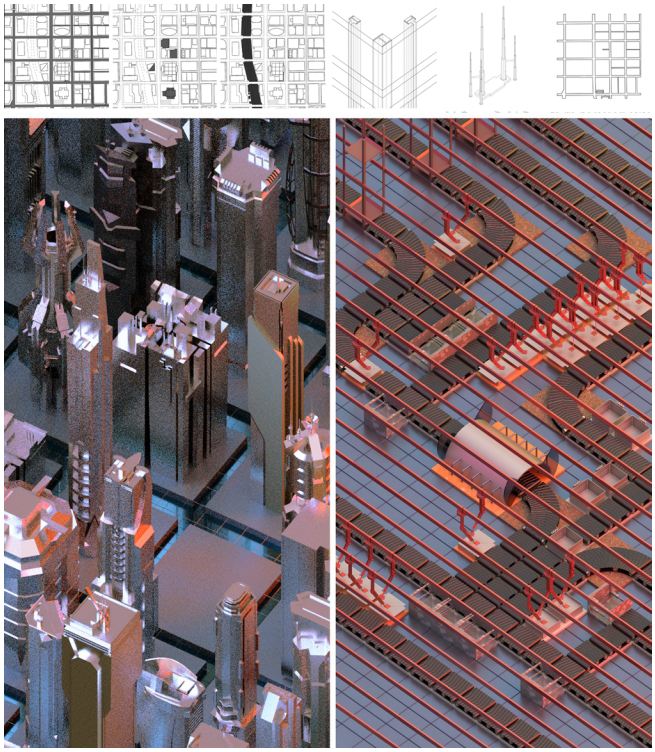

Figure 2. *Energy: from Climate to Calories* by Min Lin in Ryan Abendroth's section. Diagrams and internal network of fictional data center. Precedent city and architecture: Chicago, Illinois, United States of America, Willis Tower, Skidmore, Owings and Merrill, Fazlur Rahman Khan and Bruce Graham (1971-3), Stranded Sears Tower, Greg Lynn (1992.)

positioned to contribute to the present's self-fulfilling narratives, given the depth and breadth of our operation within images. Robin Evans' words remind us that this is our domain of action: architects don't make buildings but instead make the images, objects, and other devices to translate ideas into the world.[11] And today, from the animated images that we call "digital models" to collaborations with AI in machine vision, architects are not only creating but operating within images.[12]

However, architects often mistake realism for reality rather than recognizing realism's capacity to conflict with reality.[13] In architecture, photorealistic renderings and construction documents are often viewed as unambiguous legal and economic records. This assumption reduces architectural representations to their actualities, as mere vessels that portray the near-futures of possible buildings to a client as it might look when realized. While these are the essential functional roles of such images and documents, this neglects representation's generative potential. Furthermore, operating exclusively in this way reifies architecture's alliance with power and capital and cements claims to objectivity and universal truth in ways that compromise the critical position architects might otherwise assume.

Given all of this, architects should ask themselves: how might we contribute to sociotechnical future narratives? And how might we instrumentalize Capitalism's tools against its interests within architectural representation? This paper posits that, to impactfully contribute to contemporary narratives around emerging technology, it is not enough for architects to use technology; we should seek to invent technology's spatial potential. To do this, we may need to consider the methods of those that construct sociotechnical narratives—novelists, scriptwriters, and film directors on the one hand and computer scientists on the other—and adopt their tactics within architectural image-making and thinking. With this in mind, this paper explores data-driven images, photorealistic techniques, and "objective" image types deployed not to represent reality or truth but to throw those into question. The "image fictions" within are not strictly fictional but instead push against and challenge concepts of fact, truth, and reality to reveal all the nuanced states of information that exist in the everyday.[14]

An example from the seminar focused on mobilizing architecture's "objective" image types is *Reality as Shadows* by Madeline Peters (figure 3.) The author reflects on propositions about reality from Plato's "Allegory of the Cave." The Holland Tunnel and ventilation shafts in New York City are recast as a highly regulated border and security gate, with the tunnel entrance patrolled by security robots and drones. A man passing through the security point wonders how the other side will appear, have never seen the world beyond the gates. The drones nearby slowly turned toward the man, and the narrative suggests he may have been apprehended. Construction documents are selected as the "objective" image type used to convey verisimilitude relative to oppressive politics' bureaucratic mechanisms. Simultaneously, the project confronts questions surrounding surveillance technology in unmanned vehicles and the automation of vision.

IMAGES IN HUMAN VISUAL CULTURE

Images have been used to create ambiguity across the history of human visual, perhaps most critically estrangement, which operates through "complicating perception."[15] Michael Young's pivotal text, *The Estranged Object*, brings this into present-day architecture and argues that estrangement pushes against what we typically consider real.[16] What estrangement upsets is any clear terms of objectivity; it sets the image into performance, creating an enacted aesthetic experience. What lies at the core of this is an ambiguity that mobilizes the elastic relationship between representation and meaning.

A case of such ambiguity in architecture can be found in *Campo Marzio* (ca. 1774) by Giovanni Battista Piranesi. Rome remains recognizable via existing buildings and ruins but is overlaid with invented structures that throw the city's space and history into question. This fictional city operates as a speculation rather than a documentation, a world where architecture bubbles to the surface as a-historical events. Another productive case

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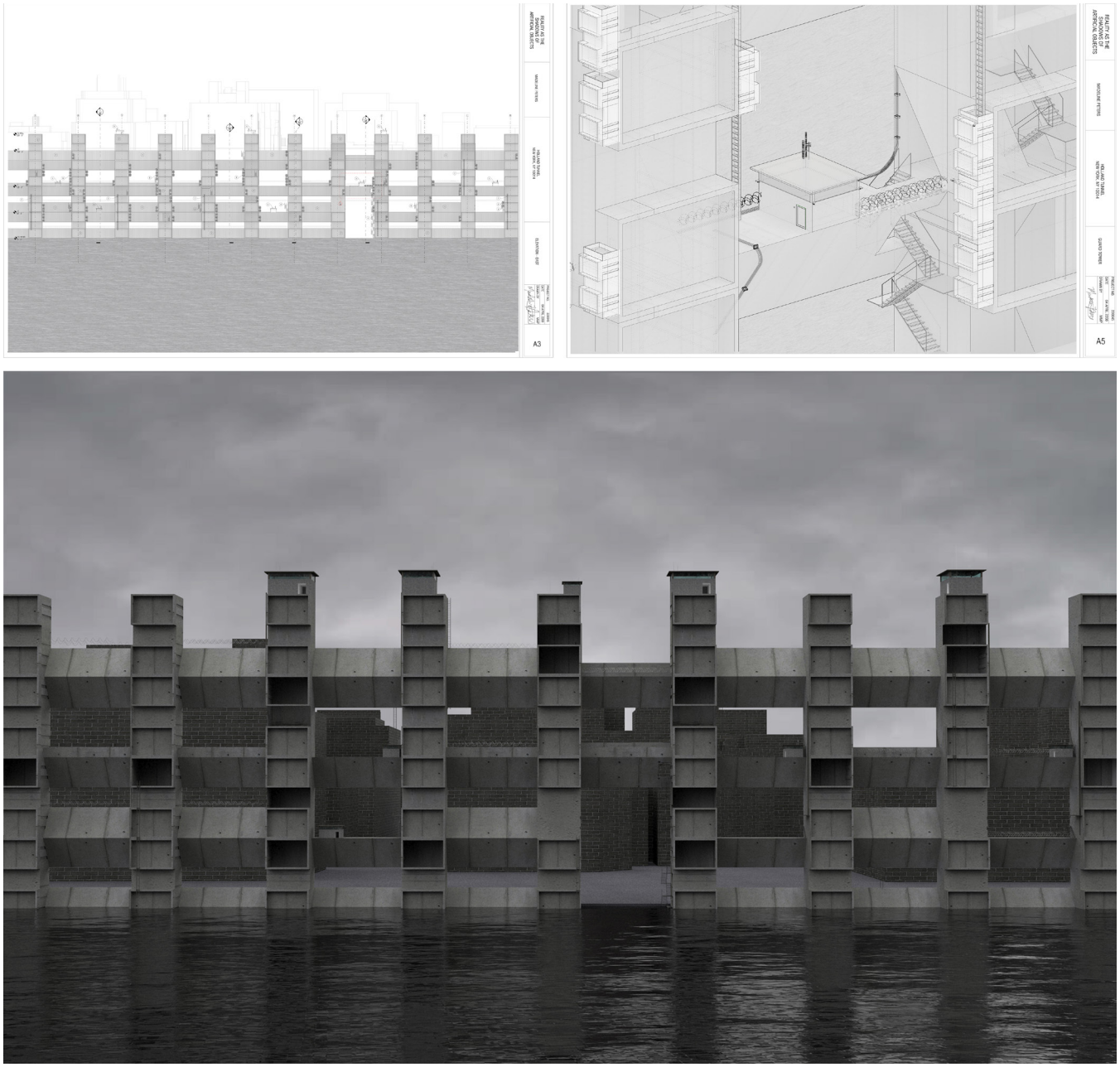

Figure 3. *Reality as Shadows* by Madeline Peters in Constance Vale's section. City security wall and drone surveillance center. Precedent city and architecture: New York City, New York, United States of America, Holland Tunnel Ventilation Buildings, Erling Owre (1926), Linear City, McMillan, Griffiths & Mileto (1967.)

is Bernard Tschumi's *The Manhattan Transcripts* (1976-1981). This project "differs from most architectural drawings insofar as they are neither real projects nor mere fantasies."[17] In these, events play a central role as described in a "script" and animated in plans, sections, and diagrams that form an architectural "stage set."

Working within the realm of realism to complicate perception puts pressure on assumptions. It heightens awareness that things can not be taken at face value—that reality, truth, and facts can be manipulated and should be considered critically. However, all of this is contingent on the kind of images that we've talked about for most of human history, which is not the exclusive concern of our day. As architects, our task is not only to continue these well-developed methods but also to attempt to deal with the complexities of "images made by machines, for machines."[18]

Yi Wang's *Patent City* (figure 4) takes advantage of patent drawings to investigate ecological problems in a future version

of JKF Airport in New York City, where sea level is rising rapidly. An intense network of infrastructure develops in three phases to prepare for future flooding and conversion from air to sea-based travel. The Port Authority of New York and New Jersey builds an extensive scaffold on the seafloor and a seaport. The narrative is staged within these progressive patents and at the scale of a model in the private space of invention: the designer's table. The project reflects not only on ecological and economic concerns but also authorship and ownership in the production of diffuse digital material like algorithms.

MACHINE IMAGES

In the contemporary world, human visual culture is now "a special case of vision, the exception not the rule."[19] What makes these images distinct is that they are machine-readable and render the human subject is inessential through the automation of vision. Thus, images shift from the realm of pure representation toward becoming "activations, operations."[20] Picon sees a similar shift from "modes of representation that were once cartographic and diagrammatic that are now instrumental and mediational."[21] That is to say, images set the machines and data into action. And this automation can be enacted "on dramatically larger and smaller scales than have ever been possible."[22]

What is especially pernicious is that we read objectivity into digital information; "automation bias" is a confirmed phenomenon that indicates that we trust automated information above our own experiences.[23] Data and its activating algorithms are not objective; instead, these allow for distortions and misinterpretations that play out the assumptions and biases of coders or crowds. However, the issue is not that data, algorithms, and the coders and robotic actors that set them into play are racist, classist, or gender-biased.[24] The incomprehensibility, invisibility, and opacity of digital processes make us overly trustful of and subject to their operations. Images have consequences that profoundly affect the socio-political realm. Images are "immensely powerful levers of social regulation that serve specific race and class interests"—as well as gender and sexual orientation and their intersectional overlaps—"while presenting themselves as objective."[25] Ultimately, "Despite the "objectivity" of the overall system, machine vision is often made to "unambiguously serve powerful government and corporate interests at the expense of vulnerable populations and civic life."[26] To combat this, we must look at how that power is exercised in technology in new ways.

We have tactics in human-human visual culture to combat inequality, racism, and injustice. Primarily, the relationship between representation and meaning is elastic through ambiguity. But ambiguity doesn't hold up in machine-machine vision. Trevor Paglen argues that "it is in inefficiency, experimentation, self-expression, and often law-breaking that freedom and political self-representation can be found."[27] James Bridle argues technologies that rely on AI "necessitate

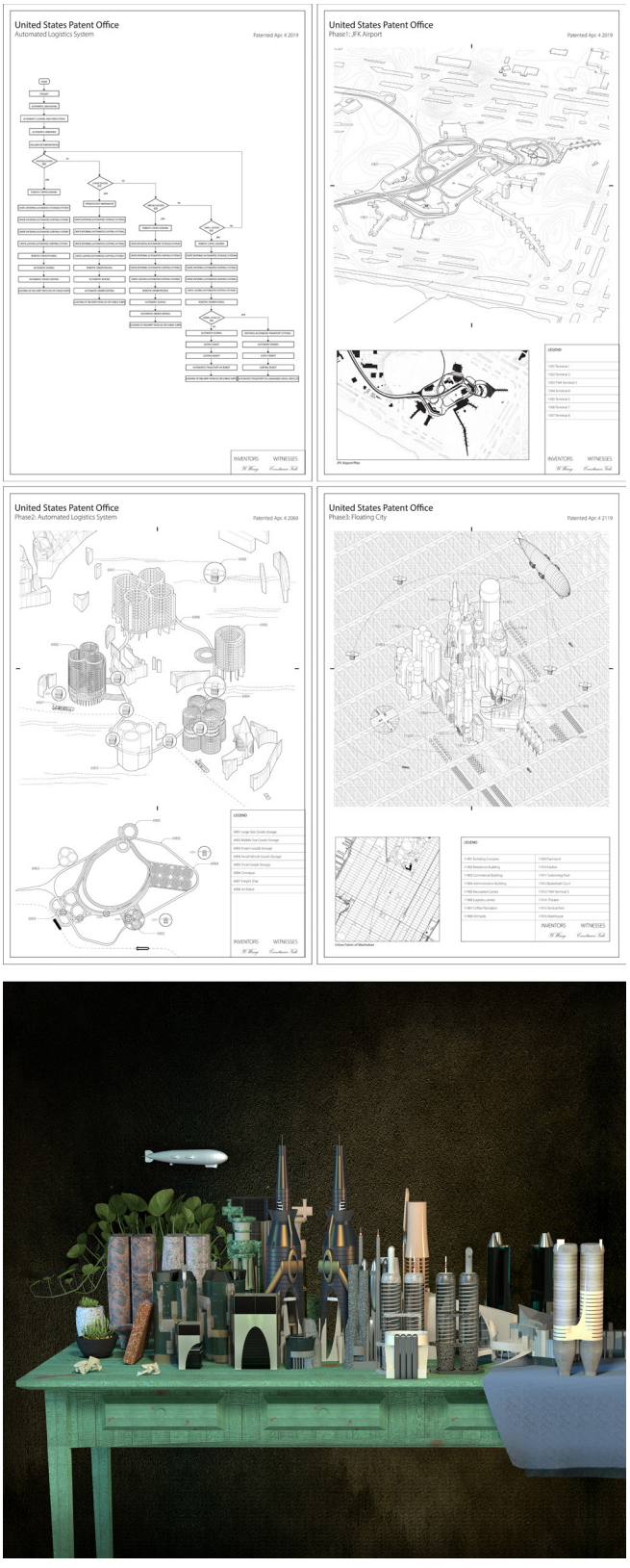

Figure 4. *Patent City* by Yi Wang in Constance Vale's section. Patent drawings and kitchen table model of fiction. Precedent city and architecture: New York City, New York, TWA Terminal, Eero Saarinen and Associates (1955-62), Continuous Monument, Superstudio (1969.)

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Figure 5. Growing Season, by Casey Niblett in Ryan Abendroth's section. Robotic eye and glitched automated construction. Precedent city and architecture: Abu Dhabi, United Arab Emirates, Grand Mosque, Yusef Abdelki (1996-2007), Masdar City, Norman Foster.

a return to the communal and the social" one in which we have "greater collaboration with our technologies," and we can "work with and subvert" them.[28]

Machine vision is a generator in *Growing Season* by Casey Niblett (figure 5), as its author works through scripting the territory's transformation, and at the same time, raises social issues. In the images, we see a robotic eye, one of hundreds of droids operating in the complex, and the building they are constructing, a glitched version of the selected territory, the Grand Mosque by Yusef Abdelki (1996-2007) in Abu Dhabi, United Arab Emirates. The project speculates on a self-sustaining city that has since been abandoned. As the droids fulfill their obsolete duties, they fall into disrepair. The fiction deals with automation, AI, and AVs and positions architecture to confront these as key contemporary issues. At its core, the narrative raises ethical questions about architectural production and labor as well as the rights of AIs and humans.

IMAGES AS ACTIVATIONS, OPERATIONS, INSTRUMENTATIONS, AND MEDIATIONS

Paglen's images as activations and operations and Picon's instrumental and mediational images can be connected to Piranesi's fictions and fragments and Tschumi's scripts and stage sets. At the center of all of these are imagined events or performances that are set into motion in cities. Picon states that a new urban intelligence based around emerging technology "is leading to the transition from the networked city to the event-city." He goes on to describe, "Even more than urbanists' plans, it is the narratives and scenarios that are inspired by them which allow cities to set objectives for themselves. The often-denounced crisis of urban planning is revealed to be contemporary with the rise in power of an event-based city in which reality and fiction are often difficult to distinguish from each other." [29]

This difficulty in distinguishing reality and fiction is tied to the rise of simulation, wherein "the boundary between what is really happening and what is likely to occur is becoming less clear than before." The legacy of simulation and computation is built around the desire to anticipate events from wartime attacks to weather. Simulation extends from video games to social media, suspending socialization and daily communication in its web. The operational quality of video games mirrors the digital models architects now design within and the event-city's narrative structure. A useful articulation of these image-based models can be found in Harun Farocki in a 2014 lecture titled "Computer Animation Rules," in which he stated, "A computer animation is less a reproduction and more a production…or creation of a model world" thus "calling for new tools of analysis…and modes of political intervention." [30] Architecture's digital models are not dealing in representation but more so in theatrical production, or the building of a world unto itself.

Image fictions in architectural pedagogy allow for examinations of emerging technology's implications to the built environment and civic life by participating directly in the sociotechnical imagination. The narratives engage with the event-based nature of cities using the methods of novelists, scriptwriters, film directors, and computer scientists. The narrative images are ambiguous, opening up questions about technology and its relationship to culture. Operating within authoritative or objective image types, they situate the story in architecture's everyday and putting forward these questions in a way that blur "the real" with fiction.

ENDNOTES

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19. Ibid.
20. Ibid.
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22. Paglen, "Invisible Images (Your Pictures Are Looking at You)."
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25. Trevor Paglen, "Invisible Images (Your Pictures Are Looking at You)."
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