AS PRAXIS

Edited by Carolina Rito and Bill Balaskas

CURATORIAL DIRECTIONS
FOR
COLLABORATIVE RESEARCH

INSTITUTION AS PRAXIS

INSTITUTION AS PRAXIS

NEW CURATORIAL
DIRECTIONS FOR
COLLABORATIVE RESEARCH

Carolina Rito and Bill Balaskas (Eds.)







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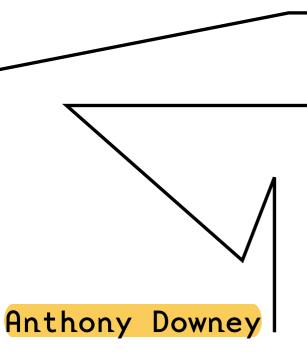
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"WHERE IS THE KNOWLEDGE WE HAVE LOST IN INFORMATION?":

SPECULATIVE RESEARCH AND DIGITAL METHODOLOGIES¹



1 — The first part of this title is taken from T. S. Eliot's "Choruses from 'The Rock," The Complete Poems and Plays of T.S. Eliot (London: Faber, 1982 (1969)), 147.

Technology is far ahead of humanity and ethics.²

– Jonas Mekas

How can cultural practices realign and potentially redefine how we understand the production, dissemination, and reception of knowledge? To pose such a guestion is to recognise a prevailing concern within cultural practices today—namely, what forms of knowledge does art produce—while also noting two increasingly substantive institutional approaches to these enquiries. The first perspective is focused on what types of knowledge are constructed within cultural practices, while the second is preoccupied with how these knowledge systems are applied beyond art institutions.3 In the first instance, the idea of knowledge production through artistic practices relates, in part at least, to the ever more voluble institutional, critical, and curatorial declarations made on behalf of artistic practices and their apparent success as conduits of constructive communication and social engagement. Such processes can, we are assured, effect forms of inclusivity, diversity, and productive collaboration.⁴ This becomes all

- 2 Jonas Mekas, "'I Was Very Angry' The Last Interview with Jonas Mekas, Godfather of Avant Garde Film," interview by Simon Hattenstone, *Guardian*, January 24, 2019, https:// www.theguardian.com/film/2019/ jan/24/jonas-mekas-last-interviewgodfather-underground-film-avantaarde-john-yoko-dali-warhol.
- 3 For a constructive and useful account of how art practices produce systems of knowledge, see Binna Choi, Maria Hlavajova, and Jill Winder, eds., On Knowledge Production: A Critical Reader in Contemporary Art (Utrecht: BAK, basis voor actuele kunst, 2008). For an overview of the collaborative "knowledge exchange" (KE) projects
- that exist between creative businesses and academics in the arts and humanities, see Simon Moreton, "Rethinking 'Knowledge Exchange': New Approaches to Collaborative Work in the Arts and Humanities," International Journal of Cultural Policy 22, no. 1 (2016): 100–15.
- 4 Ricard Zapata-Barrero, "Diversity and Cultural Policy: Cultural Citizenship as a Tool for Inclusion," International Journal of Cultural Policy 22, no. 4 (2016): 534–52; Andrew Miles and Lisanne Gibson, "Everyday Participation and Cultural Value," Cultural Trends 25, no. 3 (2016): 151–57.

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the more evident when we consider how cultural practices are repeatedly understood—through critical, curatorial, and institutional discourses—to represent and mediate the discombobulating experiences associated with, for example, globalisation, digital technologies, migration, and precarious labour. Art practices, in their capacity as forms of "applied" knowledge, are thereafter considered to be a viable means with which to reflect upon notions and ideals such as citizenship, activism, gender and income inequality, social injustice, digital media, conflict, terrorism, bio-politics, free trade, financial crises, environmentalism, diversity, and information technology—to name but a few of the more obvious areas of critical, curatorial, and institutional enquiry.

In these contexts, which prevail in public institutions across the UK and beyond, artists are understood to be producers of knowledge that can be transferred and applied—however provisionally—under institutional conditions that provide platforms, if not substance, for social and political debates. Needless to say, the actual (as opposed to idealised) levels of social engagement with visual culture tends to limit (if not disavow) the extent to which we can argue for these processes having any actual impact on social and political debates—other than those that happen within the relatively rarefied realm of critical theory.⁵ Nevertheless, if art as a practice is defined by the extent to which it has become a significant means of both questioning and producing

5 — In England, the "Taking Part" survey is the source of evidence for the Department for Digital, Culture, Media and Sport (DCMS) to gauge cultural participation and the impact of DCMS policy in this area. In 2016, using hierarchical cluster analysis and k-means cluster analysis to identify patterns of participation, it was reported that "about 8.7% of the

English population is highly engaged with state-supported forms of culture, and that this fraction is particularly well-off, well-educated, and white." See Mark Taylor, "Nonparticipation or Different Styles of Participation? Alternative Interpretations from Taking Part," Cultural Trends 25, no. 3 (2016): 169-81.

knowledge, then there is an imminent critical demand that we enquire more closely into how that knowledge intersects with what many see as an epistemological crisis in the production of meaning—a point to which I will return throughout this essay.

The accelerationism associated with social media and networked systems of digital communication has effected an ongoing epistemological dilemma—how do we know what we know-within knowledge systems. To the extent that information exchange and transfer has been facilitated—if not undermined and contiguously reconfigured— through a global system of networked communication, the means to understand how knowledge is generated through these processes has been further compromised by so-called fake news, targeted disinformation, and the apprehensions surrounding the uses (and abuses) of social media, "big data," algorithms, artificial inteligence (AI), and machine learning. In sum, an unprecedented level of distrust and scepticism around the idea of objective truth and impartial knowledge—already highly contested ideals—has produced a profound epistemological crisis throughout universities, libraries, broadcast media, and cultural institutions more generally. All of which returns us to our opening question but with a further refinement: how does art as a practice engage, critically or otherwise, with the production, dissemination, and reception of knowledge in a digital age?

In what follows, I will examine a number of artists whose practice-led forms of research engage with knowledge production in a digital age. Through research, their work critiques an ascendant epistemic-political and technoaesthetic order-two terms I will shortly address and define—that is based on a fundamental realignment of how

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we understand knowledge exchange and transfer. I will specifically ask how the knowledge produced from within creative practices—however speculative and provisional generates a series of research questions that reconfigure how we understand methodological concerns around information exchange and knowledge transfer in a digital age. When we consider practice-led research (creative practices) against the backdrop of such questions, I will propose that we need to pay specific attention to how these activities deconstruct digital image production and data, and how the move towards so-called "operational images," to use Harun Farocki's phrase, has re-calibrated the way in which we understand the image as a conduit of knowledge in a post-digital age.⁶ Practice-led research and the knowledge it produces can also often provide a means to cross-reference and self-reflexively engage with the research in question and how it functions as a form of (applied) knowledge. To fully understand the potency of practice-led research, we need to revise what we understand as an appropriate methodological approach to the question of epistemology: or, what is it to produce knowledge through creative practices in an anxious age of apparent digital dystopia?

6 — Farocki used the phrase "operational images" to describe images made by machines for machines. These images are not produced to represent either subjects or objects, rather, they are part of an operation. For Trevor Paglen, Farocki "was one of the first to notice that image-making machines and algorithms were poised to inaugurate a new visual regime. Instead of simply representing things in the

world, the machines and their images were starting to 'do' things in the world. In fields from marketing to warfare, human eyes were becoming anachronistic." See, respectively: Harun Farocki, Eye/Machine I-III, 2001-3, video-installation; and Trevor Paglen, "Operational Images," e-flux Journal 59 (November 2014), https:// www.e-flux.com/journal/59/61130/ operational-images/.

FORTHCOMING HISTORIES: DIGITAL ARCHIVES AND SOCIAL MEDIA

Developed by Lara Baladi, "Tahrir Archives" is a fully searchable index of the digital content that was produced during and after the 2011 Egyptian Revolution. Through an interactive database, it presents an opportunity to reflect upon the historical events that occurred in Tahrir Square in 2011 and how the digital production, circulation, and archiving of such data determined (and in some cases limited) our understanding and knowledge of those events and their historical legacy. Baladi's project, broadly speaking, asks how we might critically understand institutional archives and enable access to such images in the aftermath of revolutionary events and political upheaval. In relation to the questions posed above (on the subject of practiceled research and the knowledge produced by it), we might want to, therefore, ask the following: what knowledge is being produced by these archives, and how does Baladi's project question and engage with such knowledge?

The scale of cultural and political collaborations developed during the Arab uprisings was unprecedented, as artists and other cultural practitioners—often working on the frontlines of civil and political unrest—developed strategic alliances with lawyers, political activists, non-governmental agencies, digital technologists, data analysts, and humanitarian organisations. In so doing, artists such as Baladi not only redefined the methods and systems that determine traditional notions of cultural activism in a digital age, they also reconfigured the potential transfer and reception of knowledge and information—through networked systems of communication—and how they are

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Lara Baladi, Friday of Victory, Tahrir Square, Cairo, Egypt. © Lara Baladi, 2011.



Lara Baladi, Watch Out for Zuzu, 2018. Digital montage, murals, paintings by Eric Busch, LED tickers, video installation, web-based open-source archive. Installation view, Imagined Borders, Gwangu Biennial, South Korea, 2018. © Lara Baladi.

convened under emergency conditions. What we witnessed during and after the Arab uprisings was not only a series of revolutionary events but also a digital-epistemological crisis in the production of meaning and information: in other words, who gets to define the meaning and truth of events and under what conditions? Given the interactive context of "Tahrir Archives," a core area of enquiry here involves how institutions and curators encourage audience participation in these debates and the processes of accessing historical and real-time content. The enquiries undertaken as part of Baladi's project seek to determine how audiences not only understand and transfer historical knowledge-about protest movements and human rights abuses, for example—but also how immersive technologies can be utilised to encourage viewers to become more actively involved in the process of discerning, questioning, co-narrating, and co-developing such knowledge.

As we move towards newer means of mediating realities, storing information, and mass digital surveillance, the question of knowledge production and retrieval in institutional settings is also concerned with how we engage with information and communications technology (ICT) as producers and consumers of "common" knowledge. Arguably, these environments—the public museum, art gallery, and exhibition space—have been engulfed in a glut of images that undermine any singular narrative being defined as an evidentiary fact. Focusing as it does on cognitive and interpretive elements, this epistemic challenge will involve formulating new methods of audience collaboration with the substance of digital data, including how viewers can collaborate in co-developing archives—the latter being a key element throughout Baladi's project. Producing a series of interlinked questions about artistic research and post-

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digital methodologies, "Tahrir Archives" likewise enquires into how, within the paradigms promoted by collaborative research projects, we account for the manifold ways in which the digitisation of cultural production reconfigures the very idea of a knowledge commons.

Understanding how contemporary political movements organise and transmit information is obviously an epistemicpolitical concern, as well as an area of research that is more and more defined by debates about government sponsored forms of targeted disinformation, the propagation of so-called fake news, and the contiguous rise of digital authoritarianism, amongst other apprehensions. 7 While social media and networked communication systems continue to be endorsed as tools of liberation in the Middle East, there remains an urgent need to detail how they have transmuted into tools of oppression. In conjunction with anxieties about the role of targeted disinformation, online surveillance, and digital authoritarianism, these apprehensions have since assumed a global dimension that can be located in the use of algorithmic technologies to drive (and determine) significant aspects of our lives and how we access knowledge. As we will see, the issue of what knowledge algorithms produce and how it is deployed is a question of in-built machine-learning bias that can become, crucially, a matter of destiny.

7 — The events surrounding the so-called Arab uprisings from 2011 onwards have arguably presaged many of the concerns related to the epistemic crisis that has been wrought by digital technologies and networked systems of communication. For Egypt, this has resulted in restrictions on social media use and government sponsored disinformation campaigns. See, respectively: "Egypt to Regulate Popular Social Media Users," BBC News, July 17, 2018, https://www. bbc.co.uk/news/world-middleeast-44858547: and Ruth Michaelson.

"'Fake News' Becomes Tool of Repression after Egypt Passes New Law," Guardian, July 27, 2018, https://www.theguardian.com/globaldevelopment/2018/jul/27/fake-newsbecomes-tool-of-repression-afteregypt-passes-new-law. Elsewhere, issues have been raised about Google's return to Egypt and its susceptibility to government influence. See Vic Ryan, "Google Is Deepening Its Involvement with Egypt's Repressive Government," The Intercept, August 18, 2019, https://theintercept.com/2019/08/18/ google-egypt-office-sisi/.

LEARNING FROM MACHINES: THE BIO-POLITICS OF THE ALGORITHM

How does art as a practice produce critical forms of knowledge-or, indeed, non-knowledge-that negotiates how images are co-opted into normative systems of knowledge transfer and exchange? In "From 'Apple' to 'Anomaly,'" 2019, an ongoing project developed by Trevor Paglen, two elements come together: first, qualitative, humanities-based research, focusing on images and their uses; second, quantitative forms of measurable research employed by the social sciences. Drawing on ImageNet, a research project originating in Stanford University's Vision Lab that contains a dataset of over fourteen million images, Paglen's work is concerned with how AI networks are programmed to "see" and make sense of the world.8 Collating and categorising over 30,000 images from ImageNet, "From 'Apple' to 'Anomaly'" involved a small selection of the overall number of images stored therein. Across the spectrum of images in this project, we see a shift from relatively anodyne terms, for example "cloud" and "apple," to other more loaded categories such as "schemer" and "traitor." However, it is human operators that label the images, and the formal categorical systems that ensue are inevitably hardwired with a degree of bias. In turn, the systems produce taxonomies that are used to train machines to better understand the world. These machines, subsequently, train other machines using "operational images," to recall Farocki's phrase.

more correctly referred to as machine learning inasmuch as we have yet to substantively "prove" that machines "think" independent of our input; rather, such "intelligence" is the product of training via sets of images and words-datasets-that are

pre-defined by systems generated in the non-virtual, human world. This is precisely the point Paglen is making in his exploration of how bias—based on cultural, racial, and social predispositions—infiltrates the algorithmic rationale of the datasets that underwrite ImageNet.

8 — Artificial intelligence is perhaps

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Through exhibiting the images that created the original datasets alongside the categories used to cluster such images, Paglen's project visualises the hidden aspects of machine learning. It also reveals how ImageNet labels the world and how its datasets define future interactions with the non-virtual world of corporeal subjects. What transpires is a sobering enquiry into the profound, perhaps irrevocable, implications involved in how we will come to further understand, for example, the subject of race and gender, as Paglen demonstrated in a further project associated with From 'Apple' to 'Anomaly.' Working with AI researcher Kate Crawford, Paglen set up ImageNet Roulette, a website where users could upload their own photographs to see how the database—using datasets and categories such as those mentioned above-might categorise them.⁹ It became immediately apparent that the datasets being used by ImageNet are far from neutral. An array of offensive categories ranging from "wrongdoer" and "offender," applied to images uploaded by an African-American man, to "stunner, looker, mantrap," used to describe a white woman, appeared to be demonstrating the disturbing potential of algorithms to perpetuate racial and misogynistic stereotypes.

The overt level of racial and misogynistic categorisations should come as no surprise considering the categories contained in ImageNet (e.g., "failure, loser, non-starter, unsuccessful person" and "slattern, slut, slovenly woman, trollop"). However, the element that should come as

9 — I uploaded three images of myself overtones. ImageNet Roulette is no to this website and the results that came back were varied, ranging from "swot, dweeb, learner, assimilator," to "performer and psycholinguist." I understand from Paglen that others had far more problematic results relayed to them, which expressed racial prejudices and criminal

longer live, however, Crawford and Paglen have written up their findings in an article entitled "Excavating AI." Kate Crawford and Trevor Paglen, "Excavating AI: The Politics of Training Sets for Machine Learning, Excavating.ai, September 19, 2019, https://excavating.ai.





Trevor Paglen, "From 'Apple' to 'Anomaly," 2019-20. Installation view, Barbican, London, 2019. © Max Colson.

a surprise is that such datasets are already being actively used by police departments and government agencies' facial recognition systems, particularly in the United States but also elsewhere, to effect digital mass surveillance. In ImageNet, a benchmark in the field of machine learning, is not only fundamentally susceptible to in-built preconceptions but can only ever be predisposed to partiality if not downright prejudice, inasmuch as the categories in question are defined by human operators and therefore reflect broader societal determinants such as gender, racial, and sexual bias. In On a fundamental level, Paglen's project presents audiences with an opportunity to understand the algorithmic anxieties surrounding race, gender, and how the idea of subjectivity is being gradually determined by machine learning and algorithms.

Throughout this project, qualitative research into what images mean led to a quantitative analysis of how they are deployed and to what ends. Through a multi-disciplinary, collaborative effort, Paglen not only demonstrates the

10 — Cade Metz, "'Nerd,' 'Nonsmoker,' 'Wrongdoer': How Might A.I. Label You?," *New York Times*, September 20, 2019, https://www.nytimes.com/2019/09/20/arts/design/imagenet-trevor-paglen-ai-facial-recognition.html.

11 — The issues of algorithmic bias in racial profiling and the politics of inequality have been explored in, respectively: Safiya Umoja Noble, Algorithms of Oppression: How Search Engines Reinforce Racism (New York: NYU Press, 2018); and Virginia Eubanks, Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor (New York: St Martin's Press, 2018).

12 — When we teach machines through datasets such as those employed by ImageNet, we are also teaching them to make value judgements based on a series of criteria that programmers no longer have complete control over. This point was pithily made by Kevin Slavin, a research affiliate at MIT Media Lab, when he noted that "we are now writing algorithms we cannot read. That makes this a unique moment in history, in that we are subject to ideas and actions and efforts by a set of physics that have human origins without human comprehension [...] It's a bright future, if you're an algorithm." Siobhan Roberts, "The Yoda of Silicon Valley," New York Times, December 17, 2018, https://www.nytimes.com/2018/12/17/ science/donald-knuth-computersalgorithms-programming.html.

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constitutive biases underwriting ImageNet but how the idea of subject identification—how we identify people and the markers of our own identities—could come to play out in the future. As with Baladi's project, From 'Apple' to 'Anomaly' identifies an epistemological crisis in the production of meaning through digital means. This is likewise an epistemic-political concern. Whereas Baladi's project sees a crisis emerging in how we will identify and transmit historical facts into the future, Paglen's concern seems to be focused on the bio-political dimension of machine-learning. This bio-political determination within algorithmic reasoning—the impetus to categorise subjects along the lines of outdated binary notions of race and gender, for example—and the epistemic-political context out of which such determinations come to be defined as "truth," means that ImageNet effectively acts as an apparatus to enable certain modes and models of knowledge to come into being. These arguments and concerns are far from new: if we substitute the term "algorithm" for "discourse," we can productively reference the seminal work of Michel Foucault—in particular his writings on discourse analysis and biopolitics—and others who have sought to further his work in the digital age. The fact that algorithms can act as apparatuses for producing both truth and subjectivities—just as discourse produced the "truth" of the subject for Foucault—suggests, to quote Giorgio Agamben, that "apparatuses must always imply a process of subjectification, that is to say, they must produce their subject."13 Agamben's statement presages, in part, the role of the algorithm as an apparatus in a neoliberal age: the capacity to determine realities and the models of subjectivity we can adopt and adapt to in the future will, it seems, inevitably conform to political ideologies and technological demands.

13 — Giorgio Agamben, "What Is an Apparatus," in What Is an Apparatus?: And Other Essays, trans. David Kishik

and Stefan Pedatella (Stanford, CA: Stanford University Press, 2009), 11. Emphasis added. In linking Agamben's To fully understand the potential of the speculative research into digital methods and algorithms that Paglen's project produces, alongside the possibilities it offers for both qualitative and quantitative research methodologies, we need to remind ourselves that the digital apparatus (or discourse) is not only a formal separation of the true from the false but a de facto process of subjectification. It produces the subject of history as a truth (normative) or non-truth (nonnormative), while also conjoining such designations in a reciprocally, co-dependently defined relationship. The binary form of ideational co-dependency e.g., "wrongdoer" and "law-abiding"—brought about by the algorithmic bases that power machine learning and AI should not only give cause for critical concern, Paglen's work proposes, but also lead to legal, political, social, and legislative action. As a result of his ImageNet Roulette project, ImageNet removed 600,000 images of people stored on its database but, significantly, have not substantially revised their categorical systems of classification.¹⁴ Inasmuch as this is about defining, say, racial characteristics and dispensations to, for example, criminality, these emerging orders of algorithmicallydefined knowledge will indelibly produce new forms of subjectivity. Provisional data, produced by machines

theory of the apparatus to Foucault's theorisation of discourse. I am thinking specifically here of how the latter understood the productive context of knowledge. "I would define the episteme retrospectively," Foucault argued, "as the strategic apparatus which permits of separating out from among all the statements which are possible those that will be acceptable within, I won't say a scientific theory, but a field of scientificity, and which it is possible to say are true or false. The episteme is the 'apparatus' that makes possible the separation, not of the true from

the false, but of what may from what may not be characterized as scientific." Michel Foucault. Power/ Knowledge: Selected Interviews and Other Writings, 1972-1977, ed. Colin Gordon (New York: Pantheon Books, 1980), 197.

14 - Zachary Small, "600,000 Images Removed from AI Database after Art Project Exposes Racist Bias," Hyperallergic.com, September 23, 2019, https://hyperallergic. com/518822/600000-images-removedfrom-ai-database-after-art-projectexposes-racist-bias/.

for machines, and its inherent biases could potentially predefine the fate, if not destiny, of an individual. And, as we will see below, such data can also determine the life and, indeed, death of a subject.

IMAGINATIVE COMMAND: EMPIRICAL KNOWLEDGE, DRONE WARFARE, AND THE FUTURE OF DEATH

In September 2013, Egyptian authorities detained a migratory stork that had arrived in Egypt after travelling from Hungary via, amongst other countries, Israel. Reportedly captured by a wary fisherman, who viewed the bird with suspicion upon noticing an electronic device attached to it, the unfortunate stork was handed over to the local police station in Qena (a city situated on the east bank of the Nile in Upper Egypt), who in turn filed a police report that led to the bird's internment. 15 Upon further investigation, it transpired that the "camera device" was in fact a functioning tracking instrument attached to the stork by Hungarian scientists who were researching avian migratory habits. This was not the first time that an animal had been suspected of espionage, nor was it the only instance in which an animal has been incarcerated for alleged spying.¹⁶ However, and given that Egypt after

15 — The following discussion is reworked from an upcoming book. See Anthony Downey, ed., Heba Y. Amin: The General's Stork (Berlin: Sternberg Press. 2020). I am arateful to Amin for the many conversations we have had in relation to this work and the specific details behind its gestation.

16 — The list is long and includes: Squirrels who were captured in Iran in 2007 while apparently attempting to infiltrate the country with "spy gear." Darren Murph, "GPS-equipped spy squirrels 'arrested' by Iranians,"

Engadget.com, July 21, 2007, https:// www.engadget.com/2007/07/21/ gps-equipped-spy-squirrels-arrestedby-iranians/; Two pigeons who were supposedly loitering with intent around a uranium enrichment plant, again in Iran, in 2008. Noah Schachtman, "Iran Nails 'Spy Pigeons' Near Nuke Site (Updated)," Wired, October 10, 2008, https://www.wired. com/2008/10/iran-nails-spy/; An errant vulture, detained in 2011 by Saudi authorities on suspicion that it was flying missions for Israel. "Saudi Arabia 'detains' Israeli vulture for

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2011 was in the grip of momentous changes in terms of its social, economic, cultural, and political circumstances, the story of this unfortunate bird could perhaps best be understood as an all too acute reminder of the psychological state of a nation in fear of external forces and, indeed, internal machinations. It might, therefore, be easily dismissed as an example of rampant paranoia, over-zealousness, and xenophobia wrought by an historical form of epistemological crisis in the production of meaning and knowledge.17

Taking this event of avian incarceration as a starting point, Heba Y. Amin's project The General's Stork (2013-) amply reveals how this apparently bizarre tale-borne of paranoia and rampant forms of disinformation—is also a timely reminder of the spectre of uncrewed aerial vehicles (UAVs) and drone warfare that prevails over the Middle East. In the ostensible absurdity of a bird being arrested and held to account for espionage, we can glimpse the

spying," BBC News, January 5, 2011, https://www.bbc.co.uk/news/worldmiddle-east-12120259; A vulture captured in Sudan in 2012, which was also accused of spying for Israel. Robert Tait, "'Vulture spying for Israel' caught in Sudan," Telegraph, December 10, 2012, https://www. telegraph.co.uk/news/worldnews/ middleeast/israel/9734674/Vulturespying-for-Israel-caught-in-Sudan. html; And another vulture, tagged for tracking by Tel Aviv University, who was detained in 2016 in Lebanon when its Global Positioning Satellite (GPS) transmitter raised concerns that it was an agent for Mossad, the Israeli national intelligence agency. Agence France-Presse, "Vulture arrested in Lebanon on suspicion of spying," Guardian, January 26, 2016, https:// www.theguardian.com/world/2016/ jan/26/vulture-lebanon-spying.

17 — In Egypt, the question of knowledge and information and who had access to both was a highly contentious issue under the rule of former president Hosni Mubarak. This state of affairs was perpetuated by his replacement Mohamed Morsi, the latter being the short-lived fifth president of Egypt from June 2012-July 2013. Since his election to the presidency in June 2014, a similar degree of quardedness and suspicion continues to be propagated by Abdel Fattah el-Sisi and the security apparatus of the Egyptian state. Morsi, who was replaced by Sisi on July 3, 2013, was jailed pending trial and later collapsed during a court hearing and died of a heart attack. He was, perhaps not coincidentally, being held on charges of espionage.



Heba Y. Amin, The General's Stork, 2019, mixed media installation. Courtesy of the artist.

menace of the UAV in a scenario that is made all the more real by the fact that manufacturers, as Amin observes, have recently turned to the science of ethology—the study of animal behaviour; specifically, the aerodynamics of flight to perfect drones that resemble birds.

Launched from the ground in locations across the Middle East, Afghanistan, and Pakistan, drones typically relay information via satellites to air force bases (predominantly based in the US hinterlands of New Mexico and Nevada) where operators make decisions—such as whether to fire Hellfire II anti-armour missiles from a Predator drone—that

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are theoretically based on intelligence. And this is where the problems begin: theory, based on the technological enhancement of events on the ground, is an a priori way of deducing reality from hypotheticals. More simply put, the drone operator is not experiencing a first-hand reality as such but, more accurately, making a decision based on statistical probability and a risk assessment. The latter can, and will, determine the difference between life and death for those caught in the crosshairs of drone surveillance.¹⁸ The vectors of engagement—ranging from information sourced on the ground, satellite imaging, and human input from an army base—are supposed to seamlessly connect into a system that can deduce reality and act accordingly in eliminating "combatants" and other threats, thus, supposedly, ensuring no resulting danger to either the drone operator or anyone deemed a "non-combatant." The reality, however, is often in direct, inevitably injurious if not fatal, contradistinction to such dualistic rationalisations. 19

18 — The missile that killed Major General Oasem Soleimani of the Iranian Islamic Revolutionary Guard Corps (IRGC) and commander of the Ouds Force and the Iraai politician and military commander Abu Mahdi al-Muhandis as well as seven others at Baahdad International Airport on January 3, 2020, was reportedly launched from a MO-9 Reaper drone. The MO-9, also known as Predator B, is referred to by the US Air Force (USAF) as a Remotely Piloted Vehicle/ Aircraft (RPV/RPA). The operation to assassinate Soleimani is believed to have been directed by the CIA from Creech Air Force Base in Nevada. See Russ Read, "World's Most Feared Drone: CIA's MQ-9 Reaper Killed Soleimani," Washington Examiner, January 3, 2020, https://www. washingtonexaminer.com/policy/ defense-national-security/worldsmost-feared-drone-cias-mg-9-reaperkilled-soleimani.

19 — Looking at one case study in particular—namely, the use of drone warfare in Yemen—the director of the US office of the Sana'a Center for Strategic Studies (SCSS) in New York. Waleed Alhariri, observes that, "in the 15 years in which the US has deployed military drones in Yemen, there have been hundreds of civilian deaths. untold suffering endured by the injured and loved ones of the victims. This has deeply marred the image of the United States in the eyes of Yemenis and enables recruitment for AOAP [Al Qaeda in the Arabian Peninsula]." Citing the Columbia Law's School Human Rights Clinic and SCSS findings, Alhariri goes on to note that "the US government's figures and estimates are significantly lower, however, than those gathered by independent organizations, including those that use on-the-ground, fact-finding missions to calculate casualty figures." Waleed Alhariri, "Country Case Study:

Being seen, in this prevailing theatre of drone warfare, is the equivalent of courting death. The techno-aesthetics of drone surveillance and digital warfare give rise here, in sum, to a necropolitics of visibility.²⁰ Or, to put it in Martin C. Libicki's more succinct terms, in this ascendant paradiam of perceptibility and exposure "visibility equals death." ²¹

If we consider the documentation used throughout The General's Stork alongside Amin's own performative presentation of her findings, it is notable that the research methodologies employed owe something to investigative journalism.²² To this end, there is a circumstantial evidentiary context being developed through Amin's research: a case of sorts is being made through research methodologies and, in its investigative capacity, we find a commitment throughout this project to producing knowledge from (dis)information. Deconstructing historical data—be it allegorical, apocryphal, historical, material, virtual, evidentiary, or otherwise—and reframing it ensures that Amin's speculative production of knowledge reveals the symptoms of widespread paranoia. In doing so, the

Yemen," in Ray Acheson et al., ed., The 21 — Martin C. Libicki, quoted in Humanitarian Impact of Drones (New York: Women's International League for Peace and Freedom, 2017), 100, http://www.article36.org/wp-content/ uploads/2017/10/Humanitarianimpact-of-drones.pdf.

20 - I draw upon the phrase "necropolitics" from Achille Mbembe's eponymous essay in which he details the linkages that have "emerged between war making, war machines, and resource extraction." The phrase is often discussed both in relation to and in distinction from Foucault's notion of "biopolitics." Achille Mbembe, "Necropolitics," trans. Libby Meintjes, Public Culture 15, no. 1 (Winter 2003): 33.

Antoine Bousquet, The Eye of War: Military Perception from the Telescope to the Drone (Minneapolis: University of Minnesota Press, 2018), 3.

22 — Amin's collaborative practice involves numerous interviews as well as fieldwork based on gathering evidence. In relation to the latter, she travelled to the Qena region, where the stork was first found, and interviewed a number of people involved in its detainment and care, including Haitham Mossad, an ornithologist and member of Nature Conservation Egypt. Other interviewees included the filmmaker Laura Poitras and artist Adam Harvey.

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project draws upon multidisciplinary fields of enquiry ranging from digital optics, the technology of warfare, colonial and neocolonial history, the contemporary politics of warfare, techno-aesthetics, data analysis, ordinance mapping, and, of course, ornithology. It sets in motion an exploratory cultural treatise on the historical prevalence of surveillance technology and the techno-aesthetic regime that has been brought to bear upon how we visualise the Middle East. Add to this the advances made in augmented reality—the blending of physical and digital environments and we can see how the military-industrial complex produces the reality of a territory, through technological and ideological means, that further warrants the long-term invasion and subjugation of an entire region. Uncrewed drones could be vastly improved by algorithmic means—or so we are told—so that human error would be eradicated. In controlling death-delivering missiles, the use of apparently abstract, "neutral" algorithms further uncouples any moral obligation from the act of killing. If we can automate the procedures involved in the empirical deduction of reality through algorithmic means, and thus defer the subjective determinations involved in killing, then we not only enter the realm of "operational images," but into a vacuum of moral and ethical responsibility for death itself.

In the context of the images produced by UAVs, drone warfare not only produces a psychopathological relationship to airspace—based on anxiety, fear, and trepidation—it also consigns the Middle East to new forms of visibility and visualisation. In an age of machine learning and AI, drone warfare is also, crucially, powered by algorithms and augmented realities.²³ While the digital, future-oriented, gaze of drone surveillance is important to

observe, we need to note a crucial element in its evolution: the techno-aesthetics of the "machine gaze" produces an image of the region—through so-called operational images—that is not only severed from the image regimen that underwrote oriental and neo-oriental fantasy, but from all previously understood regimens of viewing and conceptual understanding.

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23 — It is important to note here the extent to which satellite surveillance and drone warfare are driven by and defined through AI, augmented reality, and algorithms that have been developed in the public sphere. For a review of Google's involvement in drone technology, see Lee Fang, "Google Hired Gig Economy Workers to Improve Artificial Intelligence in Controversial Drone-Targeting Project," The Intercept, February 4, 2019, https://theintercept. com/2019/02/04/google-ai-projectmaven-figure-eight/. For an overview of Amazon's concerted efforts to enter into the national security market contracts of the United States, see Sharon Weinberger, "The Everything War," MIT Technology Review 122, no. 6. (November/December 2019): 26-29. There are multiple connections to be observed between social media companies such as Google, Facebook, Microsoft, and others and the US military-industrial complex, none of which should come as a surprise given that one precursor to the internet was ARPANET, a communication system developed in the US in the 1960s as an early warning system during the nuclear age. See Stephen J. Lukasik, "Why the Arpanet Was Built," IEEE Annals of the History of Computing, 33, no. 3 (July-September 2011): 4–21. Amazon's cloud-based software programme, "Rekognition," is used for the purpose of facial recognition by a number of US government agencies

including the US Immigration and Customs Enforcement agency (ICE). It is supported by algorithms that a user can train via a custom dataset not unlike the ones provided by ImageNet. Elsewhere, Peter Thiel, a member of Facebook's board of directors, co-founded Palantir Technologies in 2004 and developed its profile working for the Pentagon and the CIA in Afghanistan and Iraq. It has been reported that the company has been employing datamining tools used in the so-called war on terror to track American citizens. See Peter Waldman, Lizette Chapman, and Jordan Robertson "Palantir Knows Everything About You," Bloomberg Businessweek, April 19, 2018, https:// www.bloomberg.com/features/2018palantir-peter-thiel/. It was recently reported in the Guardian that the US Army are developing a program called the Integrated Visual Augmentation System (IVAS), which adapts a version of Microsoft's augmented reality headset—the latter a self-contained holographic computer—that will provide more effective modes of night vision, thermal sensing, and monitoring of vital signs. Julia Carrie Wong, "'We Won't Be War Profiteers': Microsoft Workers Protest \$480m Army Contract," Guardian, February 22, 2019, https://www. theguardian.com/technology/2019/ feb/22/microsoft-protest-us-armyaugmented-reality-headsets.

The techno-aesthetics of digital surveillance has, in sum, given rise to an ascendant topographical contouring of the Middle East—a quartering of time and space—based upon forms of risk assessment that can only perpetuate the logic of an apparently unending war on terror.

In engaging with digital networks of communication, social media, online archives, algorithmic anxieties, and surveillance technologies, the above outlined projects by Baladi, Paglen, and Amin, respectively, develop ways of engaging with both the epistemic crisis that affects knowledge production and the ensuing concerns about how knowledge is produced and to what ends. In a digital age that is increasingly defined by an acute epistemological crisis, this is, in part at least, about how practice-based research can provide speculative approaches to understanding how knowledge systems operate. Apart from instigating—albeit in different ways—critical debate into how we engage with this crisis, their work also offers a potentially significant amalgamation between the qualitative and quantitative methodologies that we associate with research practices in the humanities and social sciences.²⁴ This offers a further framework within which to consider how collaborations between art and higher education institutions, or other research organisations, could disrupt the precepts of epistemological utilitarianism that is, the so-called use value of knowledge—in favour of a methodology that promotes speculative knowledge and practice-led research.

These practices, finally, rethink arguments around the intrinsic and instrumentalist value of art practices and institutions, be they public, private, or educational in their

DIGITAL METHODOLOGIES IS THE KNOWLEDGE WE HAVE LOST IN INFORMATION?": SPECULATIVE RESEARCH AND Arthony Downey constituencies. Apart from the imminent need to reconsider how knowledge is produced and applied within institutional contexts, we should also reflect upon the ways in which cultural production is subject to imminent instrumentalisation in relation to the so-called use value of knowledge production.²⁵ As artists, critics, and institutions alike pursue agendas based on the efficacy of art as a means of producing knowledge—however provisionally—cultural practices can be all the more readily instrumentalised with regard to yet another neoliberal priority: the co-option of culture so that it answers to political agendas rather than opposes them. We may, in relation to the above, want to think of the creative elements of practice-led research not leading to an outcome per se—or "impact," to use the parlance deployed today—but, rather, to an examination of how they may produce a performative, speculative range of transdisciplinary outcomes. These outcomes are largely focused on antagonistic disclosure rather than definitive, albeit provisional, forms of historical closure. Similarly, these forms of speculation propose a productive, generative form of practice-led research while also understanding how the knowledge produced by creative practice is methodologically productive, or, at the very least, methodologically propositional.

arts as a model of inclusivity. See Kevin Coffee, "Cultural Inclusion. Exclusion and the Formative Roles of Museums," Museum Management and Curatorship 23 no. 3 (August 2008): 261–79; Richard Sandell and Eithne Nightingale, eds., Museums, Equality and Social Justice (London: Routledge, 2012); and Eleonora Belfiore, "Cultural Policy Research in the Real World: Curatina 'Impact.' Facilitatina 'Enlightenment,'" Cultural Trends 25, no. 3 (July 2016): 205-16.

^{25 —} The culmination of respective government policies in the UK, in particular, has resulted in an ongoing debate about participation, inclusion, funding, and instrumentalisation within the arts. To date, these debates remain inconclusive; however, a number of interventions into this field, mostly produced from within the sphere of cultural policy, have offered productive ways of considering the ramifications and pitfalls associated with government policies on the

^{24 -} For further discussion of this area, see R. Lyle Skains, "Creative Practice as Research: Discourse on

educator, whose research is located at the intersection of politics, new media, and contemporary visual culture. He is an Associate Professor and Director of Research, Business and Innovation at the School of Art & Architecture, Kingston University, London. His works have been widely exhibited internationally, in galleries, museums, festivals, and public spaces. He has received awards and grants from: the European Investment Bank (EIB) Institute; Comité International d'Histoire de l'Art (CIHA); Open Society Foundations; European Cultural Foundation; National Sculpture Factory (Ireland); and the Association for Art History (UK), amongst others. He is an Editor of the Leonardo Electronic Almanac (LEA), published by MIT Press. His writings have also appeared in edited books and other publications such as: Journal of Visual Culture, Third Text, and Revista ARTA. Originally trained as an economist, he holds a PhD in Critical Writing in Art & Design and an MA in Communication Art & Design from the Royal College of Art.

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ruangrupa, publishing books, managing a gallery, undertaking art research, and organising karaoke events, amongst other activities. In 2014, he received a grant from the Japan Foundation to undertake an internship as an Assistant Curator at the Hiroshima City Museum of Contemporary Art (MOCA). Aside from his work with ruangrupa, he has also undertaken research and exhibited with different partners, such as Jakarta Arts Council and various NGOs, and he has taught in an art school. Since 2019, he has been a Curator at the Yamaguchi Center for Arts and Media (YCAM).

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Mélanie Bouteloup is Co-founder and the current Director of Bétonsalon -Centre for Art and Research and Villa Vassilieff. Over the last fifteen years. she has curated numerous projects in various forms that anchor research in society on process-based, collaborative, and discursive levels, following different time spans, in cooperation with various local, national, and international organisations. In 2012, Bouteloup was an Associate Curator, alonaside Artistic Director Okwui Enwezor, of La Triennale, Paris—an event organised on the initiative of the Ministry of Culture and Communication/ Directorate-General for Artistic Creation (DGCA), the Centre national des arts plastiques (CNAP), and the Palais de Tokyo. In 2014, she was conferred with the French honour. Knight of the Order of Arts and Letters.

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Pujita Guha and Abhijan Toto founded and co-direct the Forest Curriculum. which is an itinerant and nomadic platform for "indisciplinary" research and mutual co-learning. It proposes to assemble a located critique of the Anthropocene via the "naturecultures" of Zomia, the forested belt that connects south and southeast Asia. The Forest Curriculum works with artists, researchers, indigenous organisations and thinkers, musicians, and activists. Abhijan Toto is an independent curator and researcher, who has previously worked with the Dhaka Art Summit: Bellas Artes Projects, Manila; and Council, Paris. He is the recipient of the 2019 Lorenzo Bonaldi Award for Art, GAMeC, Bergamo. Pujita Guha is currently a GCLR Fellow at the University of California, Santa Barbara and is widely published on south and southeast Asian cultures and "ecosophical" thought. The Forest

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Curriculum organises exhibitions, talks, film programmes, and other public activities in addition to leading and conducting research groups and independent investigations. It also indulges in new forms of research in addition to teaching and developing programmes for academic institutions. The Forest Curriculum collaborates with institutions and organisations in south and southeast Asia and beyond, including: the Arts Network Asia (ANA) for "The Forest As School" Summer Academy programme; SAVVY Contemporary, Berlin; Ghost:2561 art series, Bangkok; SUGAR Contemporary, Toronto: Hanoi DocLab: and IdeasCity, New Museum, New York.

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ruangrupa is a Jakarta-based artists' collective established in 2000. It is a nonprofit organisation that strives to support art within urban and cultural contexts by encouraging artists and individuals from other disciplines—such as social sciences, politics, technology, and media, amongst others—to foster critical views in relation to Indonesian urban contemporary issues. ruangrupa also produces collaborative works in the form of art projects, such as exhibitions, festivals, art labs, workshops, and research, as well as books, magazines, and online journal publications. ruangrupa has been involved in many collaborative and exchange projects, including participating in: Gwanaju Biennale, 2002 & 2018; Istanbul Biennial, 2005: Asia Pacific Triennial of Contemporary Art, Brisbane, 2012; Singapore Biennale, 2011; São Paulo Biennial, 2014; Aichi Triennale, Nagoya, 2016; and Cosmopolis #1 Le Centre Pompidou, Paris, 2017. In 2016, ruangrupa curated Sonsbeek 2016's transACTION, Arnhem, Netherlands. ruangrupa is the curator of documenta 15, 2022.

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ACKNOWLEDGEMENTS

This project would not have been possible without the generous critical advice, institutional support, and practical help of numerous colleagues and friends. We would, first of all, like to thank all the authors for their participation in this publication, for the time taken to respond to our invitation, for their considered contributions, and, finally, for their patience throughout the editorial process. This publication was made possible thanks to the generous support of Nottingham Contemporary, Midlands Higher Education Culture Forum (Collaborative Research Working Group), Arts Council England, and Sternberg Press. We would especially like to acknowledge the support and enthusiasm throughout of: Sam Thorne, Jennie Syson, Rebecca Blackman, and Caroline Schneider.

The ideas that form the core of this publication were first tested in public events, closed-door seminars, and working group meetings that we co-convened in Nottingham and Coventry between 2018 and 2019. We are grateful to our colleagues who participated in these debates and for the thought-provoking conversations that started shaping this publication. We would like to acknowledge especially: Manuel Ángel Macia, Sally Bowden, Matthew Chesney, Heather Connelly, Tom Fisher, Tom Godfrey, Suzanne Golden, Paul Grainge, Duncan Higgins, Maria Hlavajova, Susanna Ison, Jill Journeaux, Barbara Matthews, Andrew Mowlah, Lucy Phillips, Irit Rogoff, Karen Salt, Joe Shaw, Nick Slater, Pat Thomson, Gavin Wadde, and Isobel Whitelegg.

At Nottingham Contemporary, we would like to thank all the colleagues who supported and were an integral part of the "Institution as Praxis" research strand, including the Public Programmes and Research team.

We also wish to thank Anna Canby Monk for her meticulous and rigorous copy-editing, which was essential to bring cohesion to a publication featuring diverse contributions.

INSTITUTION AS PRAXIS

NEW CURATORIAL DIRECTIONS
FOR COLLABORATIVE RESEARCH

Published by Sternberg Press

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Design
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© 2020 Sternberg Press © 2020 the editors, the outhors ISBN 978-3-95679-506-0

Publisher

Sternberg Press

Caroline Schneider

Karl-Marx-Allee 78

D-10243 Berlin

www.sternberg-press.com

Distributed by The MIT Press, Art Data, and Les presses du réel

This book was made possible thanks to the generous support of the following partners:

Midlands Higher Education & Culture Forum
www.midlandshecf.org

Nottingham Contemporary
Weekday Cross
Nottingham
NG1 2GB
www.nottinghamcontemporary.org

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