

**School of Media, Creative Arts and Social Inquiry**

**Drones, Signals, and the Techno-Colonisation of Landscape**

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**This thesis is presented for the Degree of  
Doctor of Philosophy  
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## Declaration

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgment has been made. This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

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## Abstract

This research project is a cross-disciplinary, practice-led investigation that interrogates increasing military interest in the electromagnetic spectrum (EMS). The EMS comprises the range of frequencies from radio to gamma waves. All frequencies are formed by photons, elemental particles travelling in wave patterns at light-speed. Bracketed by the infrared and ultraviolet frequencies, the light spectrum is the only frequency visible to the unaided human eye. Currently, contemporary civilian and military, connected and interconnected, technologies mostly rely on the radio-to-light spectrum. This project combines creative painting practice with disciplines such as cultural studies, art history, military studies, and international studies. These research disciplines are underpinned with technical and defence industry inquiry. The project's central argument is that painted visualisations of normally invisible aspects of contemporary EMS-enabled warfare can reveal useful, novel, and speculative but informed perspectives that can contribute to discussions about war and technology. The project pays particular attention to how visualising normally invisible signals reveals an insidious techno-colonisation of our extended environment from Earth to orbiting satellites.

Two main, but linked, objectives underpin this project. One objective focuses on painting as a creative and critical method of inquiry, capable of contributing new knowledge to global discussions about contemporary network-centric modes of warfare. The other objective focuses on contributing insights and questions that penetrate current and future geo-social-political issues associated with civilian and military techno-reliance on the EMS. Both objectives are articulated through creative practice informed by a tripartite theoretical approach. Firstly, theories of war are historically tracked from nineteenth-century Prussian General Carl von Clausewitz's famous tome, *On War*, to Dereck Gregory's notion of the "everywhere war", and Matthew Ford and Andrew Hoskin's "radical war" approach. Secondly, Paul Virilio's commentaries on speed and war provide valuable insights into light-speed-enabled militarised and militarise-able technologies that connect, interconnect, and interoperate. Thirdly, Forensic Architecture's "investigative aesthetics" approach informs my critical analyses of creative painting practice as a research methodology.

Outcomes of this research project include addressing the two main objectives I have outlined above, in conjunction with developing and pursuing new methodological and creative research approaches. I combine my novel 'imaginational metaveillance'

investigative approach with painting practice to reveal and investigate new ways of 'seeing' the contemporary techno-colonised world—and emerging patterns of techno-escalation. My idea of 'ambiveillance', as a descriptor for pervasive veillance in our insidiously techno-colonised environment, offers another revelatory lens. By layering these new approaches with painting practice, cross-disciplinary research, and technical inquiry, this project offers original insights into what the term 'theatre of war' might mean in the twenty-first century. An important finding or postulation is that speed, particularly light-speed, now represents a significant 'character' in the contemporary theatre of war. Overall, this research project serves as a catalyst for further questions that have the potential to stimulate new epistemological contributions to discussions about war and technology, both now and into the future.

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I acknowledge the Jagera and Turrbal peoples as the Traditional Custodians of Meanjin (Brisbane), the lands on which I currently live and where this project was undertaken. I pay my respects to Jagera and Turrbal Elders past and present.

The name I use in my creative practice is Kathryn Brimblecombe-Fox.

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# Drones, Signals, and the Techno-Colonisation of Landscape

## Introduction

This is a story about the seen and the unseen, and about things hidden in plain sight.

Opening lines, narrated by Jeremy Scahill, in the documentary film *Dirty Wars*, 2013.

## Setting the Scene

This research project examines the increasing interest militaries around the world are paying to the electromagnetic spectrum (EMS), as an enabler of technology, a type of fires (weapon), a manoeuvre space, and a domain. This examination takes a pluralistic approach, intersecting creative painting practice with art history, cultural studies, and international studies research focused on contemporary war, contemporary technology, the future of war, and visual politics. Importantly, technical research underpins and informs this project's written and visual speculations and outcomes. These speculations and outcomes are also informed by a creative and critical investigatory method I call 'imaginational metaveillance'.

To understand increasing military interest in the EMS, this project investigates how painted visualisations of normally invisible EMS-enabled signals that facilitate contemporary militarised and militarise-able technology can contribute to critical discussions about war, now and in the future. Examples of how I visualise normally invisible signalic connectivity include painted straight, dotted, or wavy lines, as well as strings or circles of painted binary code and scientific symbols. These are variously depicted in ambiguous scapes with other painted representations of military and civilian technological systems and devices. In this project, 'landscape' is not envisaged as an Earth-bound concept. Rather, regarding techno-colonisation, 'landscape' is envisaged as the distance between Earth and orbiting satellites, the space through which signals are transmitted via ground, sky, and space-based nodes. I intersperse the word 'landscape' with words such as 'scape' and 'environment'; I also often attach prefixes, for example, 'techno-scape', 'techno-environment', and 'cosmic-scape'.

Signals have been wirelessly carried by electromagnetic radio frequencies since Guglielmo Marconi and Nicola Tesla developed early radio communication in the late

1890s. However, twenty-first century digital and cyber technologies and systems increasingly rely upon radio, microwave, infrared, and light frequencies for device and sensor connectivity and operability, as well as interconnectivity and interoperability. For the military, access to and protection of increasingly congested and contested EMS bandwidths is pivotal for effective operations in our network-centric era. Because the EMS is a civilian–military shared resource, this research project undertakes a timely and critical examination of intensifying military interest in the EMS.

Activities undertaken by state and non-state actors deploying contemporary militarised hardware and systems, such as airborne drones and persistent surveillance systems, attract critical attention from artists and other researchers. Creative practice and other research intersect with fields such as international studies, war studies, media studies, surveillance studies, political science, and international law. Within these fields, however, the crucial enabling and operative roles played by invisible signals carried at light-speed by frequencies in the EMS are rarely or only obliquely addressed. Recent increased military interest in the EMS remains likewise under-researched. This practice-led project addresses these research gaps using the medium of painting to visualise normally invisible signals and their pivotal relationships with militarised technology. These visualisations, informed by this project’s novel cross-disciplinary research approach, prompt further questions about civilian and military use of, and access to, the EMS. This civilian–military lens, which focuses on the EMS and technology, sheds light on another invisible or discrete issue: geo-techno-politics.

Fundamentally, this research project is a twofold enterprise. Firstly, it actively excavates painting’s aesthetic, material, physical, and political possibilities as a medium that can critically engage with and scrutinise contemporary militarised and militarise-able technology, and associated issues. Secondly, this project’s creative responses to cross-disciplinary research aim to generate new epistemological contributions to global discussions about technology and war. This exegesis is written to unfold through a rhythm that reflects the movement between, for example, examinations of defence policy statements, analyses of creative responses to these statements, and insights gained from these analyses.

Digital and cyber-based new media artforms might be considered more obvious options for creative-based critiques of contemporary technology. However, I argue that because

hands-on creative painting practice does not rely on digital and cyber technologies for creation, exhibition, and storage, a technological distance fosters novel critical perspectives, not typically afforded by new media. This tendency does not mean that new media art cannot provide critical and creative responses to contemporary technology generally, and militarised technology specifically. In this research project, however, painting is positioned not as an anachronism, but instead as a medium capable of stimulating critical epistemological contributions to urgent debates about war and technology. I acknowledge that since the development of photography, predominantly Western art-historical predictions of, and claims about, painting's 'death' or 'resurrection' have periodically surfaced.<sup>1</sup> This exegesis, however, does not focus on arguing for the medium's redemption; rather, as an instrumental case study, this project demonstrates that painting can be an effective and critical creative agent, situated among other critically engaged artforms and agents.

To critically examine issues associated with signals carried by EMS frequencies, I position this research project in an art-historical continuum of painted representations of wartime signalling technology and its use. It is worth remembering that although this project focuses on wireless signalling, early signalling technology relied upon cables. In fact, a wartime signalling trajectory extends from the Crimean War (1853–1856), when the “electric field telegraph was used for the first time in wartime conditions”.<sup>2</sup> In February 1855, a detachment of British Royal Engineers was sent to Crimea to lay an underground cable from Balaklava to Field Marshal Lord Raglan's headquarters at Khutor, a distance of seven kilometres.<sup>3</sup> The Royal Signals Museum, based at Blandford Camp, Dorset, United Kingdom, holds a collection of paintings that includes *Electric Telegraph, Crimea* (n.d., Figure 1) by an unknown artist.<sup>4</sup> The painting depicts a British soldier sitting on a rock and operating telegraph equipment, which is placed on top of a box. He is sitting at the entrance of an elevated cave, facing out over a battlefield. The soldier's elevated position indicates real-time observations. It also conveys superior British military prowess in a war

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<sup>1</sup> An example is Douglas Crimp's oft-cited article “The End of Painting”, where he suggests that in the 1960s, painting had a “terminal condition”, which, by the 1980s, as evidenced by Frank Stella's “hysterical” work, heralded its demise. See Douglas Crimp, “The End of Painting,” *October* 16 (1981): 75, 82.

<sup>2</sup> *Field Telegraph Wire Used During the Crimean War*, ca. 1855, “Online Collection,” National Army Museum, accessed April 9, 2022, <https://collection.nam.ac.uk/detail.php?acc=1965-10-202-4>.

<sup>3</sup> National Army Museum, *Field Telegraph Wire*.

<sup>4</sup> *Electric Telegraph, Crimea*, Royal Signals Museum, accessed July 14, 2023, [https://artuk.org/discover/artworks/electric-telegraph-crimea-59259/search/venue:royal-signals-museum-3278/page/2/view\\_as/grid](https://artuk.org/discover/artworks/electric-telegraph-crimea-59259/search/venue:royal-signals-museum-3278/page/2/view_as/grid).

that “publicized Britain’s position as a major technological power that the Crystal Palace Exhibition a few years before had demonstrated”.<sup>5</sup>

The Royal Signals Museum collection also includes *Wheatstone Automatic Telegraph, Boer War* (n.d., Figure 2) by another unknown artist.<sup>6</sup> The Boer War continued from 1889 until 1902. The sepia-toned painting depicts a British soldier sitting on a box at a makeshift desk inside a field tent. A signpost, partially glimpsed through an open tent flap, tells the viewer that this is the telegraph office. The soldier is operating telegraph equipment, but unlike the signaller in *Electric Telegraph, Crimea*, his job has a designated space, albeit a temporary one. This could be read as a sign of signalling’s accelerating importance as a wartime activity. Other paintings in the museum’s collection depict images of signalling technology and use, from the First World War through to other twentieth-century wars and conflicts. While some of these paintings may not have been created contemporaneously or in situ, they represent interesting art-historical antecedents on which this research project builds.

The historical paintings in the Royal Signals Museum are largely representational, demonstrating a desire to record how new technologies—their hardware and use—were part of war efforts and sovereign capability. While my paintings fit into a historical trajectory of wartime signalling depictions, they depart from the traditional representational or illustrative approach. Rather, they place technological prowess, and desires for rapid and constant improvement and innovation, under scrutiny. In an era of always-on EMS-reliant digital and cyber platforms that enable both militarised technology and militarise-able civilian technology, my paintings jettison traditional designated and geographic warzone representation; instead, I visually speculate that the contemporary warzone is one that ubiquitously persists via signals continuously ricocheting from earth, to sky, to space-based nodes and devices. Given that we now live in an age where a person’s mobile phone can identify them as a possible mortal target or a target for misinformation, the lines between military and civilian, and war and peace, are increasingly blurred. Metaphorically speaking, the Crimean battlefield and the interior of the Boer War field tent are now potentially everywhere.

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<sup>5</sup> Yakup Bektas, “The Crimean War as a Technological Enterprise,” *Journal of the History of Science* 71, no. 3 (2017).

<sup>6</sup> *Wheatstone Automatic Telegraph, Boer War*, Royal Signals Museum, accessed July 15, 2023, [https://artuk.org/discover/artworks/wheatstone-automatic-telegraph-boer-war-59258/search/venue:royal-signals-museum-3278/page/2/view\\_as/grid](https://artuk.org/discover/artworks/wheatstone-automatic-telegraph-boer-war-59258/search/venue:royal-signals-museum-3278/page/2/view_as/grid).

**Two images has been removed for copyright reasons.**

Figure 1 (left). Unknown Artist, *Electric Telegraph, Crimea*, oil on board, 91 x 68 cm, n.d. Royal Signals Museum, UK. Photo: Unknown, <https://www.royalsignalsmuseum.co.uk/>.

Figure 2 (right). Unknown Artist, *Wheatstone Automatic Telegraph, Boer War*, oil on board, 91.5 x 67 cm, n.d. Royal Signals Museum, UK. Photo: Unknown. <https://www.royalsignalsmuseum.co.uk/>.

## **Electromagnetic Spectrum**

Before continuing, a brief description of the EMS will help contextualise my interest in pursuing a critical examination of increasing military interest in the EMS. All EMS frequencies—radio, microwave, infrared, visible light, ultraviolet, x-ray, gamma ray—are made of photons, travelling at light-speed, in waves.<sup>7</sup> Radio frequencies have the longest wavelengths, while gamma rays have the shortest. The light spectrum is the only frequency visible to the unaided human eye. Portions of the radio frequency and the light spectrum, with some ultraviolet light, are the only frequencies that reach sea level. Other frequencies are absorbed by Earth’s atmosphere. However, like all frequencies, they can be generated on Earth. For example, x-rays can be produced by smashing high-energy

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<sup>7</sup> Some brief information is available at “Electromagnetic Spectrum,” National Aeronautics and Space Administration, Goddard Space Flight Center, updated March 2013, <https://imagine.gsfc.nasa.gov/science/toolbox/emspectrum1.html>.

electrons into atoms, and gamma waves can be produced by nuclear explosions and lightning.<sup>8</sup>

A technical understanding of the EMS scaffolds this research project's focus on technology. However, an understanding of the EMS's cosmological history provides broader temporal and spatial perspectives of humanity's endeavours to harness EMS capabilities. The EMS's cosmological history commences around ten seconds after the Big Bang, when photons first appeared. When the universe was around 300,000 years old, it had cooled enough for light to be emitted. This is what we now detect as the cosmic microwave background. The EMS is a natural universal resource, with a history embedded in the universe's creation.<sup>9</sup> In our sphere of influence, from Earth to orbiting satellites, it could be described as a kind of commons. As Professor of Architecture and Media Arts and Sciences William J. Mitchell notes, in regard to bandwidth licensing, spectrum could be thought of as a "communal resource, like the old village commons, or the land available to a squatter community".<sup>10</sup>

The crux is this: in the twenty-first century, we are increasingly reliant on the EMS for both civilian and military technological needs. Contemporary connected, interconnected, and interoperable digital and cyber technologies would not work, with the speeds we expect, without access to EMS frequencies. With regard to increasing military interest in the EMS, signal transmissions enable contemporary military technological hardware and systems. As a type of fires (weapon), accelerating developments, for example, in high-frequency non-lethal laser weapons maximise new ways to destroy electronic and cyber-based civilian or military critical infrastructure.<sup>11</sup> The EMS is viewed by the military as a manoeuvre space—in other words, as a tactical resource. This perspective is evident in the United States Department of Defense (USDoD) description in 2020 of the EMS operational environment (EMSO). The EMSO is described in the *Electromagnetic*

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<sup>8</sup> Jim Lucas, "What Are X-Rays?," *Live Science*, October 6, 2018, <https://www.livescience.com/32344-what-are-x-rays.html>.

"Gamma Rays," NASA Science: Share the Science, accessed July 21, 2022, [https://science.nasa.gov/ems/12\\_gammarays#:~:text=They%20are%20produced%20by%20the,dramatic%20activity%20of%20radioactive%20decay](https://science.nasa.gov/ems/12_gammarays#:~:text=They%20are%20produced%20by%20the,dramatic%20activity%20of%20radioactive%20decay).

<sup>9</sup> NASA provides more information about the electromagnetic spectrum on their website at [https://science.nasa.gov/ems/01\\_intro](https://science.nasa.gov/ems/01_intro).

<sup>10</sup> William Mitchell, *ME++: The Cyborg Self and the Networked City* (Boston, MA: MIT Press, 2003), 56. Mitchell was a professor at MIT.

<sup>11</sup> Examples of the type of lasers developed for military use can be viewed at "High Energy Lasers," Raytheon Technologies, accessed May 8, 2023, <https://www.raytheonintelligenceandspace.com/what-we-do/advanced-tech/lasers>.

*Spectrum Superiority Strategy* as a “maneuver space, a battlespace, a place where competition and warfare, as well as commerce and other nonmilitary activities, are conducted”.<sup>12</sup> It is important to note the clear reference to civilian needs, and therefore the shared civilian–military nature of the EMS.

The USDoD’s *Electromagnetic Spectrum Superiority Strategy* refutes that the EMS is a domain, describing it as “not a separate domain of military operations because the EMS is inseparable from the domains established in joint doctrine”.<sup>13</sup> In chapter one, however, I make the argument that the EMS is indeed a domain. My argument is informed by thinking about and working through cross-disciplinary research as I paint. For me, the act of painting is a creative form of active interrogation and speculation. The process of visualising normally invisible signals prompts questions about the militarise-ability of civilian technology in an increasingly techno-colonised environment, from Earth to orbiting satellites. The significance of the EMS in our sphere of influence means that if it is a commons, any attempt to dominate it for military and security purposes requires critical examination.

## **Theoretical Framework**

A technical understanding of the EMS underpins the conception of this research project’s theoretical framework. While keeping the EMS as the pivot, this theoretical framework is a tripartite intersection, drawing upon theories of war, interrogations of speed, and aesthetic inquiry.

Firstly, geographer Derek Gregory’s notion of the “everywhere war” and his observation that the network is “also a weapon system” provide launching pads to imagine and visualise how contemporary use of the EMS perpetrates and perpetuates war.<sup>14</sup> Here, war not only encompasses traditionally understood modes of physical and kinetic warfare; it also now includes new modes of warfare, such as network-centric, grey-zone, hybrid, cyber, and information warfare. Secondly, cultural critic Paul Virilio’s commentaries on war

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<sup>12</sup> United States Department of Defense (hereafter USDoD), *Department of Defense Electromagnetic Spectrum Superiority Strategy* (Washington, DC: United States Department of Defense, 2020), 3, [https://media.defense.gov/2020/Oct/29/2002525927/-1/-1/0/ELECTROMAGNETIC\\_SPECTRUM\\_SUPERIORITY\\_STRATEGY.PDF](https://media.defense.gov/2020/Oct/29/2002525927/-1/-1/0/ELECTROMAGNETIC_SPECTRUM_SUPERIORITY_STRATEGY.PDF).

<sup>13</sup> USDoD, *Electromagnetic Spectrum Superiority Strategy*, 3.

<sup>14</sup> Derek Gregory, “The Everywhere War,” *The Geographical Journal* 177, no. 3 (2011): 238–50; Derek Gregory, “From a View to Kill,” *Theory, Culture and Society* 28, no. 7/8 (2011): 188–215.



and accelerating speeds of technological operation and development help elucidate the impact and ramifications of light-speed signal transmission in a shared civilian–military EMS environment. Thirdly, to penetrate the spatial and temporal issues associated with increasing military interest in the EMS, multidisciplinary research group Forensic Architecture’s theories of critical aesthetic inquiry inform my research approach.<sup>15</sup> Forensic Architecture’s digital and cyber-based film, video, and photographic works analyse and assemble evidence from multiple sources to prosecute, for example, human rights and environmental violations. While their productions are primarily aimed at legal courts and dispute tribunals, their work is also exhibited in galleries and museums, and is often discussed in cultural and academic arenas. This deliberate and dextrous proliferation of their work across multiple fora highlights the potency of aesthetic inquiry.

Although Forensic Architecture’s work informs my research approach, I do not aim to prosecute. Rather, I aim to speculate, to make informed visual and written conjectures about technology and war, now and into the future. I present these speculations as stimulants for further narratives and questions that can contribute to contemporary debates about technology and war. Like Forensic Architecture, I seek to broaden sites of impact, engagement, and contribution.<sup>16</sup> I aim to reach beyond the gallery and the artworld system, to also engage with university disciplines outside creative practice and art history. These encounters and engagements stimulate discussions about creative practice, particularly painting, as a research method with epistemological agency. In recent years, I have presented my art and research at cultural studies, international studies, and law conferences and workshops. I have also contributed to associated publications.<sup>17</sup> Additionally, military and defence arenas have invited me to exhibit my paintings, present at conferences, be involved in film opportunities, and provide advice relating to drone imaging. An objective for this project is to continue these types of contributions across a variety of arenas.

This research project’s pluralistic methodology—intersecting creative practice with art history, cultural studies, international studies, and technical research—is not dissimilar to the way Forensic Architecture employs a pluralistic investigative approach. Common to our

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<sup>15</sup> Read more at the Forensic Architecture website: <https://forensic-architecture.org/>.

<sup>16</sup> “About,” Forensic Architecture, accessed July 16, 2023, <https://forensic-architecture.org/about/agency>.

<sup>17</sup> I have visual essays in two forthcoming edited books. One is a result of presenting at the “Aesthetics of Drone Warfare” conference, Sheffield University, February 2020; the other is a result of presenting at “Drones in Society: New Visual Aesthetics”, Sheffield University, September 2022.

endeavours is the key role played by imagination. As Eyal Weizman, founder and director of Forensic Architecture, and Matthew Fuller, an advisory board member, comment: “We need imaginaries that can no longer be contained within disciplinary taxonomies but that are also able to work across them.”<sup>18</sup> In an age of hastening developments in AI-generated text and imagery, this project’s focus on human imagination and human creative painting practice is prescient and relevant.

### **‘Imaginational Metaveillance’ and Methodology**

In this research project, imaginational oversight to expose, map, and examine military use of the EMS is realised and visualised in oil and gouache paintings that invite viewers to ‘fly’, in imagination. This ‘flight’ can take viewers beyond, below, around, and inside my various depictions of the normally invisible and the normally visible systems and devices of contemporary war. Viewers could, for example, imagine being a speck of cosmic dust, a photon, a bird, a flying ant, an astronaut, a drone, or even an intergalactic space traveller. I use the word ‘imaginational’ because it suggests an ongoing participatory sensation, whereas the word ‘imagined’ implies an application that has already passed.

When I use oil paint, ambiguous scapes are formed by initially pouring variously coloured liquid paint onto canvases, then tilting the canvases one way and then another. I work into the paint with brushes, cloths, and my hands, pushing the paint further, adding other colours and effects. Over the top of these backgrounds, I paint various kinds of lines and circles to visualise normally invisible EMS-enabled signalling transmissions that facilitate operation, connection, interconnection, and interoperation of systems and hardware. This facilitation is often also visualised with painted strings or circles of binary code. Research for this project has also inspired me to sometimes include painted scientific symbols, for example,  $y$  for photon and  $c$  for light-speed. Additionally, painted appropriations of geolocating, targeting, and terrain visualisation computer graphics embed normally invisible algorithmic and signalic connectivity within digitised operations. When I place painted visualisations of the normally invisible with representations of material military and civilian hardware, such as drones and satellites, my aim is to expose technical and technological relationships that propel techno-colonising forces.

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<sup>18</sup> Matthew Fuller and Eyal Weizman, *Investigative Aesthetics: Conflicts and Commons in the Politics of Truth* (London, New York: Verso, 2021), 14.

Some viewers may not recognise binary code or scientific symbols, but others do. By aestheticising code and symbols, my intent is to draw attention to them, to provoke questions and speculation, stimulated by their aesthetic presence. This provocation is not dependent on whether viewers recognise that code or scientific symbols are being used. Rather, the presence of repeated patterns—for example, strings or circles of zeros and ones—provides visual prompts for questions. Code used for programming is instructional, whereas painted code is subversively revelatory, whether recognised as code or simply as a pattern. Aestheticised within a larger painted image, painted code and scientific symbols, repeated in lines or circles, reveal connections, as well as patterns. Colouring, either one colour or multiple colours, subverts the normally synthetic representation of code used in scientific, military, corporate, and popular entertainment content. The unevenness of hand-painted code and symbols defies the perceived clarity and perfection of coded instructions. If a viewer can read the painted binary code (for instance, words such as TARGET, HUMAN, HELLFIRE), they may be recognised as visual gateways that potentially enhance an understanding of my work. They may also induce fear, fascination, or melancholy. Or they may provoke no reaction at all. Open-ended possibilities of painted representations subvert instructional and computational synchronisation and didacticism.

Unaided by technological devices that mediate, simulate, or augment, viewers of my paintings can ‘fly’ around, beyond and inside the represented material technologies and the visualised, normally invisible, systems of the drone age. I intersect this revelatory and creative method of stimulating imaginal flight with Forensic Architecture’s “investigative aesthetics” and “thresholds of detectability” exploratory lenses.<sup>19</sup> These lenses extend revelatory methods into interrogative processes that reveal liminal fissures and emergent tensions. These fissures and tensions, I argue, are clues that point to an insidious signalic techno-colonisation of landscape and environment, extending from Earth to orbiting satellites. Mitchell refers to the “electro-magnetic terrain that we have constructed” as a “product of innumerable transmissions and of the reflections and obstructions of those transmissions”.<sup>20</sup> He calls it a “Hertzian landscape”.<sup>21</sup> I call it a techno-colonised landscape. We both call it an invisible landscape.<sup>22</sup> I aim to make this

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<sup>19</sup> These terms are consistently referred to in *Forensis: The Architecture of Public Truth*, ed. Forensic Architecture (London and Berlin: Sternberg Press and Forensic Architecture, 2014); Fuller and Weizman, *Investigative Aesthetics*.

<sup>20</sup> Mitchell, *The Cyborg Self*, 55.

<sup>21</sup> Mitchell, *The Cyborg Self*, 55.

<sup>22</sup> Mitchell, *The Cyborg Self*, 55.

landscape visible, thereby positioning my paintings as evidence of potential clues of an insidious techno-colonisation with future ramifications.

To provoke a sense of flying, I play with perspective, attempting to reposition or move the viewer in ways that offer different literal and metaphorical viewpoints. Here, Gaston Bachelard's suggestion that the "essence" of "authentic mobility" is found in "imagined mobility" poetically elucidates my intention and method.<sup>23</sup> The optical allusion of distance between painted backgrounds and overlays of painted markings opens a space for viewers of my paintings to 'fly'. Once launched, as they 'soar', multiple perspectives are possible. For example, if a viewer imagines flying beyond orbiting satellites, looking down upon a planetary landscape through a mesh of visualised signals, they witness an enclosed environment. If a viewer is flying low, peering up through a signal-net into a seemingly endless sky, a sense of enclosure is experientially felt. Yet, at another instant, a viewer could experience a sense of being in multiple places at once, a painted appropriation of a targeting computer graphic possibly menacing their flight path. Each of these imagined perspectives prompts new metaphorical perspectives of the relationships between war, politics, business, technology, culture, and humanity.

As Bachelard reminds us, "the voyage into distant worlds of the imaginary truly conducts a dynamic psyche only if it takes the shape of a voyage into the land of the infinite".<sup>24</sup> In this research project, imaginational flight assists the "voyage into distant worlds of the imaginary" and the "land of the infinite". Here, "distant worlds" and the "land of the infinite" are allegorical avenues for new possibilities, speculations, and perspectives. As I paint, I also fly, 'taking off' with the liquid paint I pour across my canvases or sheets of paper. As the paint dries, new worlds appear. The markings I paint over the top of these new worlds conjure the normally invisible in ways that seem to draw distance closer, at the same time as it recedes deeper into the infinity of space and time. Perhaps, I suggest, this is an example of Bachelard's "dynamic psyche".

Imaginational flight provides critical veillance-oversight—or, as I call it, 'imaginational metaveillance'—of an expanding volumetric techno-colonisation of landscape that reaches from Earth to orbiting satellites: our immediate EMS commons. As normally invisible

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<sup>23</sup> Gaston Bachelard, *On Poetic Imagination and Reverie*, trans. Colette Gaudin (New York and Indianapolis: The Bobbs-Merrill Company Inc., 1971), 22.

<sup>24</sup> Bachelard, *On Poetic Imagination*, 23.

signals are revealed and mapped, imaginational metaveillance offers ways to scrutinise other layers of invisibility, for example, insidious relationships between political, military, industrial, academic, and corporate activities and entities. Simultaneously, imaginational metaveillance is also an opportunity to undertake another kind of “imagined mobility”: time travel. Imagine returning to ten seconds after the Big Bang, hitching a ride on a photon to travel back to the present, before hurtling into the future. Here, imagined cosmic travel provides perspectives of Earth as a planetary landscape in a universal environment.

Universal perspectives trigger broader questions about humanity’s temporal influence and spatial custodianship, such as humanity’s reliance upon, and use of, the EMS for accelerating technological prowess that includes forces of duress and violence. Since reading astronomer and cosmologist Lord Martin Rees’s book *Our Final Century* (2004) in 2010, my creative practice has been attuned to cosmological perspectives, and ideas of existential or catastrophic risks posed by emerging technologies.<sup>25</sup> Rees’s overlay of cosmological perspectives of life, the planet, and the universe has influenced my research, my creative practice, and my ideas of imaginational metaveillance. As Rees points out: “A cosmic perspective strengthens the imperative to cherish this ‘pale blue dot’ in the cosmos. It should also motivate a circumspect attitude towards technical innovations that pose even a small threat of catastrophic downside.”<sup>26</sup>

This research project is an opportunity to develop my idea of imaginational metaveillance as both an investigative method and a creative process, unaided by digital and cyber technologies. Hands-on creative painting practice is imaginational metaveillance’s collaborator. Both are digitally un-trackable or re-traceable, and neither leaves a digital data residue. This, I argue, makes a statement of informed and creative refusal or resistance to prevailing EMS-reliant twenty-first century ‘veillance’ technologies and activities. It also provides a mode of critical interrogation and representation that contrasts with, adds to, and complements contemporary new media critical depictions and interrogations.

The prefix *meta* means beyond. I therefore use imaginational *metaveillance* as a theoretical and creative method of reaching beyond the normally visible. Imaginational flight adds a sensed or felt dimension to this aesthetic experience of observation and

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<sup>25</sup> Martin Rees, *Our Final Century* (London: Arrow Books, 2004).

<sup>26</sup> Rees, *Our Final Century*, 188.

investigation. Imaginational metaveillance likewise provides a way to integrate this research project's aim to examine increasing military interest in the EMS with the project's quest to explore how painted visualisations of normally invisible EMS-enabled signals can contribute to critical debates about war and technology. The creative and speculative nature of this project means that insights, questions, and methodologies have potential to contribute not only to debates about contemporary war and technology, but also to future issues. Here, imaginational metaveillance creatively and methodologically gestures to Rees's call to "cherish this 'pale blue dot'" in the face of "technical innovations that pose even a small threat of catastrophic downside".<sup>27</sup>

## **Background**

My idea of imaginational metaveillance organically developed, initially from a lifelong oneiric habit of flying in my imagination. My first memories of imaginational flight are from around the age of three, when I experienced 'flying' over my parents' grain farm on the flat, naturally treeless black-soil Pirriuan Plain in Queensland, Australia. As a small child, I knew what our farm—with its round water tanks, old cattle yards, multiple sheds and houses, and cultivated paddocks—looked like from above. I have flown in a plane over my childhood home only once. This was in 2016.

The open flat landscape of my childhood meant that a volumetric distance of latitude and longitude was my playground. In summer, mirages shimmered, fusing relentless blue skies with the plain's flat horizon. Against this predominantly treeless landscape, mirages transformed our neighbours' farm buildings and houses into floating watery silhouettes. When it rained, the rich black soil grew abundant crops of wheat, sorghum, and sunflowers, each crop painting the plain with strips of vibrant colours that changed over the crops' life-cycles. My interest in cosmology stems from my maternal grandmother's reasonably regular habit of taking me outside to gaze at the night sky. As she pointed out constellations and planets, the Milky Way appeared like a swathe of crystals sparkling on dark velvet.

At this point, I acknowledge the Indigenous Custodians of the Burruggan traditional land, where, as a child, I imaginatively flew. I flew, not over a pre-colonial landscape, but one

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<sup>27</sup> Rees, *Our Final Century*, 188.

that had been changed by Western agricultural practices and infrastructure developments such as roads, trainlines, fences, dams, buildings, and above-ground telephone lines. I recognise that much Indigenous art practice imagines the land laid flat across the canvas. As a small child, however, I was not aware of Indigenous aerial perspectives. I also do not presume to know how Indigenous people gained these perspectives. Over the years, I have had occasional opportunities at my exhibitions to speak with Indigenous people about my paintings and aerial perspectives. I have appreciated their recognition that my work responds to multidimensional experiences of landscape and environment in ways that do not appropriate Indigenous ways of seeing or experience. While my childhood landscape profoundly affected me, I do not claim any kind of referentiality with Indigenous perspectives, spirituality, or experience. Rather, I acknowledge that the Australian landscape, even in its changed appearance, powerfully rouses many deeply felt responses.

In addition to childhood imaginational flight and a playground of volumetric distance, or even because of them, I can construct three-dimensional environments in my mind. For example, I can look at an architectural plan and mentally build the structure in three dimensions. In other words, without drawing elevations, I can imagine them. I can also mentally build a structure and imagine walking through its rooms and spaces. As I 'walk' through, I can imagine different interior characteristics, for example, high or low ceilings, placement of windows. This ability to construct three-dimensional mental images in my mind helps explain my visual plays with perspective. It is also why I invite viewers of my paintings to fly—not only above, but also below, around, and inside my depictions of material and immaterial militarised infrastructure.

My ideas of imaginational metaveillance have been further honed by engaging with the work of Steve Mann, a professor of electrical and computer engineering and “father of wearable computing”.<sup>28</sup> Mann offers interesting ways to think about surveillance, sousveillance, and metaveillance, especially regarding power structures and abilities to observe the mechanisms of pervasive surveillance regimes.<sup>29</sup> Of particular interest for this research project is Mann’s idea of metaveillance or meta-surveillance. For Mann,

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<sup>28</sup> “Meet Steve Mann, Father of Wearable Computing,” University of Toronto, March 13, 2013, <https://www.utoronto.ca/news/meet-steve-mann-father-wearable-computing>.

<sup>29</sup> Steve Mann and Joseph Ferenbok, “New Media and the Power Politics of Sousveillance in a Surveillance-Dominated World,” *Surveillance and Society* 11, no. 1/2 (2013): 18–34.

metaveillance is the exposure and scrutiny, using devices “designed for augmented reality visualisations of waves and metawaves”, of wave frequencies emitted by sensors.<sup>30</sup> I untether Mann’s idea of metaveillance from technological devices and experimentation, arguing that a space for revelatory experimentation is also afforded by hands-on painting practices that do not require digital or cyber platforms for creation, exhibition, and storage. Imaginational metaveillance and painting work together as collaborative critical methods of inquiry, adding alternative ways to expose and scrutinise the invisible landscape of networked and interconnected power structures that scaffold pervasive techno-military-politics.

My interest in technology stems from my father’s enthusiasm for ‘ham’ or amateur radio operation.<sup>31</sup> He became a ham, passing exams, at the age of twelve. My father was captivated by electronics, and later in life, by digital and cyber technologies. He died in 2016 with a half-built computer on his ham shack bench. His ham shack and adjacent massive shed spilled over with exemplary kit, including historical Second World War bomber transmitters, shelves of electronic manuals, and more. Against the treeless flat landscape of the Pirrinuan Plain, my father’s four aerials punctured the sky. He mounted antennae on these aerials, facilitating transmission and reception of signals and messages from around the world.

In 1957, at the age of twenty, my father played a small part in the Cold War space race.<sup>32</sup> When the Americans realised the Soviets had successfully launched the world’s first satellite, Sputnik 1, the Jet Propulsion Unit (JPU) rushed to track it. However, electronic interference hindered their efforts. A man working at the JPU was a ham. He organised for local and international hams to track Sputnik 1 and send coordinates back to the US. My father was one of these hams. There are many other tales to tell, but suffice to say, well before the internet, the Brimblecombe family heard world news long before mainstream media broadcast it. My father’s ability to link with other hams around the world helped me form a picture of an environment that was much larger than our farm.

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<sup>30</sup> Steve Mann, “Surveillance (Oversight), Sousveillance (Undersight), and Metaveillance (Seeing Sight Itself)” (paper presented at IEEE Conference on Computer Vision and Pattern Recognition Workshop, June 26 – July 1 2016, Las Vegas), <https://ieeexplore.ieee.org/document/7789667>.

<sup>31</sup> For more information about amateur radio, see “Amateur Radio,” Australian Communications and Media Authority, Australian Government, accessed May 10, 2023, <https://www.acma.gov.au/amateur-radio>.

<sup>32</sup> For more about ham involvement with Sputnik 1, see “First Contact: Sputnik,” NASA, updated August 7, 2017, [https://www.nasa.gov/mission\\_pages/explorer/sputnik-20071002.html](https://www.nasa.gov/mission_pages/explorer/sputnik-20071002.html).



My father's amateur radio interest extended into enthusiastic consumption of the latest still cameras, movie and video cameras, sound equipment, farm machinery, computers, cars, and more. If he could not buy it, he made it. For example, in the early 1960s he made the family's first television set. My father's techno-enthusiasm extended to family members. When I was twelve, I was given a movie camera. I had already made my first crystal radio set, and I enjoyed watching my brother, who followed my father's interest in photography, develop photographs in his well-kitted darkroom. Over the years, I have used a bevy of different electronic and digital devices and mediums for creative work and entertainment, but painting is the medium that persistently holds my greatest interest. I am contrarily excited about painting's messy and creative possibilities to critically engage with contemporary technology, without actually using it.

Painting is a form and method of refusal and resistance on several levels. A personal one stems from my father's preference for the company of his technological gadgets, rather than the company of human beings. This influences my activation of painting as an aesthetic devil's advocate, a critical provocation, and a form of refusal and resistance. With a lifelong insight into the human effects of techno-addiction, I err against venerating technological promise and prowess.

## **Exegesis Structure**

The written part of this research project has a three-part chapter structure, preceded by this introduction, and followed by a conclusion. The chapters comprise "Imaginational Metaveillance, Ambiveillance, and the Cloud", "Speed: Light-Speed =  $c$ ", and "Visualising Contemporary 'Theatre of War'". The three chapters are interspersed with visual analyses of work by historical and contemporary artists who engage directly or tangentially with issues of contemporary technology and war. I also discuss selections of my own paintings, using visual analyses and reflections on creative practice and inspirations.

Each chapter is articulated through, and expands upon, this research project's tripartite theoretical framework. Theoretical approaches both inform and are supplemented by critical appraisals of EMS-related policy and technical statements from defence departments, for example, the USDoD, the Australian Government's Department of Defence, and the United Kingdom's Ministry of Defence. Other commentaries from

military-based sources, defence science and technology research centres, and defence manufacturers provide further detail.

In chapter one, “Imaginational Metaveillance, Ambiveillance, and the Cloud”, I expand upon my idea of imaginational metaveillance as a creative and critical method of aesthetic perception, observation, visualisation, and interrogation. Using an imaginational metaveillance approach, I examine Mann’s ideas of surveillance and sousveillance in conjunction with international studies scholar Sebastian Kaempf’s and communications scholar Roger Stahl’s commentaries on sousveillance.<sup>33</sup> This intersection, coupled with examinations of sousveillance activities, lays the foundation for my novel proposal of an emergent additional veillance, called ‘ambiveillance’. The word ‘ambiveillance’ was inspired by thinking about cognitive scientist and physicist Douglas Hofstadter’s invention, the ambigram, a visual form of mirror wordplay.<sup>34</sup> Ambiveillance provides a way to think about Gregory’s notion of the “everywhere war” in an ensuing ambiveillant environment that requires, and therefore perpetuates, militarised and militarise-able EMS-enabled network-centric operations.

As a descriptor for an ambidextrous employment of sousveillance and surveillance technologies, ambiveillance intersects with an extensive critical discussion of the cloud as a metaphor for the internet and interconnected and interoperable technologies. Professor of English and former network engineer Tung-Hui Hu’s warning that artists who use digital and cyber platforms to critique contemporary technology could “reproduce the system of values of say, (‘participation’) embedded in the cloud” helps pivot my analytic approach.<sup>35</sup> In particular, Hu’s warning informs critical visual analyses of works by various artists, including Forensic Architecture’s work *Cloud Studies* (2018). I discuss my own cloud paintings, in reference to Hu’s warning, and in conjunction with the issue of toxicity raised in *Cloud Studies*.

Chapter one also unfolds through three main art-historical threads. Firstly, references to art-historical paintings of atmospheric clouds in Forensic Architecture’s *Cloud Studies* help to situate my own paintings of clouds, albeit techno-clouds, within an art-historical

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<sup>33</sup> Roger Stahl and Sebastian Kaempf, “Sousveilling the ‘Global War on Terror’,” *Australian Journal of International Affairs* 73, no. 4 (2019): 8, <https://doi.org/10.1080/10357718.2019.1613633>.

<sup>34</sup> Douglas Hofstadter, *Godel, Escher, Bach: An Eternal Golden Braid* (New York: Basic Books, 1979, 1999), 19.

<sup>35</sup> Tung-Hui Hu, *A Prehistory of the Cloud* (Cambridge: The MIT Press, 2015), XXIII.

trajectory. Like Forensic Architecture, I draw upon John Ruskin's (1819–1900) nineteenth-century observations of clouds. However, I take up Ruskin's ideas of a "plague-cloud" and a "plague-wind" to expand Forensic Architecture's ideas of toxicity.<sup>36</sup> I make an argument that increasing militarised interest in the EMS is a kind of plague-wind that contaminates the twenty-first century techno-cloud. The second art-historical thread addresses the military's involvement in the foundations of computer art in the early 1960s. Here, the representation of military research centres in early computer art competitions offers a lens through which to examine contemporary AI use and research conducted by the military, as well as artists. The third art-historical thread draws upon Antoine Bousquet's deft historical elucidation of perspective, embedded not only in art history, but also in the history of military scoping, targeting, and mapping.<sup>37</sup>

Chapter two, "Speed: Light-Speed =  $c$ ", pivots around Virilio's commentaries on technological speed reaching the "light barrier, the speed of light".<sup>38</sup> More specifically, Virilio's concerns relating to "war at the speed of light" provide launching pads that intersect with contemporary commentaries on war, speed, and technology.<sup>39</sup> Here, David C. Horowitz's 2019 article, "When Speed Kills: Lethal Autonomous Weapon Systems, Deterrence and Stability", prompts my arguments that in the age of light-speed signal transmissions, speed can be both a weapon and a purveyor of weaponry.<sup>40</sup> This double entendre presents a creative challenge for how to represent a sense of speed, particularly light-speed, in a painting. Here, imaginal metaveillance, coupled with Forensic Architecture's "investigative aesthetics" and "thresholds of detectability" exploratory lenses, offer ways to think about and visualise speeds that operate beyond human dimensions of time and space.<sup>41</sup>

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<sup>36</sup> John Ruskin, "The Storm-Cloud of the Nineteenth Century: Two Lectures Delivered at the London Institution 1884," (Sunnyside, Orpington, Kent: George Allen, 1884). "Plague-cloud" first mentioned page 1, "plague-wind", page 43.

<sup>37</sup> Antoine Bousquet, *The Eye of War: Military Perception from the Telescope to the Drone* (Minnesota: University of Minnesota, 2018).

<sup>38</sup> Paul Virilio, "Red Alert in Cyberspace," trans. Malcolm Imrie, *Radical Philosophy* 74 (1995): 2.

<sup>39</sup> Paul Virilio, *Desert Screen: War at the Speed of Light*, trans. Michael Degener (London and New York: Continuum, 2002), first published 1991.

<sup>40</sup> Michael C Horowitz, "When Speed Kills: Lethal Autonomous Weapon Systems, Deterrence and Stability," *Journal of Strategic Studies* 42, no. 2, (2019): 764–88.

<sup>41</sup> These terms are consistently referred to in Forensic Architecture's *Forensis*, and Fuller and Weizman, *Investigative Aesthetics*.

In chapter two, I discuss speed in relation to military developments in AI-enabled autonomous systems that replace human operators, therefore reducing human-caused delay. Increasing needs for speed, and normalised expectations for seemingly instantaneous signal connectivity and interconnectivity, are signs of liminal fissures and emergent tensions, a kind of “mission creep”. I propose that hands-on painting practices can subversively identify, scrutinise, and evade this insidious mission creep. For example, the *doing* part of painting practice returns speed to human experiential dimensions of space and time. The corollary is that the human being is also returned to process and the entirety of practice, as a catalytic and responsive agent, rather than an impediment. This reality contrasts with autonomous systems where questions about meaningful human decision-making and control dominate debates. In regard to this project’s focus on militarised technology, questions about autonomous processes inserted into weapons systems involve other questions about who or what takes responsibility for decisions and, therefore, outcomes. These questions intersect with International Humanitarian Law (IHL), where rules about distinction and proportionality aim to keep the effects of armed conflict—particularly on civilians, prisoners of war, and the wounded—in check.<sup>42</sup>

In chapter two, I also argue that an emphasis on speed in future-of-war rhetoric weaponises and militarises speed, time, and the future. I provide examples of future-of-war rhetoric, defence policy EMS-related statements, and defence manufacturer statements regarding speed to argue that Gregory’s “everywhere war” now extends into time, and therefore the future. Reference to Filippo Tommaso Marinetti’s *The Futurist Manifesto* (1909), expounding the benefits of technological speed and war, provides a contentious historical and art-historical backdrop for this chapter’s analysis of speed, technology, war, and the future.<sup>43</sup>

Woven into chapter two’s discussion on speed are analyses of artworks by Futurist painter Benedetta Cappa (1897–1977) and American artist James Rosenquist (1933–2017). Each artist has attempted to create a sense of speed in various works. Rosenquist’s interest in cosmology inspired, for example, his series called *Speed of Light* (early 2000s).

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<sup>42</sup> “War and Law,” International Committee of the Red Cross (ICRC), accessed June 20, 2023, <https://www.icrc.org/en/war-and-law>. A book that focuses on autonomous weapon systems and IHL is Diego Mauri, *Autonomous Weapons Systems and the Protection of the Human Person* (London: Edward Elgar Publishing, 2022).

<sup>43</sup> Filippo Tommaso Marinetti, “The Futurist Manifesto,” first published in *Le Figaro* (20 February, 1909), reproduced by *Kunstfilosofie | Philosophy of Art*, accessed October 9, 2022, <https://sites.google.com/site/kunstfilosofiesite/Home/texts/marinetti-the-futurist-manifesto-1909>.

Benedetta's *Synthesis of Communications* (1933), a series of five paintings commissioned for the Central Post Office, Palermo, Sicily, responds to burgeoning pre-Second World War forms of communication, including telephone and wireless radio. As a public artwork, Benedetta's paintings are enthusiastic affirmations of early twentieth-century technological development. While they do not critique technology, Benedetta's paintings are reminders that we now live in the Futurists' future.

Chapter three, "Visualising the Contemporary 'Theatre of War'", references Prussian General Carl von Clausewitz's famous tome, *On War* (1832), in which he uses the term "theatre of war" variously and often.<sup>44</sup> He describes theatre of war as a geographic space with boundaries that afford independence.<sup>45</sup> I ask, what does 'theatre of war' mean in the twenty-first century, an age where network-centric, grey-zone, hybrid, cyber, and information modes of war blur spatial and temporal boundaries? Gregory's notion of the "everywhere war", reaching beyond geographic spaces and extending into space and cyberspace, clearly debunks Clausewitz's geographically grounded theatre of war.<sup>46</sup> As Virilio remarks, war and geopolitics are altered by a "genuine push to the limits, a movement to extremes such as could not have been imagined by Clausewitz".<sup>47</sup>

I discuss my aims to re-conceptualise and re-visualise Clausewitz's term "theatre of war" in ways that meaningfully, creatively, and critically interrogate the relationship between contemporary EMS-reliance, militarised and militarise-able technology, and war. I draw upon war studies scholars Matthew Ford and Andrew Hoskins's book, *Radical War: Data, Attention, Control* (2022), and their explicit call to reject Clausewitzian definitions of war.<sup>48</sup> I read *Radical War* after conceiving and starting chapter three. However, the authors' challenge that we need to "rewrite how we come to know and understand war" resonated with my aim to re-conceptualise and re-visualise what 'theatre of war' might mean in the twenty-first century.<sup>49</sup> While I worked through this quest in my own creative practice, I also analysed depictions of militarised technology or potentially militarise-able technology in paintings by Rosenquist and Joseph DeLappe. Rosenquist's monumental *F-111* (1964–

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<sup>44</sup> Carl von Clausewitz, *On War*, trans. Colonel J. J. Graham. The first edition of this translation was in 1874, with a London reprint in 1909. Clausewitz's wife published *Vom Kriege* posthumously in 1832. Project Gutenberg, (2021), <https://www.gutenberg.org/files/1946/1946-h/1946-h.htm>.

<sup>45</sup> von Clausewitz, *On War*, Book V, Chapter II, Section 1.

<sup>46</sup> Gregory, "The Everywhere War."

<sup>47</sup> Paul Virilio, "Cold Panic," trans. Chris Turner, *Cultural Politics* 1, no. 1 (2005): 30.

<sup>48</sup> Matthew Ford and Andrew Hoskins, *Radical War: Data, Attention, Control* (London: Hurst Publishers, 2022), 27.

<sup>49</sup> Ford and Hoskins, *Radical War*, 20.

1965) provides an art-historical anchor that communicates and questions the lure of militarised technological advancement across the twentieth and twenty-first centuries.

In chapter three, imaginational metaveillance and painting provide avenues to conceive, perceive, and visualise how the ambiveillant techno-environment 'directs' a perpetual contemporary everywhere theatre of war. I take the theatre theme as a cue to propose that we are all choreographed by EMS-enabled interconnected systems and devices into various oscillating witting and unwitting roles. Over the course of this research project, I have experimented with various painted visualisations of the EMS as a militarised techno-colonised scape from Earth to orbiting satellites. This repeated and regular creative practice engagement has helped form my proposal that the EMS plays not only oscillating roles, but also fundamentally pivotal roles in the 'performance' of the contemporary theatre of war. These pivotal roles are the elemental stage and the elemental protagonist. The word 'elemental' is a deliberate choice as it returns us to ten seconds after the Big Bang, when the elemental particle of the EMS first appeared, the photon. This cosmological perspective, that weaves through this research project, ultimately influences my re-conceptualisation and re-visualisation of the theatre of war. I propose that the contemporary theatre of war is an everywhere theatre that performs within us, reiteratively projecting beyond, before looping back for further occupation.

# Chapter One

## Imaginational Metaveillance, Ambiveillance, and the Cloud

While all electromagnetic frequencies hold military potential, the lower frequencies of infrared, microwave, and radio waves are the portions of the spectrum most relevant to the present-day operation of the martial gaze.

Antoine Bousquet, *The Eye of War: Military Perception from the Telescope to the Drone*, 2018

### Setting the Scene

This chapter discusses the development of my novel idea of imaginational metaveillance, and its relationship with my quest to examine and understand increasing military interest in the electromagnetic spectrum (EMS). Initially inspired by working through cross-disciplinary research in my creative painting practice, imaginational metaveillance, as an extension of my creative practice, excites further new insights. In this research project, these insights include my idea of ambiveillance, a concept that helps us think about and visualise how our network-centric, techno-looping world works. I offer imaginational metaveillance and ambiveillance as original and creative stimulants for inquiry and wonder. To extrapolate my ideas, I discuss my own and other artists' work in reference to the use of technology, and representations of militarised and militarise-able technology. This approach includes a close analysis of the metaphor of the cloud, paying particular attention to questions about interconnected and interoperable military domains in an era of changing and new modes of warfare.

### Imaginational Metaveillance

A lived familiarity with volumetric distance and imaginational flight, as I discussed in the Introduction, has influenced my creative painting practice over many years. The translation of imaginational flight into a more focused and novel idea of imaginational metaveillance has been further informed by Steve Mann's ideas of surveillance, sousveillance, and metaveillance.<sup>50</sup> As the prefix *sous* suggests, sousveillance offers an under-view, whereas the prefix *sur* implies a view from above. As Mann and Joseph Ferenbok explain, "Where the viewer is in a position of power over the subject, this is considered surveillance, but

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<sup>50</sup> Steve Mann, "Sousveillance," *Wearcam*, accessed February 17, 2023, <http://wearcam.org/sousveillance.htm>. Mann coined the term "sousveillance".

where the viewer is in a lower position of power, this is considered sousveillance.”<sup>51</sup> While this explanation appears straightforward, the interplay between sousveillance and surveillance is complex. Sousveillance is enabled by personally worn, embedded, hand-held or -operated devices and systems. Individual citizens or groups can use these devices and systems to expose, document, and map institutional surveillance conducted via devices such as static cameras, mobile drones, and other sensors. Activist sousveillance can entail monitoring of government, corporate, industry, or military activities, where these activities are perceived to be undemocratic, environmentally unsound, or politically unpalatable. Stahl and Kaempf describe this kind of sousveillance as a “performative ‘looking back’”.<sup>52</sup>

An example of activist sousveillance is the documentation by supporters of the Standing Sioux Reservation in their 2016–2017 protests regarding the construction of the Dakota Access Pipeline by Energy Transfer Partners. Cultural studies scholar J. D. Schnepf followed these activist activities, providing sustained critical analysis of and engagement with a subsequent exhibition.<sup>53</sup> Schnepf describes how commercially available off-the-shelf (COTS) airborne drones were used by protesters to document construction work, security provisions, environmental degradation, and worrying disregard for Indigenous lands and water supplies.<sup>54</sup> The protester documentation was variously broadcast through social media, the Internet, and an exhibition, *Drone Warriors: The Art of Surveillance and Resistance at Standing Rock* (2018–2019).<sup>55</sup> The activists invited the public to witness or partake in the “performative” act of “looking back”.<sup>56</sup> This dissemination raised public awareness of a number of issues, from immediate environmental degradation to the “contemporary state of Indigenous sovereignty, settler colonialism, and environmental racism”.<sup>57</sup>

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<sup>51</sup> Mann and Ferenbok, “New Media,” 25.

<sup>52</sup> Stahl and Kaempf, “Sousveilling the ‘Global War on Terror’,” 8.

<sup>53</sup> J. D. Schnepf, “Unsettling Aerial Surveillance: Surveillance Studies After Standing Rock,” *Surveillance and Society* 17, no. 5 (2019): 747–51. The exhibition was held at the Haffenreffer Museum of Anthropology, Providence, Brown University, 11 May 2018 – 30 April 2019. The curators were Adrienne Keene and Gregory Hitch. Schnepf wrote a review: “Drone Warriors: The Art of Surveillance and Resistance at Standing Rock,” *Museum Anthropology* 42, no. 2 (2019): 150–52.

<sup>54</sup> Schnepf, “Unsettling Aerial Surveillance,” 747.

<sup>55</sup> The exhibition details for *Drone Warriors: The Art of Surveillance and Resistance at Standing Rock* are in note 53.

<sup>56</sup> Stahl and Kaempf, “Sousveilling the ‘Global War on Terror’,” 8.

<sup>57</sup> Schnepf, “Drone Warriors,” 150.



I argue, however, that since the Standing Rock protest, the agency of citizen sousveillance conducted with civilian airborne drones has become more complicated. This complexity is due to a rise in other concurrent civilian and insurgent, deliberate, and accidental drone-enabled incursions. Examples include violations of airspace around airports, airborne infringements at prisons, and improvised airborne explosive devices used by terrorist groups such as Islamic State of Iraq and Syria (ISIS). The war in Ukraine (2022–) has also seen civilian drones used by both Ukrainian and Russian forces.<sup>58</sup> In Ukraine, both soldiers and civilians variously use civilian drones to find, track, and attack Russian forces and equipment.<sup>59</sup> As political geographer Anna Jackman notes, the consumer drone is “simultaneously bound to, and entangled with, an *inverse potential for exploitation*”.<sup>60</sup> Activist drone use, other unregulated drone use, and military drone deployments have led to accelerating developments in counter-drone technologies. These are increasingly used for policing, security, and military responses to civil protest, civil unrest, site security, criminal, and terrorist use of drones, as well as military defence.<sup>61</sup>

Counter-drone technologies, to deactivate or destroy civilian and military drones, have developed rapidly and are extensive. Significantly, they rely heavily on EMS frequencies. Capabilities include EMS-enabled monitoring and detection via signal analysis, abilities to jam radio frequencies, GPS-spoofing capabilities, electromagnetic pulse technology, deployment of capture nets, electronic fencing around site perimeters, and directed high-energy destructive laser systems. For example, in May 2023, successful trials of an Angry Kitten ALQ-167 Electronic Countermeasures Pod, mounted on a MQ-9A Reaper drone, were conducted by the United State Air Force (USAF).<sup>62</sup> Military countermeasures constitute advanced modes of electronic or electromagnetic warfare (EW), described as an “invisible fight for control of the electromagnetic spectrum”.<sup>63</sup>

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<sup>58</sup> Since the beginning of the war in Ukraine, drone researcher and data scientist Faine Greenwood has tracked civilian drones used by both Russian and Ukrainian forces. Faine Greenwood, “The Drone War in Ukraine Is Cheap, Deadly, and Made in China: Crowdsourced Donations are Fueling Eyes in the Sky,” *Foreign Policy*, February 16, 2023, <https://foreignpolicy.com/2023/02/16/ukraine-russia-war-drone-warfare-china/>.

<sup>59</sup> For example, fifteen-year-old Andriy Pokrasa used his drone to find and track Russian convoys. Tim Newcomb, “A Ukrainian Teen’s Remote-Controlled Drone Helped His Military Destroy 20 Russian Tanks,” *Popular Mechanics*, June 14, 2022, <https://www.popularmechanics.com/military/aviation/a40275514/ukraine-teenagers-remote-controlled-drone-helped-destroy-20-russian-tanks/>.

<sup>60</sup> Anna Jackman, “Consumer Drone Evolutions: Trends, Spaces, Temporalities, Threats,” *Defense & Security Analysis* 35, no. 4 (2019): 2, <https://doi.org/10.1080/14751798.2019.1675934>.

<sup>61</sup> Jackman, “Consumer Drone Evolutions,” 13.

<sup>62</sup> Colin Demarest, “Fur-Midable: US Air Force Pairs Angry Kitten Jammer with Reaper Drone,” C4ISRNET, May 19, 2023, <https://www.c4isrnet.com/electronic-warfare/2023/05/19/fur-midable-us-air-force-pairs-angry-kitten-jammer-with-reaper-drone/>.

<sup>63</sup> Demarest, “Fur-Midable.”

Experiments with high-energy laser technology have also produced prototype defensive electromagnetic weapons that utilise not only light-speed high-energy radio and microwave frequencies, but also infrared and light frequencies. For example, defence manufacturer Lockheed Martin has “developed laser weapon systems, radio frequency and other directed-energy technologies for air, ground and sea platforms to provide an affordable countermeasure alternative”.<sup>64</sup> I note here that EMS frequencies enable both drone and counter-drone technologies, and their sensors, whether used defensively or offensively, for sousveillance or surveillance purposes. I propose, therefore, that the ubiquitous reliance upon, and shared nature of, EMS-enabled digital and cyber platforms can potentially problematise creative new media art practices that employ, for example, drone imagery, interactive technology, and cloud-based capabilities. Artists who aim to critique contemporary technology by employing platforms that are shared with, or accessed by, the systems or entities they critique may fall prey to Hu’s warning that “their protests” may actually “reproduce the system of values of say, (“participation”) embedded in the cloud”.<sup>65</sup>

Hu’s so-called cloud refers to signal-enabled networked systems that underpin cloud computing and storage, neither of which is atmospherically vapourous. Rather, they rely on energy-consuming tangible and material infrastructure—relay stations, satellites, massive server buildings—to scaffold the connectivity and interconnectivity of the Internet and the expanding Internet of Things (IoT). As artist and author James Bridle notes, “Today the cloud is the central metaphor of the internet: a global system of great power and energy that nevertheless retains the aura of something noumenal and numinous, something almost impossible to grasp.”<sup>66</sup> Stahl incisively cuts through the metaphor when he observes that “war in the post-9/11 era has been reorganized around a cluster of new metaphors and communications technologies that wire civilian life to the war zone”.<sup>67</sup> While literal wiring includes cables, wireless ‘wiring’ weaves an invisible web of signals that captures civilians in an insidiously ‘sticky’ techno-colonising net that extends from Earth to orbiting satellites.

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<sup>64</sup> “New Age Threats Require New Age Defenses,” Lockheed Martin, accessed December 27, 2021, <https://www.lockheedmartin.com/en-us/capabilities/directed-energy.html>.

<sup>65</sup> Hu, *A Prehistory of the Cloud*, XXIII.

<sup>66</sup> James Bridle, *The New Dark Age: Technology and the End of the Future* (London: Verso, 2018), 6.

<sup>67</sup> Roger Stahl, *Through the Crosshairs: War, Visual Culture, and the Weaponized Gaze* (New Brunswick, NJ: Rutgers University Press, 2018), 129.

While Mann and Ferenbok advocate for technologically enabled sousveillance activities to hold institutional surveillance and politics to account, they make a comment that demonstrates how Hu's warning of value-participation can occur. Mann and Ferenbok write: "As much as we are subjects to institutional gazes, we are increasingly gazing back at institutions using technology, new media and distributed 'cloud' politics."<sup>68</sup> Here, the technology loop, the "performative 'looking back'", acts as a participatory lure.<sup>69</sup> This lure is made even clearer when Mann and Ferenbok note that "sousveillance is more dependent on technology than surveillance — it's harder to 'push back' uphill. Technology is one mechanism that can help mediate the asymmetries of power between a viewer and the subject".<sup>70</sup> However, rather than *mediate* asymmetries of power, does the technology loop *integrate* activist and hacktivist sousveillance activity as data to assist mechanisms of identification, leading to deactivation or neutralisation of power threats?

As Hu reminds us, "Analysing the cloud requires standing at a middle distance from it, mindful but not wholly immersed in either its virtuality or its materiality".<sup>71</sup> In this research project, the digitally unrelated medium of paint, used in hands-on creative painting practice by a human artist, provides not only middle-distance views, but also an imaginal one. This research project's creative practice, therefore, avoids immersion or assimilation into the cloud's technical virtuality and materiality. The online dissemination of digital photographs that document the final product—a painting—keeps creative and practical processes discrete, even unattainable. The documented image of a painting is offered as a tease of pixels. Here, Hu's requirement of a critical "middle distance" is maintained and extended as a political intervention.

With the concept of distance in mind, Mann's idea of metaveillance is a launching pad for my translation of imaginal flight into imaginal metaveillance. The prefix *meta* implies an overview, a corollary of distance. Coupled with 'veillance', which means monitoring or watching, *meta + veillance* moves beyond surveillance and sousveillance. For Mann, it is a "form of surveillance of the surveillance that is not necessarily sousveillance".<sup>72</sup> However, Mann's idea of metaveillance remains linked to the technological character of contemporary technologically based veillance activities. This is

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<sup>68</sup> Mann and Ferenbok, "New Media," 26.

<sup>69</sup> Stahl and Kaempf, "Sousveilling the 'Global War on Terror'."

<sup>70</sup> Mann and Ferenbok, "New Media," 26.

<sup>71</sup> Hu, *A Prehistory of the Cloud*, XX.

<sup>72</sup> Mann and Ferenbok, "New Media," 23.

entrenched in the technical experiments he undertakes using devices “designed for augmented reality visualisations of waves and metawaves”.<sup>73</sup> These experiments expose wave frequencies emitted by sensors, used for surveillance or sousveillance purposes.

Mann becomes poetic when he describes metaveillance as “seeing sight itself”.<sup>74</sup> However, given that his “seeing sight itself” attributes sight to frequencies and devices, I argue that Mann’s statement is aspirational. This research project’s exploratory and experimental articulation of creative painting practice and imaginal metaveillance untethers Mann’s idea of metaveillance from technological devices, technical experimentation, and the techno-loop. It reminds us that ‘seeing’ and ‘sight’ are intrinsic to human vision, which is not only seeing with eyeball and pupil, but also with our mind’s eye, in imagination and dreams. None of these is dependent on technological systems or devices that rely upon EMS frequencies. This research project therefore actively disrupts, and pries open, the iterative techno-loop that impedes even the middle-distance view Hu advises is necessary.<sup>75</sup> Imaginal metaveillance is a form of critical and multi-perspectival overview.

Scrutinising the sousveillance–surveillance loop with an imaginal metaveillance lens reveals interesting permutations of veillance activities by proto-state terrorist groups such as ISIS. While extensively surveilled by military and security organisations around the world, ISIS conducts sousveillance-like activities of their surveillers. This is at the same time as they conduct state-like surveillance of their local populations, Caliphate ‘constituents’ and fighters. For example, ISIS uses commercial off-the-shelf drones for sousveillance-like scrutiny of US military installations and capabilities.<sup>76</sup> As defence commentator David L. Knoll notes, “Rather than us seeing them, and them not seeing us, they can see into our bases, they know where the key headquarters are [as well as] the key [command and control] nodes”.<sup>77</sup> Conversely, ISIS recruitment strategies identify and target vulnerable groups and individuals through veillance of online channels. A 2020 report, for example, notes that 8.2 per cent of a sample of defectors, returnees, and

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<sup>73</sup> Mann, “Surveillance (Oversight),” 1413.

<sup>74</sup> Mann, “Surveillance (Oversight),” 1408.

<sup>75</sup> Hu, *A Prehistory of the Cloud*, XX.

<sup>76</sup> Mark Pomerleu, “In Drones, ISIS Has its Own Tactical Air Force,” C4ISRNET, September 21, 2017, <https://www.c4isrnet.com/digital-show-dailies/modern-day-marine/2017/09/21/in-drones-isis-has-its-own-tactical-air-force/>.

<sup>77</sup> David L. Knoll, quoted in Pomerleu, “In Drones, ISIS Has its Own Tactical Air Force.”

prisoners “said they were recruited into ISIS solely over the Internet”.<sup>78</sup> In the same document, the authors reported that interviewees spoke fearfully about being re-contacted by ISIS.<sup>79</sup> Simone Molin Friis, in her research of ISIS beheading and torture video production, notes that videos are made for particular audiences for particular reasons.<sup>80</sup> For an ISIS constituency audience, the intent is to “restore order and justice after civil disobedience, betrayal or spying in the Caliphate”.<sup>81</sup>

## Ambiveillance

With an imaginational metaveillance overview approach, I have conceptualised the surveillance–sousveillance dual-looping capability as ambiveillance. Using the prefix *ambi*, the Latin word for ‘both’ and ‘around’, ambiveillance describes an *ambidextrous* use of surveillance and sousveillance. This *ambidexterity* also ‘speaks’ to an *ambient* veilance environment contained within the sousveillance–surveillance loop or cloud. While the ambiveillant loop remains contained, it expands like an engorged mutating cell. In a way, the ambiveillant environment mirrors “loop structure” programming in computer science. This loop structure “repeats a sequence of instructions until a specific condition is met”.<sup>82</sup> However, “if the condition is never met, the loop will continue indefinitely creating an infinite loop. Writing code that allows infinite loops is bad programming practice, since they can cause programs to crash”.<sup>83</sup> To avoid a crash, “it is important to make sure the loop will break at some point”.<sup>84</sup> This begs the question: What is the “specific condition” the ambiveillant environment might be programmatically destined to meet? If it is not met, what kind of crash might ensue?

My idea of ambiveillance serendipitously resonates experientially, interpretatively, and aesthetically with Hofstadter’s term “ambigram”.<sup>85</sup> Hofstadter describes an ambigram as a

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<sup>78</sup> Anne Speckhard and Molly D. Ellenberg, “ISIS in Their Own Words: Recruitment History, Motivations for Joining, Travel, Experiences in ISIS, and Disillusionment over Time – Analysis of 220 In-depth Interviews of ISIS Returnees, Defectors and Prisoners,” *Journal of Strategic Security* 13, no. 1 (2020): 122, doi: <https://doi.org/10.5038/1944-0472.13.1.1791>.

<sup>79</sup> Speckhard and Ellenberg, “ISIS in their Own Words,” 87.

<sup>80</sup> Simone Molin Friis, “‘Behead, Burn, Crucify, Crush’: Theorizing the Islamic State’s Public Displays of Violence,” *European Journal of International Relations* 24, no. 2 (2017), <https://doi-org.ezproxy.library.uq.edu.au/10.1177/1354066117714416>.

<sup>81</sup> Friis, “‘Behead, Burn, Crucify, Crush,’” 254-255.

<sup>82</sup> Tech Terms, “Loop,” last modified February 3, 2016, <https://techterms.com/definition/loop>.

<sup>83</sup> TechTerms, “Loop.”

<sup>84</sup> TechTerms, “Loop.”

<sup>85</sup> Hofstadter, *Godel, Escher, Bach*, 19.

“calligraphic design that manages to squeeze two different readings into the selfsame set of curves”.<sup>86</sup> Calligraphic design permits a word to be read in an upside orientation, with another reading and meaning in a downside orientation. It differs from a palindrome, which is not reliant on graphic design for meaningful readability. A palindrome is a word (or a phrase) that can be spelt and read backwards and forwards with the same meaning. Virilio’s invocation of the palindrome to understand screen-based replay as an “inversion of the unfolding of time” feeds into the sousveillance–surveillance loop, where replay is part of the veillance mission, whether conducted by a human being or AI.<sup>87</sup> I fold Virilio’s palindrome invocation into my own appropriation of the ambigram, to further elucidate how the ambiveillant environment of the sousveillance–surveillance techno-loop pervasively restricts perspective and movement of multiple kinds. I offer imaginational metaveillance as a means of correction, a way to ‘see’ how to break the loop structure, before the ‘program’ crashes.

While new media filmic and photographic works by artists such as Harun Farocki, Omer Fast, Trevor Paglen, and James Bridle expose and critique military and civilian surveillance activities, their activist sousveillance-like digital and screen-based productions potentially offer the techno-loop information.<sup>88</sup> Rather than a disruption that causes a break in the loop-structure, this information potentially perpetuates iterative techno-loops that sustain the ambiveillant environment. Iteration is also amplified in how the artists often use replay or re-presentation of footage and images taken by military imaging technologies. In this research project, painting and imaginational metaveillance help to visualise the ambigrammatic environment. This visualisation is not simply illustrative; rather, it is a form of elicitation, an aesthetic provocation for viewers to imagine and look for potential ways to ‘break’ techno-looping veillance systems.

Surveillance and security studies scholars David Lyon and David Murakami Wood make an observation that intersects with my ideas of ambiveillance and the ambiveillant loop when they note the “expansion of the notion of security to cover a range of fields not previously designated as such”.<sup>89</sup> They go on to further observe a trend of “gathering data

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<sup>86</sup> Hofstadter, *Godel, Escher, Bach*, 19.

<sup>87</sup> Paul Virilio, *Desert Screen*, 27.

<sup>88</sup> Examples include Farocki’s *Serious Games* (2009-2010), Fast’s *5,000 ft. Is Best* (2011), Paglen’s *Drone* (2010–2015) series of photographs, Bridle’s *Dronestagram* (2012).

<sup>89</sup> David Lyon and David Murakami Wood, *Big Data Surveillance and Security Intelligence: The Canadian Case* (Vancouver: University of British Columbia Press, 2020), 4.

from sources that only recently – in the twenty first century – have become available”.<sup>90</sup> This observation poses questions about contemporary technology-enabled monitoring, data gathering, cloud storage, information retrieval and dispersal activities, conducted in interconnected systems. These activities are conducted not only by the military and intelligence organisations, but also by mega-corporations such as Microsoft, Facebook, Google, and others. Here, the enabling role played by the EMS cannot be underestimated or ignored. I argue that EMS-enabled connectivity, and digital and cyber interconnectivity and interoperability, scaffold the twenty-first century sousveillance–surveillance environment in which ambiveillance and its normative processes increasingly proliferate.

An example of this proliferation is Microsoft’s identification, detection, and defence of Russian malware attacks preceding and during the Ukrainian war (2022–). The company states that it is focused on “protecting against state-sponsored disinformation campaigns”.<sup>91</sup> These kinds of activities in Ukraine have drawn Microsoft into high-level US military operations. Senior company executives have gained unprecedented swift security clearances that allow “joining secure calls to hear an array of briefings organised by the National Security Agency and U.S. Cyber Command, along with British authorities, among others”.<sup>92</sup> If we think about Microsoft through an ambigrammatic lens, is it simultaneously a state-like and a non-state actor? This example of Microsoft, a non-government corporate entity, illustrates the growing *ambiguity* of the contemporary veillance environment in an era of EMS-enabled network-centric, remote, hybrid, grey-zone, information, and cyber warfare.

Imaginational metaveillance, as a creative stimulant and a critical method, disrupts the ambiveillant techno-environment in a few ways. Firstly, without reliance on digital and cyber technology, imaginational metaveillance and painting cannot be absorbed into Lyon and Murakami Wood’s “expansion of the notion of security” that sustains the ambigrammatic sousveillance–surveillance loop. This non-absorption or non-convergence, therefore, helps maintain and extend the kind of distance Hu calls for. It reaffirms distance, in both its close and far guises, as dynamically creative and critical. Additionally, by prising

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<sup>90</sup> Lyon and Murakami Wood, *Big Data Surveillance*, 4.

<sup>91</sup> Brad Smith, “Digital Technology and the War in Ukraine,” *Microsoft on the Issues*, February 28, 2022, <https://blogs.microsoft.com/on-the-issues/2022/02/28/ukraine-russia-digital-war-cyberattacks/>.

<sup>92</sup> David E. Sanger, Julian E. Barnes, and Kate Conger, “As the Tanks Rolled into Ukraine, So Did Malware: Then Microsoft Entered the War,” *Financial Times*, March 2, 2022, <https://www.afr.com/world/europe/as-the-tanks-rolled-into-ukraine-so-did-malware-then-microsoft-entered-the-war-20220302-p5a0vg>.

open the techno-loop to enable perspectives from both inside and outside the loop, imaginal metaveillance's disruptive agency reveals techno-system limits. This disruption is not simply oppositional; it is also a catalyst for further creative and intellectual speculation, experimentation, and visualisation.

Tatiana Bazzichelli—curator, founding board member, and artistic director of The Disruption Network Lab, Berlin—provides some insights into opposition. She examines disruption in business, where “unexpected practices and interventions” can produce beneficial outcomes.<sup>93</sup> She transfers this concept of disruption to “find new activist strategies that are harder to appropriate and that go beyond the mere act of opposition, which might become a trap that reinforces power hierarchies”.<sup>94</sup> The last part of this quote intersects with Hu's warning that artists who use contemporary technology with protest or activist intentions may replicate the values embedded in the systems that scaffold the contemporary 'cloud'.<sup>95</sup> This research project positions painting and imaginal metaveillance as techno-independent critical processes of informed and stimulatory visual speculation. In a world dominated by accelerating developments in technology, together painting and imaginal metaveillance can be “unexpected” forms of disruption and opposition. The unexpected is stimulatory and catalytic, fostering further inquiry. This helps to fulfil an aim of this research project—to provoke questions, not to promise answers. Given the gap in critical studies focused on increasing military interest in the EMS, useful and novel questions are important. They help to engage researchers and policymakers, as well as industry and military stakeholders. They also hold them to account.

To access a plethora of services, civilian peripheries of the ambiveillant environment are increasingly compelled to use, download, acquire, and apply a multifarious selection of digital and cyber systems and devices. In doing so, these peripheries are drawn into the dominant ambiveillant space. Bousquet provides a piercing insight of this process when he describes how “the vibrant transmutability of reticular organisation is observable everywhere in our ever more interconnected world, pulling remote locations and disparate

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<sup>93</sup> Tatiana Bazzichelli, *Whistleblowing for Change: Exposing Systems of Power and Injustice* (Bielefeld: Transcript: Independent Academic Publishing, 2021), 15, <https://doi.org/10.14361/9783839457931>.

<sup>94</sup> Bazzichelli, *Whistleblowing for Change*, 15.

<sup>95</sup> Hu, *A Prehistory of the Cloud*, XXIII.



entities into tangled causal complexes via the continuous flows of information crisscrossing the planet”.<sup>96</sup>

As the COVID-19 pandemic has shown, requirements for compliance with government-imposed security and data-collection measures also build upon existing measures, heightened since 9/11. I argue that as the EMS-reliant ambiveillant environment absorbs civilian technologies, they become more vulnerable to militarisation by state or non-state actors and organisations. A June 2022 *Wired* article, discussing a person’s civilian vs military status in the Ukrainian (2022–) war, makes this reality clear: “Technically speaking, as soon as a user in a war zone picks up a smartphone to assist the army, both the technology and the individual could be considered sensors, or nodes, in the practice known as ISR—intelligence, surveillance, and reconnaissance.”<sup>97</sup> The militarisation of civilians is a serious concern because it renders them possible legitimate enemy targets.

As the war in Ukraine demonstrates, the IHL rule relating to “the principle of distinction between civilians and combatants” is tested by civilian use of technologies, such as phones and drones, to assist home forces.<sup>98</sup> More precisely, as legal advisor in the International Committee of the Red Cross (ICRC) Kubo Mačák notes, “ongoing digitalization of warfare” places the principle of distinction “under renewed pressure”.<sup>99</sup> It is worth remembering at this point that militarise-ability is facilitated by EMS-enabled signal connectivity, interconnectivity, operability, and interoperability. Here, frequencies appropriated for military and militarising purposes could be described as commandeering tentacles, their ubiquity bestowing a pervasive, rather than selective, dual use to systems and hardware.

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<sup>96</sup> Antoine Bousquet, *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity*, 2nd ed. (London: Hurst and Company, 2022), 235.

<sup>97</sup> Lukasz Olejnik, “Smartphones Blur the Line Between Civilian and Combatant,” *Wired*, June 6, 2022, <https://www.wired.com/story/smartphones-ukraine-civilian-combatant/>.

<sup>98</sup> International Committee of the Red Cross (ICRC), “Practice relating to Rule1: The Principle of Distinction Between Civilians and Combatants,” *IHL Database*, accessed July 24, 2022, [https://ihl-databases.icrc.org/customary-ihl/eng/docs/v2\\_rul\\_rule1](https://ihl-databases.icrc.org/customary-ihl/eng/docs/v2_rul_rule1).

<sup>99</sup> Kubo Mačák, “Will the Centre Hold? Countering the Erosion of the Principle of Distinction on the Digital Battlefield,” *International Review of the Red Cross* 105, no. 923 (2023): 965–91, doi:10.1017/S1816383123000152.

## Site, Self-Portraiture, and the Subconscious

My painting *Verified Landing Site* (2021) (Figure 3) combines appropriations of airport-landing computer graphics and facial-recognition computer graphics, painted over an ambiguous blue background. This combination refers to the pervasive tentacular reach of signal operations across multiple human activities. The appropriated graphics are the type that could appear, for example, on a remote civilian or military drone pilot's screen, or on another kind of surveillance monitor used by state or non-state operators. The cut-out shape of an MQ-28 Ghost Bat military drone in the centre of the 'eye' implies a militarised zone. Here, I also visually play with the colloquial, but also anthropomorphising, term for a drone: 'eye in the sky'. The appropriated facial-recognition technology suggests surveillance, tracking, or targeting. The green circle enclosing a red tick, on the bottom right, appropriates the digital sign for verification, perhaps verifying safe landing or a person's identity.



Figure 3. Kathryn Brimblecombe-Fox, *Verified Landing Site*, oil on linen, 92 x 112 cm, 2021. All photos of the author's paintings are courtesy of the author.

*Verified Landing Site* plays with perspective. It can be ‘read’ from multiple literal and metaphorical viewpoints that provide various ways to think about the ambiveillant techno-loop—its interiority, its boundaries, and, importantly, its exteriority. This multi-perspectival capacity is a release from the interiority of the looping character of the ambiveillant environment. As various possible perspectives come into focus, looping is shattered. For example, the multi-toned blue background undulates as a possible sky, maybe a landscape, perhaps a water-scape, a cosmic-scape, or even a dream-scape. The viewer could be flying at close or far distance, above, below, around, behind, or in front of the drone. Or is it an eye? The viewer might even imagine being, for example, a fish looking up from under the sea, or a mythical bird soaring above, or a drone pilot looking at the image on a computer screen.

With *Verified Landing Site*, I question the insidious, but ubiquitous, aesthetic normalisation of computer-generated graphics and imagery. What if we thought of them as ambigrammatic projections of the ambiveillant environment—evidence of a techno-loop that is both restrictive and enticing? The MQ-28 Ghost Bat drone not only implies a militarised zone; its placement in the centre of the eye, a symbol for a window to the soul, is deliberate. It ‘speaks’ to my realisation and proposition that the techno-loop, and its effects, have ‘landed’ in and on our individual and collective subconsciouses. As I painted the eye, I realised the subconscious is a sought-after *site* for techno-influencing and colonising forces. ‘Landing’ on this site is akin to hacking our minds, imaginations, and dreams. This is a silent violence, one that potentially undermines civil society. It fuels new modes of irregular warfare and coercion—for example, information and hybrid warfare, as well as extremist paranoia. Silent forms of violence, that hack into our subconsciouses, draw us all into Gregory’s “everywhere war”. As I painted *Verified Landing Site*, I questioned this stealthy colonisation of our individual and collective consciousnesses, feeling despair, but also, in the act of revelation, some hope.

The speculations raised in *Verified Landing Site* are the result of a continuum of sustained creative practice—doing, thinking, researching, imagining. For example, the idea to include appropriations of facial-recognition computer graphics was kindled by thinking about facial-recognition technology and surveillance through a portraiture lens. Just prior to painting *Verified Landing Site*, I had experimented with a self-portrait called *Me: 01001101 01000101* (2021) (Figure 4). I painted myself in profile, with an overlay of lines that appropriated facial-recognition-type computer graphics. My very blue eyes are a defining

feature; thus, I painted a distinct blue eye in the centre of my head. This eye is similar to the eye in *Verified Landing Site*. In both paintings, the eye acts as a potential portal, one that appears possibly techno-compromised. In both cases, the eyes clearly stare ahead, but they could also be staring back into the interiority of the paintings. This urges us to be wary of techno-veillance imaging capabilities that purport to 'see'. The painted eyes in both paintings can be interpreted as warnings about blind techno-promises.



Figure 4. Kathryn Brimblecombe-Fox, *Me: 01001101 01000101*, oil on linen, 92 x 112 cm, 2021.

In my self-portrait, a civilian drone appears to be the device checking my identity. A dotted red line connecting the drone to my face reveals signal detection and transmission of my biometric data. Squared markings at three corners of the painting give the impression of a computer screen. Maybe they indicate geolocating activities or some kind of virtual enclosure. The squared cornering around my face could indicate that I am a target, a person of interest, or simply some kind of focusing mechanism. A verification tick indicates that I am me, but as a sign, hand-painted by a human being, this verification is algorithmically empty. This is also the case with the painted binary code 'instructing' the word ME. Using the non-digital medium of paint, this aestheticised algorithmic emptiness

is an act of opposition, a non-participation in the “system of values” Hu identifies as “embedded in the cloud”.<sup>100</sup>

The algorithmic emptiness also addresses Louise Amoore’s concerns that “algorithms are implicated in new regimes of verification, new forms of identifying a wrong or of truth telling in the world”.<sup>101</sup> By hand-painting appropriations of computer-like graphics, and strings of binary code, my self-portrait de-operationalises what Farocki, in the early 2000s, termed the “operational image”.<sup>102</sup> This de-operation is two-fold. Firstly, painted code and computer graphic appropriations do not initiate or maintain technological functionality. There is no on/off function for a painting. Secondly, digitally generated operational images may not always be seen by, or visible to, human beings. Painting the invisible or hidden, therefore, subversively alerts without feeding data surrounding the alert into “regimes of verification” systems.

The binary code painted above the word ME at the bottom right of *Me: 01001101 01000101* creates an ambigrammatic visual ploy that questions the codification of identity. Rather than painting my name, the painted code and the word ME personalise tagging in a way that satirically resists techno-colonising forces. *Me: 01001101 01000101* is a critique of surveillance technology, particularly its mediation of perceptions of identity and, therefore, knowability. This self-portrait could be read as a twenty first century portrait where facial recognition data is accepted as integral for identity. It could also be, for example, an image of me as a hologram, a simulation using previously collected image data. The cosmic-like background helps to suggest a sense of holographic hovering. Maybe the painting is a portrait of the hologram, the avatar. Is this a new portraiture genre for the digital age? The painted computer graphics could indicate process transparency. They could also reveal digital wounding. The latter is particularly relevant if the hologram is a case of mistaken identity, deepfake, or an unapproved digital resurrection of me.<sup>103</sup> The painting acts as a warning of the reality of surveillance, data collection, transmission, and storage via EMS-enabled signalic connectivity and interconnectivity.

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<sup>100</sup> Hu, *Prehistory of the Cloud*, XXIII.

<sup>101</sup> Louise Amoore, *Cloud Ethics: Algorithms and the Attributes of Ourselves and Others* (Durham: Duke University Press, 2020), 5–6.

<sup>102</sup> “Operational images” was coined by Farocki in the early 2000s. More information is available at <https://operationalimages.cz/> and <https://garage.digital/en/harun-farocki-operational-images>.

<sup>103</sup> The issue of digital resurrection using AI emerges in, for example, companies such as Open AI, Deep Nostalgia, and Kaleida, which can create holograms of people who have died.

Hofstadter found looking at ambigrams and creating them “charming and intellectually fascinating”, calling them an “odd but elegant art form”.<sup>104</sup> In this research project, painting could also be described as an “odd but elegant art form”—odd because I use it to critique military interest in the EMS, while resisting EMS-reliant digital and new media technology as mediums. This deliberate resistance is an ‘elegant’ rather than an anachronistic provocation. By not generating digitise-able data, my painting practice remains digitally unmediated, unassimilated, and un-operationalised. For me, this untethering from technological platforms allows the perspectival freedom of imaginal flight and metaveillance. It disrupts and resists the technologically reliant and enabled sousveillance–surveillance loop that ultimately serves the data-gluttonous ambiveillant system. By breaking the loop, an aperture in the ambiveillant system is opened, enabling human imaginal flight to soar inside, outside, and beyond the system, its virtuality and materiality.

### **Ontologies and Epistemologies: Human Experience and Knowledge**

My articulation of an ambiveillant sousveillance–surveillance loop intersects with anthropology of science and technology scholar Lucy Suchman’s description of a “technopolitical imaginary of containment”.<sup>105</sup> She pivots her proposition around the Observe, Orient, Decide and Act (OODA) loop, a military decision-making framework developed in 1996 by United States Air Force Colonel John R. Boyd.<sup>106</sup> The OODA loop is an “iterative feedback model” that “has become one of the most popular decision-making frameworks in the world, both in professional Western militaries and beyond”.<sup>107</sup> Suchman notes that the “figure of the ‘loop’ is institutionalized”.<sup>108</sup> She further notes that the containment the iterative loop affords instills a perception of a “fully integrated, comprehensive and real-time ‘situational awareness’” for US military operations.<sup>109</sup> She points out, however, this is a “closed world” relying upon “forms of systemic ignorance” to “maintain the premise that war fighting can be conducted rationally through a seamless web of technologically generated situational awareness”.<sup>110</sup>

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<sup>104</sup> Hofstadter, *Godel, Escher, Bach*, 19.

<sup>105</sup> Lucy Suchman, “Imaginarities of Omniscience: Automating Intelligence in the US Department of Defense,” *Social Studies of Science* (2022): 20.

<sup>106</sup> Suchman, “Imaginarities of Omniscience,” 5.

<sup>107</sup> Alistair Luft, “The OODA Loop and the Half Beat,” *Strategy Bridge*, March 17, 2020, <https://thestrategybridge.org/the-bridge/2020/3/17/the-ooda-loop-and-the-half-beat>.

<sup>108</sup> Suchman, “Imaginarities of Omniscience,” 5.

<sup>109</sup> Suchman, “Imaginarities of Omniscience,” 1.

<sup>110</sup> Suchman, “Imaginarities of Omniscience,” 20.

The “systemic ignorance” and “closed-world logics” Suchman identifies perpetrate multiple kinds of violence, both inside and outside the techno-loop. A clue to this violence is found in Suchman’s statement that the “military sensorium based in the cloud” almost completely fails to “address the onto-epistemologies of data’s generation”.<sup>111</sup> I take this to mean that immediately upon a human being generating data, via use of devices or systems, algorithmic data parsing unitises information in ways that elide or reduce the context of human experience and knowledge.<sup>112</sup> This kind of elision is a silent violence with impacts of multiple kinds, from the political to the personal. As Amoore aptly observes, algorithms have the potential for “profound cruelty and violence” through a “foreclosure of alternative futures”.<sup>113</sup> Taking an imaginal metaveillance view, “foreclosure” in an ambiveillant environment of “closed-world logics” is inevitable. Failure to recognise human ontologies and epistemologies is a by-product of algorithmic efficiency.

While Suchman’s ideas of institutionalised looping contribute valuable insights that help hone my idea of ambiveillance, her use of “sensed” and “sensorium” in relation to military situational awareness and sensor capabilities requires critique. Both words, “sensed” and “sensorium”, ascribe human agency to technological sensor functions. With this in mind, I prefer to turn the noun ‘sensor’ into a verb—that is, *to sensor*—replacing ‘sensed’ with ‘sensored’. The word ‘sensorium’, typically a descriptor for an array of human and living physical, cognitive, and emotional senses, already contains the word ‘sensor’. This poses a quandary that is worthwhile dissecting. Is a sensorium an array of sensors? To address this question, I propose two neologisms, a ‘sensation’ or a ‘sensore’, as alternative nouns to describe arrays of civilian and military sensors. Here, I take cues from words such as ‘association’, ‘conglomeration’, and ‘conglomerate’. While an array of sensors could be called an association or conglomeration of sensors, I propose that new terms including ‘sensation’ and ‘sensore’ help to differentiate sensors from human activities, senses, and feelings. Replacing Suchman’s “military sensorium based in the cloud” with ‘military sensation based in the cloud’, deleverages the human or living sensorium from the technologically militarised sensation or sensore. This deleveraging provides a distance that reanimates and revitalises the human sensorium as the space where onto-epistemologies abound.

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<sup>111</sup> Suchman, “Imaginations of Omniscience,” 14.

<sup>112</sup> I take my cue here from Birgit Mara Kaiser and Kathrin Thiele, “Diffraction; Onto-Epistemology, Quantum Physics and the Critical Humanities,” *Parrallax* 20, no. 3 (2014): 165–67.

<sup>113</sup> Amoore, *Cloud Ethics*, 161.

The investigative and research multidisciplinary agency Forensic Architecture cannot be accused of ignoring Suchman's identification of a "failure to address onto-epistemologies of data's generation". Drawing upon a wide range of sources, they visualise, through digital-media reconstructions and re-enactments, contested accounts of accidents, alleged war crimes, criminal acts, and humanitarian or environmental disasters.<sup>114</sup> Incidental and deliberate sousveillance-like records, such as photographs taken by bystanders and shared on social media, are amalgamated with other evidence. This other evidence includes on-site fieldwork findings, as well as data, information, and images from official online sites, satellite feeds, freedom of information requests, newspapers, verbal accounts, and physical re-enactments. As Weizman and Fuller comment, "Several, dozens, or even hundreds of elements of source material can thus be brought together in poly-perspectival assemblage."<sup>115</sup> They call their process "investigative aesthetics".<sup>116</sup>

Forensic Architecture's forensically built reconstructions and re-enactments are presented in digitised visual formats that also include visualised analytics to transparently demonstrate and justify findings. These analytics include, for example, computer-generated visuals and graphics of geolocation and flight-tracking data, pattern-recognition tools, audio analyses, and 3D and virtual reality (VR) modelling. In a way, Forensic Architecture turns the cloud, the ambiveillant environment, inside out. Seemingly random evidence is deconstructed, examined, and reassembled in ways that visually narrate Forensic Architecture's aesthetic investigative processes as testimony. Forensic Architecture's success is scaffolded and maintained by the fact that their productions are used as evidence in criminal courts, war crimes tribunals, human rights and humanitarian investigations, and other disaster- or violence-related reports.

In addition to legal and regulatory arenas, Forensic Architecture's work is also exhibited in art galleries and museums around the world. These works are often assemblages of their various investigative productions, reworked for these alternative forums. Exhibiting their work beyond legalistic arenas, Forensic Architecture expands their influence into what Fuller and Weizman call the "forum of the commons", where the "presentation of evidence" can be socialised.<sup>117</sup> This is a political act. Here, my engagement across disciplines is also

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<sup>114</sup> More information can be found on Forensic Architecture's website: <https://forensic-architecture.org/>.

<sup>115</sup> Fuller and Weizman, *Investigative Aesthetics*, 6.

<sup>116</sup> Fuller and Weizman, *Investigative Aesthetics*, 6.

<sup>117</sup> Fuller and Weizman, *Investigative Aesthetics*, 196.



motivated by a desire to find additional avenues for dissemination and discussion, prompted by my creative practice. Presenting about my research and creative practice at international studies, cultural studies, and law school ethics seminars, as well as military-associated conferences and events, agitates in ways not easily achieved by exhibiting in an art gallery.

Like my critique of Suchman's use of 'sense', I also critique Forensic Architecture's, and Fuller and Weizmann's, ascription of sensing to sensors. However, if sensing and registering are differentiated, Fuller and Weizmann's references to registering and registration link them in ways that avow nuance.<sup>118</sup> This distinction, I propose, enhances Forensic Architecture's penetrative aesthetic investigative approach. Registering, rather than sensing, is more clearly a shared human and machine ability or function. Registering for a human being can be noticing a feeling, even something not overtly felt, a sense, possibly even a sixth sense. Registering for a sensor is more aligned with detection. Even if detection is minimal, it cannot be called a sixth sense. Fuller and Weizmann propose "hyper-aesthetics" as a way to both explain and investigate an "expanded state of aesthetic alertness" in an environment of amplified and multiple modes of sensing and, I would add, sensing.<sup>119</sup> I argue that this environment is the ambigrammatic environment, where technological standardisation across systems obscures the fact that sensing and registering are not the same.

Fuller and Weizman invoke the neurological condition of hyperaesthesia, a state of not being able to make sense of sensing due to information overload, as a warning of societal distortions, manipulations, and trauma.<sup>120</sup> Virilio's invocation of the heart condition arrhythmia, to describe how instantaneous technological connectivity erodes societal rhythms, causing trauma, aligns with Fuller and Weizman's sentiments.<sup>121</sup> In an ambigrammatic environment, techno-looping and light-speed-propelled systems disrupt life's rhythms in ways that can exhaust our senses. Fuller and Weizman ask: How can aesthetic practices recognise "hyperaesthesia as a collective event or as a societal condition"?<sup>122</sup> Forensic Architecture's aesthetic investigations provide one avenue for

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<sup>118</sup> Fuller and Weizman, *Investigative Aesthetics*, 60–63.

<sup>119</sup> Fuller and Weizman, *Investigative Aesthetics*, 37.

<sup>120</sup> Fuller and Weizman, *Investigative Aesthetics*, 37. Hyperaesthesia is discussed throughout the book, but particularly in chapter five: "Hyperaesthesia: Not Making Sense," 83–103.

<sup>121</sup> Paul Virilio, *The Administration of Fear*, trans. Ames Hodges (Pasadena, CA: Semiotext(e), 2012), 44.

<sup>122</sup> Fuller and Weizman, *Investigative Aesthetics*, 87.

recognition. This research project's combination of imaginal metaveillance and painting provides another avenue, albeit with more speculative provocations than forensic prosecutions.

While reliant on new media digital technology, Forensic Architecture's work evades reproducing what Hu describes as the replication and participation in the value system of the contemporary cloud.<sup>123</sup> Instead, Forensic Architecture's multimodal and multi-fora approach breaks open the cloud, revealing anomalies that can be used for prosecutorial and public exposure. The process of critique embedded in the construction of their works, and the multiple stories they tell, contests the cloud's perceived efficacy and veracity. Keeping with the cloud theme, an example of Forensic Architecture's ability to aesthetically transfer their forensic investigations into physical or online museum or gallery environments is its *Cloud Studies* (2018–) video (Figure 5).<sup>124</sup>

### **Clouds and 'the Cloud', Art and Technology**

Forensic Architecture's *Cloud Studies* critically and aesthetically presents images and analyses of an array of toxic clouds formed by ballistic bombs, fires, tear gas, sprayed herbicides, white phosphorus, and chlorine bombs. These images are taken from a selection of Forensic Architecture's prosecutorial exposés, including *Tear Gas in Plaza de la Dignidad* (2020), commissioned by Chilean medical-activist group No+lacrimogenas, and a self-initiated investigation, *Herbicide Warfare in Gaza* (2014 – ongoing).<sup>125</sup> As counterpoints to the slurs of wafting ballistic or poisonous clouds, visual references to actual atmospheric clouds and art-historical paintings of clouds are woven into the toxic litany. These images provide critical and historical contrasts that position *Cloud Studies* as a reminder of real-world effects of deliberately applied, martially induced, and irresponsibly or accidentally released vaporous toxicity. *Cloud Studies*' visual and historical curation offers insights into critical pathways that can divulge and dissect the stored horror of the twenty-first century techno-cloud. Bridle's warning that the cloud's "aura of something noumenal

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<sup>123</sup> Hu, *A Prehistory of the Cloud*, XXIII.

<sup>124</sup> *Cloud Studies* (2018), Forensic Architecture, embedded video, 32:59, accessed August 15, 2021, <https://forensic-architecture.org/investigation/cloudstudies>.

<sup>125</sup> *Tear Gas in Plaza de la Dignidad* (2020), Forensic Architecture, embedded video, 9:35, accessed July 15, 2023, <https://forensic-architecture.org/investigation/tear-gas-in-plaza-de-la-dignidad>; *Herbicide Warfare in Gaza*, (2014–ongoing), Forensic Architecture, embedded video, 8:50, accessed July 15, 2023, <https://forensic-architecture.org/investigation/herbicide-warfare-in-gaza>.

and numinous, something almost impossible to grasp” is made somewhat more graspable by Forensic Architecture’s cloud study exposition.<sup>126</sup>



Figure 5. Forensic Architecture, *Cloud Studies*, 2018 (ongoing), 32:59. Screen shot of video taken at 21:34 from <https://forensic-architecture.org/investigation/cloudstudies>.

*Cloud Studies* offers a way to think about the twenty-first century technological cloud as also toxic. This toxicity is amplified in the way Forensic Architecture transparently uses the technological cloud to expose the lethality underlying the presence of real clouds produced by smoke, gas, and bomb debris. The video’s combination of these images, and analytics of them, with images of real atmospheric clouds and art-historical paintings of clouds grounds the curated expository in human experience and outcomes. Here, Forensic Architecture clearly does not fail to “address the onto-epistemologies of data’s generation”, as Suchman describes.<sup>127</sup> The “cultural fantasy”, as Hu describes it, of the cloud is prised open by Forensic Architecture’s scouring through the cloud for clues and evidence.<sup>128</sup> This is an intrusion, rather than an act of participation, that reclaims human stories and lives—onto-epistemological experiences. Hu makes another salient statement, which Forensic Architecture’s *Cloud Studies* reveals: “The perversity of the cloud is therefore not that it explicitly causes death. Rather, the cloud transmutes the mechanisms of death and presents it to us as life”.<sup>129</sup> The success of Forensic Architecture’s activities is that this

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<sup>126</sup> Bridle, *The New Dark Age*, 6.

<sup>127</sup> Suchman, “Imaginariness of Omniscience,” 14.

<sup>128</sup> Hu, *A Prehistory of the Cloud*, XXIV.

<sup>129</sup> Hu, *A Prehistory of the Cloud*, XXIII.

subterfuge is exposed, trialled, and exhibited beyond the cloud, but also by and within it. In a way, Forensic Architecture places the metaphor of the cloud on trial.

Performing as a reminder of human observational and creative endeavour, *Cloud Studies* references historical paintings of clouds, by Jacob van Ruisdael and Joseph Mallord William Turner.<sup>130</sup> The video notes the influence of manufacturing chemist and amateur meteorologist Luke Howard's (1772–1864) cloud classifications.<sup>131</sup> It also notes John Ruskin's (1819–1900) laws of perspective for drawing clouds, plus his observation that clouds do not wait for an artist to draw them.<sup>132</sup> Ruskin's prescient warnings about burgeoning nineteenth-century industrial impacts on the air and the environment are not mentioned. However, it is worth noting Ruskin's observation, made in two 1884 lectures, of the "storm-cloud—or more accurately plague-cloud, for it is not always stormy".<sup>133</sup> He further suggests that these clouds are "brought by the plague-wind".<sup>134</sup> Ruskin's lectures portend the accumulated catastrophe of human-induced twenty-first century air pollution, environmental degradation, and climate change. I make a novel proposition that Ruskin's terms "plague-cloud" and "plague-wind" could metaphorically describe the hastening interest militaries are paying to the EMS. Here, the plague-wind's contagion is bellowed across EMS frequencies by military intentions, doctrines, tactics, strategies, and fears.

Ruskin's observations about clouds allow us to think about issues of human-induced toxicity and potential lethality evident in Forensic Architecture's *Cloud Studies*. While the clouds of the nineteenth century held clues of a polluted and changing environment, Forensic Architecture's toxic cloud curation presents clouds as indicators of tactical, martialised, weaponised and lethal activities. Like the clouds of the nineteenth century, these clouds are signs of a degrading present, and a likely degraded future. Co-morbid relationships between environmental and mortal degradations, and moral and ethical degradations, perpetuate the folly.

The toxic clouds in *Cloud Studies* represent and signify the tactics and the damaging effects of contemporary geopolitical and techno-political-military power structures and struggles. Here, I argue that the so-called cloud, an always-on assemblage of networked

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<sup>130</sup> Forensic Architecture, *Cloud Studies*, 18:15–23:28.

<sup>131</sup> Forensic Architecture, *Cloud Studies*, 17:17–17:55.

<sup>132</sup> Forensic Architecture, *Cloud Studies*, 17:56–18:14.

<sup>133</sup> Ruskin, "The Storm-Cloud of the Nineteenth Century," 1.

<sup>134</sup> Ruskin, "The Storm-cloud of the Nineteenth Century," 45.

material nodes and invisible signals, perpetuates these structures and regimes. Giles Deleuze and Félix Guattari's observation that "It is always the assemblage that constitutes the weapon system" intersects with Gregory's notion that the network is "also a weapon system".<sup>135</sup> Both observations inform my argument that in a network-centric world, increasing military interest in the EMS—as an enabler of technology, a type of fires, a manoeuvre space, and a domain—demands attention.

How can the twenty-first century 'cloud', and its role in perpetuating what I argue is an always-on 'everywhere war', be visualised in ways that offer novel perspectives that provoke new questions? And how can we achieve this without reproducing Hu's "system of values" that is "embedded in the cloud"?<sup>136</sup> Pertinent to this research project's mobilisation of imaginal metaveillance and painting as creative ways to answer these questions is another comment made in *Cloud Studies*: "Throughout the history of painting, clouds described a limit condition. Moving faster than the painter's hand could capture them, they needed to be imagined rather than described."<sup>137</sup> In this way, imagination propels a painter beyond limiting conditions imposed by the speed at which a cloud moves. It also helps the painter bypass descriptive or prescriptive formulae for representation. With a paintbrush or a pencil, marks can be made quickly. The haptic proximity of artist, paintbrush, and painting surface, working without a need for formula-based prosaic accuracy, unleashes the mind and imagination.

In his *Theory of /Cloud/: Toward a History of Painting* notes, Hubert Damisch notes that, "Only a brush, used as delicately as possible, is capable of *expressing* a cloud's 'edges' and textures in all their varieties".<sup>138</sup> Damisch's emphasis on *expressing* helps us understand the difference between imagined visualisation based on observation and descriptive representation based on copying, diagrammatic coherence, or AI image generation. While acknowledging special effects capabilities of digital image-rendering software, I argue that the instructional role played by algorithms, prompted by initiating software, is a form of description and prescription.

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<sup>135</sup> Giles Deleuze and Félix Guattari, *Nomadology: The War Machine*, trans. Brian Massumi (New York: Semiotext(e), 1986), 82; first appeared in Giles Deleuze and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia* (France: Les Editions du Minuit, 1980); Derek Gregory, "From a View to Kill," *Theory, Culture and Society* 28, no. 7/8 (2011): 196.

<sup>136</sup> Hu, *A Prehistory of the Cloud*, XXIII.

<sup>137</sup> Forensic Architecture, *Cloud Studies*, 18:06–18:20.

<sup>138</sup> Hubert Damisch, *Theory of /Cloud/: Toward a History of Painting*, trans. Janet Lloyd (Stanford: Stanford University Press, 2002), 190.

The twenty-first century techno-cloud's computational and networked characteristics, enabled by light-speed invisible EMS frequency transmissions, also pose limit conditions for visualised representation. As the ambiveillant environment lassos its peripheries into the techno-loop, the boundaries stretch, yet remain intact. While digitally based new media may meet these limits, technical referentiality with the cloud, and supporting EMS-reliant systems, can impede exceeding them. Therefore, the value system embedded in the cloud and the co-contingent network that facilitates the 'everywhere war', where outcomes are realised in both the real and virtual worlds, can be perpetuated. By heretically using technology to hold technology, and the techno-military-political system, to account, Forensic Architecture's multimodal approach that crosses creation, production, exhibition, and dissemination successfully circumvents the limits of technical referentiality. Circumvention of limits, however, is not the same as exceeding them.

Other artists who work with digital technology in ways that critique contemporary technology's techno-military-political structures and relationships include Farocki, Paglen, multimedia artist Joseph DeLappe, filmmaker Hito Steyerl, and photographer and installation event artist Essam Attia. In his video *Dead in Iraq* (2008), DeLappe disrupts the US Army's online recruiting first-person shooter computer game *America's Army Game* by manually typing the "name, age, service branch and date of death of each service person" who had died in Iraq until 2008.<sup>139</sup> There are repeated attempts by other gamers to 'kill' or eject DeLappe's avatar character "Dead in Iraq". These attempts could be read as metaphors for a system alerted, now aware in ways that resist further disruption.

DeLappe, however, has created a cache of graphite drawings called *Screenshots* (2011) (Figure 6) of his 'dead' avatar.<sup>140</sup> He explains that he wanted to update the "tradition of the 'combat artist'" by creating "images which exist to represent a shift between simulation and document of war".<sup>141</sup> These drawings visualise this shift by exposing the ambigrammatic VR subterfuge and human-avatar deception that DeLappe entered when he logged into *America's Army Game*. However, the drawings cannot be 'killed off' or ejected because they are not part of a connected system. This inability to kill off or eject stimulates

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<sup>139</sup> Joseph DeLappe, "dead in iraq, America's Army online protest/memorial," YouTube video, 4:19, June 24, 2007, <https://www.youtube.com/watch?v=VTnuJMM7frk>; *America's Army Game* was launched in 2002 and shut down in 2022. Find more details at Matthew Gault, "'America's Army', the Pentagon's Video Game, Shuts Down After 20 Years," *Vice*, February 9, 2022, <https://www.vice.com/en/article/y3v5xk/americas-army-the-pentagons-video-game-shuts-down-after-20-years>.

<sup>140</sup> *Screenshots*, 2011, Joseph DeLappe, accessed July 7, 2022, <http://www.delappe.net/project/screenshots/>

<sup>141</sup> DeLappe, *Screenshots*.

questions about identity in the age of simulation and surveillance. The title of the drawing series, *Screenshots*, also cleverly uses *entendre* to unsettle ambigrammatic ploys. Like my painted self-portrait *Me: 01001101 01000101*, which could be a portrait of an avatar, DeLappe's hand-drawn images of his 'dead' avatar exceed the limits of technological referentiality. Hu's "middle distance" is achieved.<sup>142</sup>

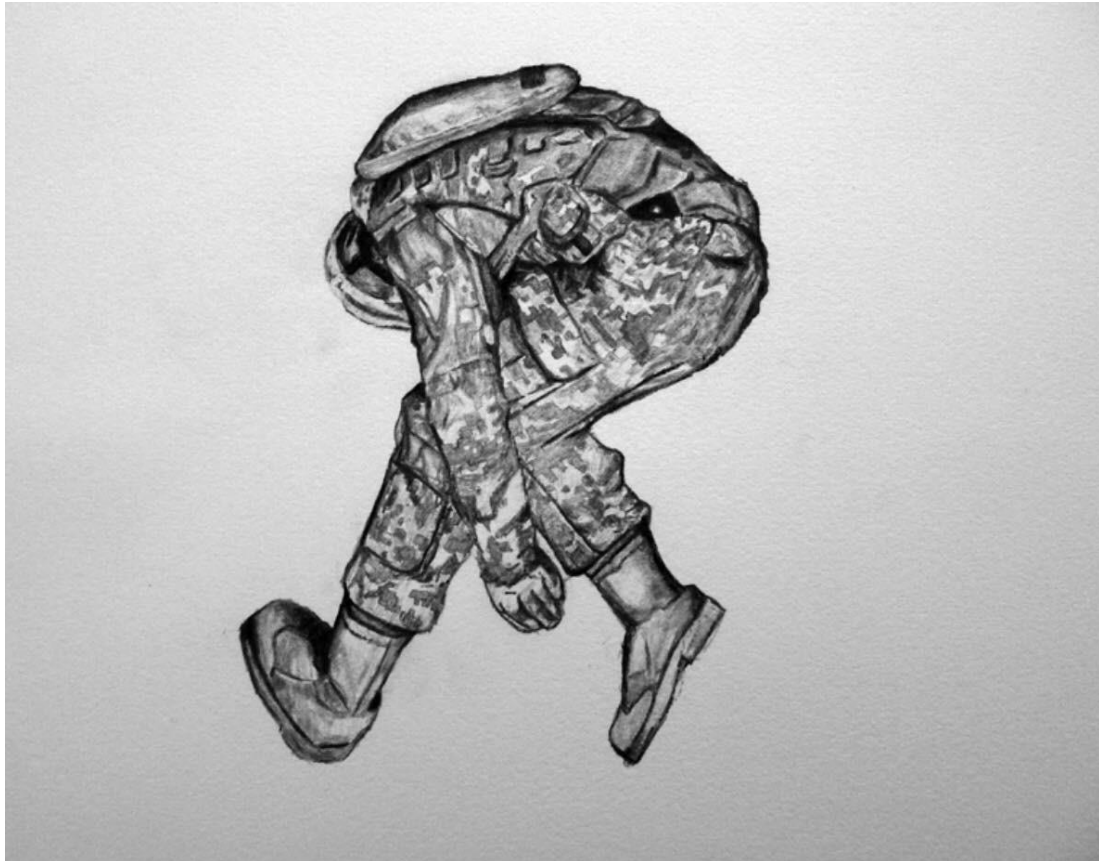


Figure 6. Joseph DeLappe, *Screenshot #4*, graphite on rag paper, 55.8 x 76 cm, 2011. Photo: Unknown. Courtesy of the artist. <https://www.delappe.net/americans-army-drawings>.

Paglen's digital media and photographic exposés of drones, internet cables lying on seabeds, covert military sites, and surveillance satellites make visible the discrete structures of geo-techno-politics.<sup>143</sup> These works are outcomes of *sousveillance*-like activities. Unlike Forensic Architecture's work, exposure in Paglen's work does not, however, hold the system to account. Rather, he presents a potential case, rather than prosecuting one. He discovers but does not undertake the kind of *discovery* that Forensic

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<sup>142</sup> Hu, *A Prehistory of the Cloud*, XX.

<sup>143</sup> Examples of Paglen's works include *Bahamas Internet Cable Systems (BICS-1) NSA/GCHQ-tapped Undersea Cable Atlantic Ocean* (2015), the *Black Sites* (2003–2006) series, *The Other Night Sky* (2008) series, *Untitled (Reaper Drone)* series (ca. 2014). These and other works can be viewed on Paglen's website: <https://paglen.studio/>.

Architecture painstakingly secures for argument, scrutiny, public awareness, prosecution, and what Weizman and Fuller call “sense-making activism”.<sup>144</sup> Forensic Architecture produces something new; Paglen’s exposé works do not.

As Stahl notes, Paglen’s drone series of photographs (ca. 2010–2014) did not “unveil new information”, but rather “performed the very act of looking back”.<sup>145</sup> Hu’s detailed analysis of Paglen’s work also reveals that Paglen’s exploratory and expository processes, leading to his final works, are performative.<sup>146</sup> However, as I have argued earlier, in an ambigrammatic environment, this “looking back” can be a participatory act, rather than a resistant one. It is certainly not a refusal. Like a contemporary Indiana Jones in search of hidden artefacts, Paglen’s processes, such as learning to dive, trekking into deserts, vigilantly monitoring night skies, and engaging with hackers, are performatively intrinsic to the narratives surrounding his work. However, while looking back may help alert and remind the public of privacy and surveillance issues, the ‘performance’, as well as the product also alert the system to its own weaknesses and vulnerabilities. This could be a limit condition for the art, one that allows the system to evade prosecution, as it rectifies and withdraws in ways that ultimately fortify its discrete operations.

Paglen’s employment of sophisticated sousveillance tactics and technologies exposes his work to Hu’s warning that hacktivist and hacktivist-like activities may “end up reanimating the very structures of power that they purport to expose or overturn”.<sup>147</sup> This reanimation involves fantasies that Hu also warns about—“cultural fantasies about security and participation”—that can draw some artists and their audiences into the cloud’s “system of values”.<sup>148</sup> Contemporary technologies, and their uses, are key to this kind of fantasy participation, linking artists with their targets of critique in ways that can draw artists into their own crosshairs. As an insidious form of techno-hijacking, disguised as a promise of participation, this potentially reabsorbs artists and their work back into the system. The 2020 publication *Making AI Art Responsibly: A Field Guide* provides an example of

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<sup>144</sup> Fuller and Weizman, *Investigative Aesthetics*, 6.

<sup>145</sup> Roger Stahl, *Through the Crosshairs: War, Visual Culture, and the Weaponized Gaze* (Rutgers: Rutgers University Press, 2018), 122.

<sup>146</sup> Hu, *A Prehistory of the Cloud*. Hu spends time, particularly in chapter four, *Seeing the Cloud of Data*, discussing Paglen’s work.

<sup>147</sup> Hu, *A Prehistory of the Cloud*, XXVII.

<sup>148</sup> Hu, *A Prehistory of the Cloud*, XVI.



burgeoning awareness that artists who use contemporary technology need to ask why they use technology, in this case AI.<sup>149</sup>

The *Making AI Art Responsibly* publication is described as a “practical field guide to help artists and makers create art using AI techniques responsibly and with care”.<sup>150</sup> It covers issues relating to datasets, model code, training resources, and publication/exhibition. Tellingly, the document points out: “As artists and other independent creators experiment with AI technologies, it’s crucial to recognise that as you create AI art, you are also a de facto researcher. By releasing AI art into the world, you are responsible for understanding the potentially harmful unintended consequences of your work.”<sup>151</sup>

The guide explicitly alerts digital and cyber-reliant new media artists that they can unwittingly be absorbed into the system, in this case as de facto AI researchers. Additionally, the warning that “releasing AI art into the world” may have potential unintended consequences attributes responsibilities about a plethora of issues, such as dissemination and use, dataset privacy concerns, embedded platform biases, and potential copyright and licensing violations. Given that signals enable dissemination, interactivity, sharing, and use, the EMS can be understood as a resource, one that can potentially absorb art and artists into the ambiveillant environment. As a painter, I need to be mindful, for example, of toxic materials and publishing/exhibition issues such as copyright. However, I am not a de facto information technology researcher, unwittingly contributing technical innovations that could contribute to military technology or the militarisation of civilian technology.

With an imaginal metaveillance view, I argue that an ambigrammatic environment fosters a creeping homogenisation of art and contemporary technology. The need to produce the *Making AI Art Responsibly* field guide is evidence of this. This kind of homogenisation is connected to the increasing militarise-ability of civilian technology, for example, drones and mobile phones. In each case, digital cameras are integral for expected device performance, with signals facilitating ‘cloud’ functions such as dissemination, sharing, and storage. Also, in each case, signals enabling and transmitting

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<sup>149</sup> Emily Saltz, Lia Coleman, and Claire Leibowicz, *Making AI Art Responsibly: A Field Guide* (San Francisco: The Partnership on AI, 2020), [https://issuu.com/partnershiponai/docs/partnership\\_on\\_ai\\_art\\_field\\_guide](https://issuu.com/partnershiponai/docs/partnership_on_ai_art_field_guide).

<sup>150</sup> Salz, Coleman, and Leibowicz, *Making AI Art Responsibly*.

<sup>151</sup> Salz, Coleman, and Leibowicz, *Making AI Art Responsibly*.

images and data can turn a civilian drone or mobile phone into an interconnected militarised tool, either as target or weapon. Hu offers salient advice: “To use the cloud is to willingly put on an electronic collar; it is to fuse our hunt for data with our identities.”<sup>152</sup> He reminds us that in this type of world, “we are both the targets of others and targeters ourselves”.<sup>153</sup> Here, the ambigrammatic character of the target–targeter description scaffolds my argument that an ambigrammatic environment dominates our contemporary world.

Hu’s use of the word “fuse” can be considered a synonym for homogenisation. It also resonates with Suchman’s idea of a “technopolitical imaginary of containment” and my idea of the ambigrammatic techno-loop.<sup>154</sup> All of these intersect with Virilio’s observation of an invasion of the “imaginary of populations held in thrall by a proliferation of screens”.<sup>155</sup> He calls this a “globalization of ‘affects’” and a “sudden synchronization of collective emotions”.<sup>156</sup> I ask: What are potential unintended consequences of techno-induced homogenisation and synchronisation? Could they be signs and symptoms of an ‘everywhere war’ where enlistment is synonymous with fatality? What does it mean for art and artists, particularly those working with new technologies?

While art-historical depictions of war, death, and war heroes affiliate painting with war, the act and outcomes of painting do not contribute sophisticated technical expertise to contemporary digital and cyber military-related research and development. However, as Bousquet points out, the development of an art-historical perspective from the fifteenth century onwards interweaves with historical advances in military mapping, scoping, and targeting technologies.<sup>157</sup> Bousquet notes “linear perspective as one of the foundational sites of the technoscientific tethering of perception to the imperatives of targeting”.<sup>158</sup> Although perspective in painting, drawing, and printmaking contributed to, and was aided by, the development of early ‘perspective machines’, such as the camera obscura, the invention of the camera crucially benefited from such machines. By the First World War, the camera had gone airborne as a tool to assist military surveillance, mapping, and

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<sup>152</sup> Hu, *Prehistory of the Cloud*, 111.

<sup>153</sup> Hu, *Prehistory of the Cloud*, 111.

<sup>154</sup> Suchman, “Imaginariness of Omniscience,” 20.

<sup>155</sup> Paul Virilio, *The Original Accident*, trans. Julie Rose (London and Malden, MA: Polity, 2007), 17.

<sup>156</sup> Virilio, *The Original Accident*, 17.

<sup>157</sup> Antoine Bousquet’s *The Eye of War* develops through this idea, based on the history of perspective.

<sup>158</sup> Bousquet, *The Eye of War*, 22.

targeting. In the twenty-first century, the camera is now integral for civilian and military digital photographic and video imaging from space to under the sea, from outside to inside our bodies.

Despite productive cultural and artistic civilian applications, contemporary photography and photographic technologies are enmeshed within the militarised system. They are enmeshed as technological and aesthetic tools that help enable the techno-loops of sousveillance—surveillance, tracking and targeting, mapping, and mobilisation. With escalating EMS-enabled interconnectivity and interoperability, contemporary photography and new media art are increasingly complex technological and political mediums for artists to negotiate. Reliance on software and computer platforms presents another historical and technical intersection with the military, through the military's involvement in the foundation of computer art. In 1963, the *Computers and Automation* industry journal held the first known computer art competition with first and second prizes awarded to works produced by the United States Army Ballistic Research Laboratory (BRL).<sup>159</sup> The same lab also won the next year's competition.<sup>160</sup> As art historian Grant D. Taylor observes, "A military laboratory producing the first recognized award-winning piece of computer art in the United States is certainly unorthodox. In fact, there is no similar example in the history of art."<sup>161</sup>

Computer art's inception is cradled by military and technological research and development, from the 1960s analogue era to the contemporary digital era. Even the first international computer art competition, *Cybernetic Serendipity* (1968), was partly funded by the US Air Force.<sup>162</sup> The use of the word "serendipity" was prescient when considering the developmental and useful relationships between photography, imaging technology, computer research, computer art, and militarised interest in them. This serendipity propagates in the digital age in organisations such as the US Army's Combat Capabilities Development (DEVCOM) C5ISR Centre.<sup>163</sup> C5 denotes five activities, each beginning with

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<sup>159</sup> James Vincent, "A Look Back at the First Computer Art Competitions from the 60s: Bullet Ricochets and Sine Curves," *The Verge*, July 13, 2015, <https://www.theverge.com/2015/7/13/8919677/early-computer-art-computers-and-automation>.

<sup>160</sup> Vincent, "A Look Back". In 1963, the winning work was *Splatter Pattern*. The next year's winning work, *Trajectories of a Ricocheting Projectile*, plotted ballistic outcomes.

<sup>161</sup> Vincent, "A Look Back". Taylor also explains that entries in the *Computers and Automation* computer art competitions from 1963 to 1965 were dominated not by artists, but by large research laboratories associated with the military, or advanced technology research and development.

<sup>162</sup> Vincent, "A Look Back."

<sup>163</sup> See the United State Army DEVCOM C5ISR Centre website: <https://c5isrcenter.devcom.army.mil/>.

the letter C: *command, control, communications, computers, cyber*. The initialism ISR is made up of *intelligence, surveillance, and reconnaissance*. One of the three focus points of the DEVCOM C5ISR's Research and Technology Directorate is "SPECTRUM DOMINANCE & INTELLIGENCE".<sup>164</sup>

The militarise-ability of civilian technology claws into an increasing number of private, industrial, political, corporate, financial, entertainment, and cultural activities. Kaempf, for example, draws upon security studies scholar James Der Derian's term, coined in 2000, the "Military-Industrial-Media-Entertainment-Network" (MIME-Net), to elucidate the relationship between the Pentagon, Hollywood, and the contemporary commercial games sector.<sup>165</sup> Der Derian's term, an expansion of President Dwight D. Eisenhower's prescient 1961 term, the "military-industrial complex", however, is infused with tragic irony.<sup>166</sup> One way he achieves this is by drawing attention to the textual appearance of the "mimetic power that travels along the hyphens" in Military-Industrial-Media-Entertainment-Network.<sup>167</sup> The ironic twist continues with the MIME-Net acronym. Like C5ISR, it textually and aesthetically shorthands the serendipitous advantages that contemporary technology offers the military.

While acknowledging military influence in film production since the 1920s, Kaempf pays critical attention to military uses and appropriations of new digital technologies. He notes that "key military actors view the conduct of war as an arena that stretches well beyond the actual battlefields and includes the production of war movies, reality TV series, film documentaries, computer simulations, and first-person shooter video games".<sup>168</sup> This is clearly further evidence of how the technologically driven 'everywhere war' insidiously fuses the civilian and the military. Kaempf makes an additional statement that alerts us to the militarised application of two increasingly popular media platforms for contemporary

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<sup>164</sup> "About Us," DEVCOM C5ISR, accessed July 15, 2023, <https://c5isrcenter.devcom.army.mil/about-us/>.

<sup>165</sup> Sebastian Kaempf, "A Relationship of Mutual Exploitation': The Evolving Ties Between the Pentagon, Hollywood, and the Commercial Gaming Sector," *Social Identities* 25, no. 4 (2018): 542–58, <https://www.tandfonline.com/doi/full/10.1080/13504630.2018.1514151>; James Der Derian, *Virtuous War: Mapping the Military-Industrial-Media-Entertainment-Network* (New York: Routledge, 2009).

<sup>166</sup> Dwight D. Eisenhower, "Farewell Address," 1961, National Archives, Milestone Documents, accessed May 25, 2023, <https://www.archives.gov/milestone-documents/president-dwight-d-eisenhowers-farewell-address>.

<sup>167</sup> James Der Derian, "Virtuous War/Virtual Theory," *International Affairs (Royal Institute of International Affairs 1944-)* 76, no. 4 (2000): 786, <http://www.jstor.org/stable/2626459>.

<sup>168</sup> Kaempf, "A Relationship of Mutual Exploitation'," 542.

art, simulation and virtual reality. He notes that, “for the arms industry and weapons manufacturers, proximity to the military’s most innovative research on simulations and virtual reality gives them immediate access to and understanding of the types of future weapons systems the military is searching for”.<sup>169</sup>

Just as *Making AI Art Responsibly* cautions artists about doubling as de facto AI researchers, it is worth considering how artists experimenting with simulation and virtual reality could be unwitting contributors to future weapons systems. DeLappe’s series of paintings called *Virtual Paintings* (1996, 2018 – ongoing) offers painting as a medium to observe and critique human interaction with virtual reality.<sup>170</sup> The paintings depict people at VR festivals, university labs, and similar sites, wearing VR headsets. These headsets appear in some paintings to be wired to, or wirelessly connected to, hand-held controllers and computer control stations.<sup>171</sup> Each person looks strange and alone, even if there is another person in the scene. I propose that the aloneness DeLappe’s paintings reveal is key to understanding how the fantasies of participation and connection offered by the cloud are like an insidious weapon system. While this may seem an extreme statement, I nonetheless argue that new forms of warfare—information, hybrid, cyber—erode human connection by manufacturing or manipulating fantasies of techno-connection. DeLappe’s *Virtual Paintings*, painted in 1996 until the present, offer a historical insight, which I discuss further in chapter three. The five 1996 paintings appear futuristic. *Virtual Painting 1* (Figure 7) is an example. Painted over twenty years later, in another century, the 2018 (and ongoing) paintings are that future. *Game, Daughter Sarah in VR* (2018) (Figure 8) is an example of DeLappe’s recent work. Loneliness is still evident.

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<sup>169</sup> Kaempf, “A Relationship of Mutual Exploitation,” 554.

<sup>170</sup> Joseph DeLappe, *Virtual Drawings*, DeLappe, accessed July 6, 2022, <http://www.delappe.net/drawings/virtual-paintings/> and <http://www.delappe.net/drawings/virtual-paintings-2018/>.

<sup>171</sup> DeLappe, *Virtual Drawings*.

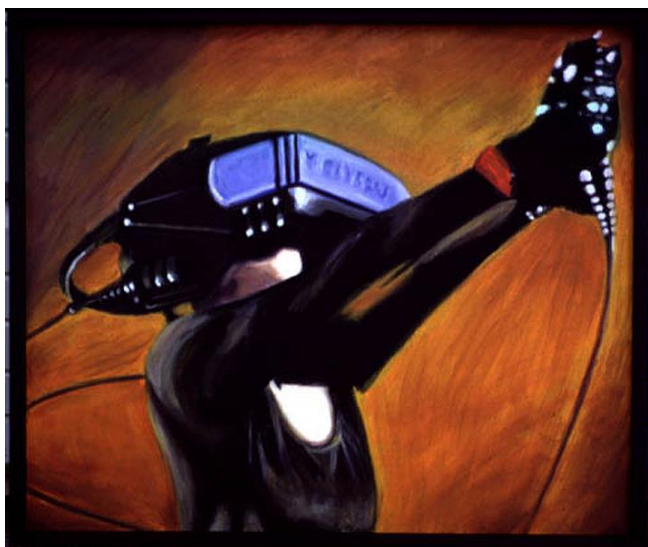


Figure 7 (left). Joseph DeLappe, *Virtual Painting 1*, oil on canvas, 1996. Photo: Unknown. Courtesy of the artist. <https://www.delappe.net/virtual-paintings1>.

Figure 8 (right). Joseph DeLappe, *Game, Daughter Sarah in VR*, watercolour on paper, 20 x 20 cm, 2018. Photo: Unknown. Courtesy of the artist. <https://www.delappe.net/virtual-paintings1>.

Another artist who has depicted augmented vision technology in paintings is George Gittoes.<sup>172</sup> Significantly, these depictions are reflections of his own experiences working and living in war and conflict zones. He has worked as an artist, filmmaker, and photographer in zones of conflict since 1986, when he went to Nicaragua during the Sandinista rebellion. While Gittoes has never been an official Australian war artist, in 1993, a few years before DeLappe started the first set of his *Virtual Paintings* series, Gittoes accompanied Australian peacekeeping forces on night patrols in Somalia. Like the soldiers, Gittoes wore night vision goggles. Unlike contemporary military-grade night vision technology, the 1993 goggles were not wirelessly connected across a mission force, or to other devices worn or carried by soldiers. However, Gittoes's experiences, visualised in raw paintings and drawings, reflect the effects he witnessed using night vision goggles in a conflict zone.

The paintings also document the effects of witnessing other people using the technology in a conflict zone. Since 1993, Gittoes has created many paintings and drawings that reflect these experiences. A 1993 example is his painting *Night Vision Baidoa* (Figure 9). Like DeLappe's, his paintings show how the human body is changed by prosthesis-like goggles.

<sup>172</sup> My MPhil included research into Gittoes's paintings that depict militarised technology. See Kathryn Fox, "Drones and Night Vision: Militarised Technology in Paintings by George Gittoes and Jon Cattapan" (MPhil thesis, The University of Queensland, 2017), <https://doi.org/10.14264/uq.2017.774>.

In Gittoes's case, this strangeness is depicted in paintings of peacekeeping forces transformed into almost alien-like beings, their goggles turned into piecing prongs. This effect is exacerbated by the gloom of night, military uniforms, and weapons. In *Night Vision Baidoa*, Gittoes depicts soldiers surrounded by Somalian children holding toy guns. The children appear fearful, but so do the soldiers. Here, Gittoes alludes to fears expressed by soldiers that they might mistake a child holding a toy gun as a legitimate threat.<sup>173</sup> In 1993, Gittoes remarked that wearing night vision technology rendered the world "like a synthetic computer construct".<sup>174</sup> The reality of this sense of *unreality* is critically and bluntly addressed in DeLappe's intervention into the *America's Army Game*, his subsequent 2008 video *Dead in Iraq*, and his 2011 *Screenshots* drawings of his dead avatar.



Figure 9. George Gittoes, *Night Vision Baidoa*, oil on canvas, 87 x 101 cm, 1993. Unknown collection. Photo: unknown. Courtesy of the artist. <https://www.mustdobrisbane.com/archives/george-gittoes-night-vision-mitchell-fine-art>.

<sup>173</sup> Gittoes handwrites about these reactions in the margins of the drawing *Night Vision*, pencil on paper, 44 x 62 cm, 1993. Reproduced in George Gittoes, *Blood Mystic* (Sydney: Pan Macmillan, 2016), 52–53.

<sup>174</sup> George Gittoes, text written in margins of drawing *Khats*, pencil on paper, 44 x 62 cm, 1993, which can be viewed on the Australian War Memorial website: "Khats," AWM, accessed July 1, 2023, <https://www.awm.gov.au/collection/C272585>.

## Plague-Winds and Plague-Clouds

After I read Ruskin's 1884 lectures, his terms "plague-cloud" and "plague-wind" kept percolating in my mind.<sup>175</sup> Taking an imaginal metaveillance approach, I began to think of contemporary militarisation processes as a plague-wind. The EMS, in our sphere of influence from Earth to orbiting satellites, could be considered the purveyor of a militarised plague-wind, and also the foundation for a contaminated plague-cloud. My painting *Theatre of War: Plague-Cloud* (2021) (Figure 10) was inspired by thinking about Ruskin's ideas. As I poured liquid paint onto canvas, I tilted the stretcher this way and that, forcing crimson and cadmium red paint, and Prussian and cobalt blue paint, to stream across the surface. I deliberately used cadmium red to introduce a dirtied appearance. I then poured white paint into the cascade of red and blue. Depth, light, and shade were introduced into the wild dirty scape that seemed to move as I moved. I then painted outlines of white interlinked circles over the poured background. These circles reflect how the loop structure of the ambiveillant environment is repeatedly articulated by the twenty-first century techno-cloud. This kind of visualisation via interlocked circles is a new approach, stimulated by this project's research. The first painting where I depict interlocking circles to represent EMS-enabled interconnectivity is *Paradox* (2021) (Figure 11), which I discuss in the next chapter.

As I painted *Theatre of War: Plague-Cloud*, I processed Ruskin's ideas, imagining new kinds of twenty-first century plague-winds and plague-clouds. I flew, in my imagination, into these clouds. Buffeted by strange winds, imaginal metaveillance helped me pose two questions. Firstly, I ask, what if we consider military aims to dominate the EMS as a contagion that 'blows' through the EMS like a plague-wind? Secondly, I then pose, as frequencies are 'polluted' with militarised intentions, appropriations, capabilities, and activities, is the contemporary technological cloud a plague-cloud? These questions, I argue, help us probe implications of, for example, the Military-Industrial-Media-Entertainment-Network. Here, Der Derian's hyphens can be read as symbols for the conduits that enable the 'everywhere war', its interconnectivity and interoperability, looping structures, and transmittable contagions. Kaempf's observation that the "world of games, simulators, and game technologies cross the boundaries between militaries, the defense

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<sup>175</sup> Ruskin, "The Storm-loud of the Nineteenth Century."



industry, Hollywood, and the commercial gaming sector” illustrates how the ambiveillant environment consumes peripheries in its ongoing engagement.<sup>176</sup>

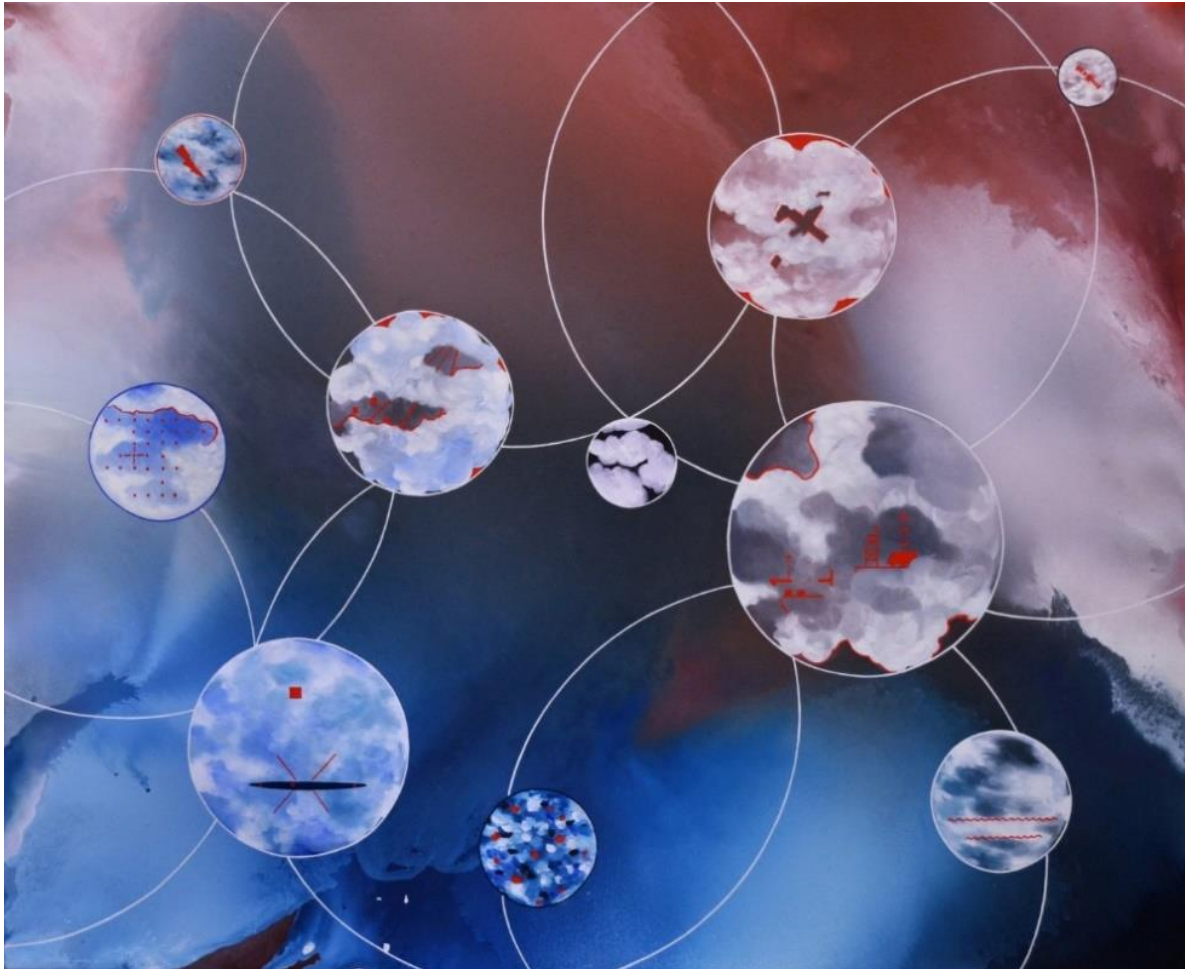


Figure 10. Kathryn Brimblecombe-Fox, *Theatre of War: Plague Cloud*, oil on linen, 112 x 92 cm, 2021.

Like *Verified Landing Site*, *Theatre of War: Plague-Cloud* is an invitation for imaginal flight. Initially, a sense of flying above the interconnected white circles may be felt. From ‘above’ the background of red-brown and blue paint appears to be a landscape. If viewed from below, it could be a dirty skyscape, perhaps contaminated. If we imagine ‘hovering’ in front or behind the mesh of circles, a fence or wall emerges. Like Forensic Architecture’s exposure of contaminated clouds of smoke, gas, and pesticides in *Cloud Studies*, the scene beyond the fence or wall could be a compromised environment. Whether flying above, below, in front of, or behind, a sense of enclosure and occupation permeates. The interlocked circles, interpreted as the contemporary technological cloud, volumetrically occupy the signalic space between Earth and orbiting satellites. To give the impression of

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<sup>176</sup> Kaempf, “A Relationship of Mutual Exploitation,” 554.

netted continuance, the large circles each extend beyond the painting's edges. Other interlocking circles can, therefore, be imagined. This fake cloud is all-encompassing.

Ten smaller circles each portray painted impressions of real clouds. What appear to be partial sections of militarised and militarise-able hardware and systems are glimpsed—for example, satellites, an airborne drone, a sea vessel, and submarine vehicles. As the smaller clouded circles intersect with the larger 'cloud' circles, normally invisible EMS-enabled hardware interconnection, and therefore interoperability, is visually exposed for scrutiny. Maybe *Theatre of War: Plague-Cloud* is a visualisation of a contemporary or future military joint-force operation within an EMS-enabled techno-cloud. Maybe it is a war-gamed scenario plan, or possibly an investigative re-enactment designed to discover how or when the techno-cloud was contaminated.

Although the USDoD's *Electromagnetic Spectrum Superiority Strategy* claims the EMS is “not a separate domain of military operations because the EMS is inseparable from the domains established in joint doctrine”, I argue that the EMS is indeed a domain, an overarching domain fortified by its tentacular frequencies.<sup>177</sup> As Virilio intuitively observed, during the first Gulf War (1991), the “real environment for all important military action is no longer so much the geographic environment, be it desert or other terrain, but rather the electromagnetic domain”.<sup>178</sup> As a result of my research, worked through and visualised in multiple paintings, I offer a refutation of the USDoD claims of EMS inseparability. Rather than the “EMS being inseparable from domains of joint force”, I propose that joint-force domains of land, sea, air, cyber, and space are inseparable from the EMS. They rely on the EMS; the EMS does not rely upon them. This status positions the EMS as a key domain, with joint-force domains as subdomains. Importantly, this argument is supported by a statement in the UK Ministry of Defence's *Electromagnetic Spectrum Blueprint*: “All defence operations, whether on land, at sea, in the air, in space, or in cyberspace, are fundamentally dependent on the use of the EMS.”<sup>179</sup>

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<sup>177</sup> USDoD, *Electromagnetic Spectrum Superiority Strategy*, 3.

<sup>178</sup> Virilio, *Desert Screen*, 88.

<sup>179</sup> United Kingdom Ministry of Defence, *Electromagnetic Spectrum Blueprint: Version 1* (London: Ministry of Defence, 2019), 4, [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/833094/Electromagnetic\\_Spectrum\\_Blueprint\\_V1-O.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/833094/Electromagnetic_Spectrum_Blueprint_V1-O.pdf).

As the circles extend beyond *Theatre of War: Plague-Cloud*'s edges, the tentacular character of the EMS is visualised and revealed in ways that prompt additional imagined possibilities. A further array of EMS domain-reliant military and civilian support infrastructure is clearly possible—for example, servers and data centres, mobile phones, computers, and domestic wirelessly connected devices, such as smart refrigerators and alarm systems. Here, the Internet of Things (IoT) is battered by plague-winds bellowed by contemporary military aspirations of an Internet of Battlefield Things (IoBT), an Internet of Military Things (IoMT), or even an Internet of War Things (IoWT).<sup>180</sup> The EMS is pivotal for these clouds, but as *Theatre of War: Plague-Cloud* visually insinuates, there are strengths, but also weaknesses, in a system reliant on signal connectivity. This reliance induces vulnerabilities, such as potential signal loss or weakness, denial of service, hacking, and appropriation. The USDoD's *Electromagnetic Spectrum Superiority Strategy* makes a statement aimed at mitigating such vulnerabilities. By clearly indicating that “EMS superiority” is pivotal for joint-force operations, this statement reinforces my argument that the EMS is a key domain: “The EMS not only provides the critical connective tissue that enables all-domain operations, but represents a natural seam and critical vulnerability across joint force operations. This Strategy aims to mitigate vulnerability by creating the conditions to ensure EMS superiority.”<sup>181</sup>

## Light-Speed

*Theatre of War: Plague-Cloud* indicates that a plague-cloud extends everywhere: horizontally, vertically, and volumetrically. The interlocked circles suggest that in an ambiveillant environment, the system mutates into its own contagion, like a self-replicating disease. For the ambiveillant environment and the fantasy of the cloud to appear to function, technology is synchronised and homogenised into digitised interconnected systems operating at or near light-speed. Reliant on speeds operating beyond human dimensions of speed and time, I propose that the IoT is increasingly indiscernible from the Medusa-like spawning of the IoBT, IoMT, and IoWT. In this ambiveillant environment, civilians and their devices are absorbed by techno-military-political survival impulses. These impulses are propelled by the lure of speed to mitigate fears of losing operational and strategic edges. Virilio's 2005 prediction that a “MINISTRY OF FEAR” will “emerge to

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<sup>180</sup> United States DEVCOM Army Research Laboratory, “Internet of Battlefield Things,” Army.mil, accessed March 27, 2022, <https://www.arl.army.mil/business/collaborative-alliances/current-cras/iobt-cra/>.

<sup>181</sup> USDoD, *Electromagnetic Spectrum Superiority Strategy*, 3.

override the extremely outmoded MINISTRY OF WAR” may have already occurred.<sup>182</sup> In the next chapter, “Speed: Light-Speed =  $c$ ”, I expand my scrutiny of speed, and its propulsion of twenty-first century plague-winds and plague-clouds. Painting and imaginal metaveillance provide ways to view the weaponisation of speed as a simultaneous militarisation of time, and the future.

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<sup>182</sup> Paul Virilio, “Democracy of Emotion,” trans. Julie Rose, *Cultural Politics* 1, no. 3 (2005): 345.

## Chapter Two

### Speed: Light-Speed = $c$

EMSO [electromagnetic spectrum operations] provides capability, capacity, and potentially persistent access to targets at the speed of light, where many other capabilities require extended time, resources, and movement of forces to employ.

United States Department of Defense, 2020 *Electromagnetic Spectrum Superiority Strategy*

### Setting the Scene

In 2019, political scientist Michael C. Horowitz wrote an article titled “When Speed Kills: Lethal Autonomous Weapon Systems, Deterrence and Stability”.<sup>183</sup> The first part of the title, “When Speed Kills”, nudges us to consider speed’s lethality as a weapon, as well as a purveyor of weaponry. When applied to the way militaries strategise and utilise the EMS, with its light-speed capabilities, the issue of speed is a central issue for contemporary and future warfare. For example, frequencies are used to purvey weaponisation and weaponise-ability, at or near light-speed, to hardware and systems. Additionally, developments in high-frequency-directed energy laser weapons and electromagnetic pulse weapons allow speed-of-light delivery with destructive energy that appears at the “target nearly instantaneously upon emission from the source (weapon system)”.<sup>184</sup> As Virilio prophesied in 1995, “The fact of having reached the light barrier, the speed of light, is a historic event, one which disorients history and also disorients the relation of human beings to the world. If that point is not stressed, then people are being disinformed, they are being lied to. For it has enormous importance. It poses a threat to geopolitics and geostrategy.”<sup>185</sup>

I propose that having reached the light barrier compels an ever-increasing urgency for technological advantage aided by speed. This compulsion fuels accelerating developments in contemporary militarised technology and militarise-able civilian technology. As Paul Scharre—former US Army Ranger, author, and Director of Studies at the Center for a New American Security—noted in 2019, “One of the great dangers of

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<sup>183</sup> Horowitz, “When Speed Kills,” 764–88.

<sup>184</sup> Michael Spencer, *Directed Energy Weapons: Playing with Quantum Fire* (Canberra, ACT: Air Power Development Centre F3-G, Department of Defence, 2020), 62, [https://airpower.airforce.gov.au/sites/default/files/2021-03/BPAF03\\_Directed-Energy-Weapons.pdf](https://airpower.airforce.gov.au/sites/default/files/2021-03/BPAF03_Directed-Energy-Weapons.pdf).

<sup>185</sup> Virilio, “Red Alert in Cyberspace,” 2.

automation is an arms race in speed, in which countries push humans further and further out of the loop in a bid to act faster than competitors”.<sup>186</sup> Against a background of increasing military interest in the EMS, in this chapter I argue that speed is now an integral defining element of contemporary war, with clear implications for the future of war and humanity.

To elucidate my argument that speed is a defining element of contemporary war, I discuss imaginal metaveillance as a critical and creative method of visualising speed. The challenge of visualising something beyond sight involves multiple senses and sense-making processes. Coupled with painting, imaginal metaveillance helps to aesthetically sense, and visually conjure, speed’s characteristics and effects. I propose that making the invisible visible in speculative, rather than fantastical, painted representations stimulates inquiry and further scrutiny. As I sense, and try to make sense of, light-speed in relation to increasing military interest in the EMS, I intersect imaginal metaveillance with Forensic Architecture’s notion of aesthetic and revelatory investigation and storytelling.<sup>187</sup> Additionally, Virilio’s study of speed, which he called “Dromology, the science of movement and speed”, offers expansive and stimulatory insights. These insights inform this chapter’s aim to examine speed, technology, and war, using painting as a revelatory practice.<sup>188</sup>

I resonate with Virilio’s statement that he prefers “the revelation to the revolution”.<sup>189</sup> Calling himself a “*revelationary*”, he did not aim to “revolutionize the system”.<sup>190</sup> Revelation for Virilio was provocative and speculative, contributing disruptive insights for others to probe and discuss. I take Virilio’s conjectures into the aesthetic realm, as a visual form of speculative and revelatory probing and discussion. This chapter’s study of speed, technology, and contemporary war combines Forensic Architecture’s evidence-seeking and sense-making revelatory approaches with Virilio’s speculative *revelationary* provocations. I establish an art-historical context through references to art movements and

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<sup>186</sup> Paul Scharre, “Military Applications of Artificial Intelligence: Potential Risks to International Peace and Security,” in *The Militarization of Artificial Intelligence* (New York: Stanley Center for Peace and Security publication, 2019), 15, <https://stanleycenter.org/wp-content/uploads/2020/05/MilitaryApplicationsofArtificialIntelligence-US.pdf>.

<sup>187</sup> Fuller and Weizman, *Investigative Aesthetics*.

<sup>188</sup> Virilio, *The Administration of Fear*, 27.

<sup>189</sup> Virilio, *The Administration of Fear*, 71.

<sup>190</sup> Virilio, *The Administration of Fear*, 71.

practices that paid attention to speed—for example, the early twentieth-century Futurists, and the late modernist artist James Rosenquist.

### **Sensing or Sensoring? Painting Light-Speed**

Forensic Architecture recognises human sensibility, non-human living modes of sensing, and natural world inanimate markers as sensorial means to find, assess, and assemble evidence of various environmental, human rights, and criminal violations.<sup>191</sup> These modes of sensing are interpolated with technological sensors, the data they produce, and analysis of this data. This investigative approach, combining natural world sensing and what I call technological ‘sensing’ (which I discuss in chapter one), not only reveals new evidence, but it also provides analytical perspectives that expose discrepancies in existing evidence. Additionally and crucially, it allows us to flag gaps in an evidential trail.

My aim is to also discover and to visualise. However, rather than prosecuting evidence, I present evidentiary clues as informed, but also provocative, speculations that prompt questions about the present, as well as the future. This form of wondering, without a need or promise to verify for legal defence or prosecution, is a pre-emptive and precautionary approach, similar to ideas of horizon scanning in futures studies. While it is more aligned to Virilio’s revelatory and speculative approach, it is also aligned to Forensic Architecture’s notion of “Forensic Futures”.<sup>192</sup> Forensic Architecture describes Forensic Futures as an “attempt to produce future-oriented archives capable of anticipating incoming events”.<sup>193</sup> The aim is to identify patterns in events that reveal the “enabling conditions of violence” in order to document precedents, and to enable precautionary and pre-emptive actions.<sup>194</sup> By visualising normally invisible elements of contemporary war and technology, my pre-emptive and precautionary approach gathers clues to pose and stimulate *what if?* questions.

While my painted appropriations intersect with technology, a painting’s literal independence from the techno-system rouses the possibility of disruptive critique. This deliberate artifice positions my paintings as metaphorical Trojan Horses. Interestingly, the term ‘Trojan Horse’, has been wrested from its mythological roots and assumed as a

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<sup>191</sup> Fuller and Weizman, *Investigative Aesthetics*, 35.

<sup>192</sup> Forensic Architecture, *Forensis*, 746.

<sup>193</sup> Forensic Architecture, *Forensis*, 746.

<sup>194</sup> Forensic Architecture, *Forensis*, 746.

descriptor for a computer program that appears genuine but conceals malicious functions.<sup>195</sup> While damage is the purpose of both the mythological and computational Trojan Horses, my aim is not to attack, or provide answers, but to provoke questions.

The roles played by painting and imaginal metaveillance in this research project are articulated by Fuller and Weizman when they note that “the work of aesthetics and the work of imagination are both essential to investigative work”.<sup>196</sup> They go on to say: “Crucially aesthetics also pertains to the intellect. It implies the ability to perceive.”<sup>197</sup> Perception is a key attribute of human vision, especially if vision is considered as more than seeing with our eyes but also seeing in our mind’s eye, in imagination, through visionary thinking and dreaming. In contrast, the pithy purview of surveillance, data harvesting, and targeting sensor systems is not an act of this kind of expanded vision, but an act of scoping. Sensor scoping, I propose, is more about detection processes, rather than perceptive, imaginative, and intellectual sense-making abilities.

While Bousquet includes a chapter called “Sensing” in his book *The Eye of War: Military Perception from the Telescope to the Drone* (2020), he does not interrogate the anthropomorphising or animalising power of words such as ‘sensing’ and ‘perception’ used in conjunction with contemporary technology.<sup>198</sup> He does, however, note that the “visual faculty has itself become increasingly disembodied from its original biological substrate through the incremental rationalization and mechanization of its functions”.<sup>199</sup> He goes on to explain that a “primary motive force of this trajectory lies in the development of projectile weaponry capable of striking entities at a distance”.<sup>200</sup> In this way, Bridle’s terms “computational thinking” and “militarised computation” succinctly explain the outcomes of “rationalization and mechanization” for military techno-purposes.<sup>201</sup>

As a painter, I am a senser, a perceiver. I am not a sensor, nor do I rely on sensors. A created painting is not a product of *sensing*. It is an outcome of sensing, where imagination, perception, and even ‘gut reaction’, are informed or roused by assorted

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<sup>195</sup> Science Direct’s “Trojan Horse” webpage offers articles about computer Trojan Horse programs. See <https://www.sciencedirect.com/topics/computer-science/trojan-horse>.

<sup>196</sup> Fuller and Weizman, *Investigative Aesthetics*, 14.

<sup>197</sup> Fuller and Weizman, *Investigative Aesthetics*, 36.

<sup>198</sup> Bousquet, *The Eye of War*, 41–80.

<sup>199</sup> Bousquet, *The Eye of War*, 41.

<sup>200</sup> Bousquet, *The Eye of War*, 41.

<sup>201</sup> Bridle, *The New Dark Age*, 34, 29.



prosaic and esoteric stimulants. These stimulants include watching paint cascade or drip across a canvas, listening to a conference paper, undertaking technical research, examining a military manufacturer's website, imagined roleplay, imagined flight, and even imagined time travel. Bousquet's observation that the visual faculty has been incrementally rationalised and mechanised is a warning of creeping techno-normalisations. Artists working with digital and cyber-based platforms need to take heed, to ensure their senses are not transmuted into utilities, rationalised and mechanised via prosthetic-like sensors.

My paintings are outcomes of combined physical, emotional, creative, intellectual, and imaginal struggles and processes, simultaneously sensing and responding to multiple stimulants. Furthermore, physical and tactile aspects of a painting's creation engender feedback sensations, unmediated by software, lenses, sensors, touchscreens, and keyboards. In contrast to consistent finger-tip touching required for a touchscreen or keyboard's instantaneous triggering of program applications, painting is a physically and materially messy activity. For example, using brushes of different sizes requires different hand movements and grips. I also often use fingers and hands to directly manipulate paint. I wipe my hands on my painting clothes, often smearing paint on my face and in my hair. Paint splatters floors, feet, hands, and clothes. As seeing and doing combine in messy sensations experienced in human dimensions of speed and time, the painting process becomes an active portal for imagination to exceed these dimensions, without being remote to them.

The act of creating a painting, and the painting itself, are informed by working in a sensed harmony, and sometimes disharmony, with the artist's immediate environment and tools. For example, paint's liquidity and type, the surface on which someone paints, and the paintbrush size all impact a painter's process. Fuller and Weizman perceptively describe painting as an activity of registering that draws upon an array of "waymarkers, for the painter in front of the canvas, such as the eye, hand, brushes, knives and paint".<sup>202</sup> Acknowledging that each of these has "individual propensities and difficulty", the authors also include other aspects that contribute to a painter's honed sense of registration, for example, training and experience.<sup>203</sup>

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<sup>202</sup> Fuller and Weizman, *Investigative Aesthetics*, 172.

<sup>203</sup> Fuller and Weizman, *Investigative Aesthetics*, 172.

In my experience, Fuller and Weizman's idea of painting and registration is insightful. I propose that the studio or creative space, particularly its size, is a relevant consideration for ongoing creative sensing and registration. The ability to physically move back and forth from an easel to gauge aesthetic and practical judgements and decisions requires physical space and distance. Helen Johnson, in *Painting Is a Critical Form* (2015), describes this process as a way to "contemplate" a painting's aesthetics and readability, "coding distance into the painting's materiality".<sup>204</sup> Physical and aesthetic distance and movement give agency and meaning, even 'flight'—to imaginal metaveillance as a method of envisioning, conjuring, analysing, inquiring, and speculating. Imaginal metaveillance is, therefore, an expansive creative, critical, and novel method to register, sense, contemplate, and visualise light-speed and accelerating techno-military attempts to harness it.

While EMS frequencies exist around us, or are generated for technologies such as x-ray and gamma radiology, light-speed occurs beyond human experiential dimensions of speed and time. To register, feel, or sense it, I try to imagine, for example, being a photon travelling at light-speed, from ten seconds after the Big Bang, into the present and the future. I also aim to sense and then visualise thresholds of light-speed's effects and outcomes. I then trace back and forth, using imaginal metaveillance to perceive flight paths of inquiry, liminal fissures, and emergent tensions. Here, I play with Forensic Architecture's term "threshold of detectability", explained as the "state of visibility at which an object teeters on the brink of being observable or not observable".<sup>205</sup> Because light-speed is not an object but a universal fundamental constant, I place importance on observing human expectations of, and reactions to, increasing technological speed, enabled by harnessing EMS frequencies. This project focuses on military expectations, desires, and outcomes, examining them as signposts of liminal fissures and emergent tensions in both military and civilian realms.

### **Liminal Fissures and Emergent Tensions**

Diagrammatic screen-based targeting, geolocation, data and terrain visualisation computer graphics that overlay video or photographic images visualise EMS-enabled sensor applications. An example of this kind of techno-aestheticisation of data is thermal imaging,

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<sup>204</sup> Helen Johnson, *Painting Is a Critical Form* (Castlemaine: 3-Ply, 2015), 36.

<sup>205</sup> Forensic Architecture, *Forensis*, 752.

which entails the use of the infrared frequency to detect and track persons of interest. Recent advances in new types of lenses that make thermal cameras cheaper will clearly assist an array of industries from agriculture, to mining, to health.<sup>206</sup> However, these advances will also allow easier access for military and non-military applications to an increasing variety of surveillance tools. Various kinds of EMS-enabled detection and monitoring activities, aestheticised in computer graphics, are now central to what Bousquet calls the “roving crosshairs of a global imperium of targeting”.<sup>207</sup> Remote drone pilots, sitting inside ground-control bunkers, are nodes within this “global imperium”. Drone pilots observe faraway landscapes, and the people who inhabit them, through video feeds overlaid with geo-mapping and tracking graphics. As distant landscapes are scoped by a drone’s sensors, death and destruction are pinpointed with digital crosshairs illuminated on the remote operator’s computer screen. Obliterations are witnessed in real time, via seemingly instantaneous signal transmissions, in the short gap between the eyes and computer screen.

Virilio describes the screen as “the square horizon”, one that produces “confusion of near and far, of inside and outside, disorders of common perception that will gravely affect the way we think”.<sup>208</sup> I call the paradoxical perpetration of close and far light-speed-enabled scoping and lethality “scopophilic necro-intimacy”.<sup>209</sup> This description pathologises Virilio’s “disorders of common perception”, bluntly drawing attention to the way oscillating realities and virtualities normalise techno-routines of scopic detection. Scopophilic necro-intimate sensor activities are also an outcome of Bousquet’s observation that visual faculties have been incrementally rationalised and mechanised.<sup>210</sup> ‘Vision’ is now reduced to peep-hole status, with global surveillance acting like a swarm of peepholes—every camera, aperture, and even pixel contributing to an aggregate. I propose that gruesome terms such as “scopophilic necro-intimacy” disrupt normalising processes, drawing attention to the way the ambiveillant environment, which I discussed in chapter one, perpetuates techno-looping paradoxical oscillations. It is in these kinds of incremental or creeping

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<sup>206</sup> Flinders University in Adelaide, South Australia, has recently announced new developments in lenses that will enable wider use of thermal-imaging capabilities. More information is available at Samuel Tomkin and Justin M. Chalker, “We’ve Created a New Lens That Could Take Thermal Cameras out of Spy Films and Put Them into Your Back Pocket,” *The Conversation*, June 8, 2023, <https://theconversation.com/weve-created-a-new-lens-that-could-take-thermal-cameras-out-of-spy-films-and-put-them-into-your-back-pocket-206594>.

<sup>207</sup> Bousquet, *The Eye of War*, 197.

<sup>208</sup> Paul Virilio, *Open Sky*, trans. Julie Rose (London and New York: Verso, 1997), 26.

<sup>209</sup> I used this term in my MPhil thesis. See Fox, “Drones and Night Vision,” 53.

<sup>210</sup> Bousquet, *The Eye of War*, 41.

normalisations, causing “confusion of near and far, of inside and outside”, that liminal fissures and emergent tensions appear.

Fissures and tensions, wrought by oscillating realities and virtualities, are observed by Royal Australian Air Force (RAAF) Group Captain Jo Brick, in her frankly titled essay “‘Kill the Enemy, and Don’t Forget to Buy Milk on the Way Home’: Preparing for the Ethical Challenges of Remote Operations in the ‘Forever Wars’” (2019).<sup>211</sup> In particular, Brick describes how drone pilots exist in a “permanent liminality as they move effortlessly between war and peace on a daily basis”.<sup>212</sup> She explains that this “state of liminality exists because the reach of modern military capability has provided a bridge between two planes of existence that overlap: a physical state of ‘peace’ and a psychological state of ‘war’.”<sup>213</sup> Brick’s description points to Bousquet’s observation that the war/peace delineation collapses when “targeting is globalized”.<sup>214</sup> It is important to remember, however, that for those living under the constant fear of drone surveillance and attack, mortal and psychological harms expunge peace as a possibility. As Alex Edney-Brown argues, in her first-hand account of talking with people in Afghanistan, the fear felt daily of drones amounts to a “form of psychological colonization”.<sup>215</sup>

Clearly, there are real-world ramifications of EMS-enabled technologies where light-speed signal transmissions facilitate remote operation of military or militarise-able technology. That remote operation is increasingly aided by AI-enabled autonomous and semi-autonomous systems demands attention. Here, geolocating and terrain visualisation graphics also map landscapes in ways that enable autonomous robotic manoeuvrability and sensor moderations. Techno-mapped landscapes do not solely assist human operators; they also assist sensed ground, sea, undersea, and airborne robots with autonomous mobility functions. Autonomous mobility is pivotal for robots when remote human operators cannot determine the device’s immediate environment or landscape.

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<sup>211</sup> Jo Brick, “‘Kill the Enemy, and Don’t Forget to Buy Milk on the Way Home’: Preparing for the Ethical Challenges of Remote Operations in the ‘Forever Wars’,” *The Forge*, Australian Department of Defence, accessed October 11, 2021, [https://theforge.defence.gov.au/sites/default/files/wgcdr\\_brick\\_-\\_jcec19\\_essay.pdf](https://theforge.defence.gov.au/sites/default/files/wgcdr_brick_-_jcec19_essay.pdf). Jo Brick is a Group Captain in the Royal Australian Air Force. The essay won the Jamie Cullens Defence Essay Competition (2019), Officer Category.

<sup>212</sup> Brick, “‘Kill the Enemy’,” 7.

<sup>213</sup> Brick, “‘Kill the Enemy’,” 7.

<sup>214</sup> Bousquet, *The Eye of War*, 192.

<sup>215</sup> Alex Edney-Brown, “The Psychosocial Effects of Drone Violence: Social Isolation, Self-Objectification, and Depoliticization,” *Political Psychology* 40, no. 6 (2019): 1341, <https://doi-org.ezproxy.library.uq.edu.au/10.1111/pops.12629>.

Additionally, autonomous navigation capabilities are necessary for swarmed robots that need to work together without crashing into one another.

An example of an autonomous ground robot is the Meat and Livestock Australia (MLA) and American Aerospace and Defence company HDT Global's jointly developed robot ground vehicle called Hunter WOLF, for military use, and Drover WOLF, for agricultural use.<sup>216</sup> This robot also clearly exemplifies the increasingly blurred boundaries between militarised technology and militarise-able civilian technology. Although undoubtedly advantageous for interested military and commercial parties, the WOLF's ambidextrous hunter and drover roles provide an ambigrammatic clue, pointing to militarise-ability of civilian technology as a liminal fissure and emergent tension.

Global positioning systems (GPS) and virtual mapping, tagged for sensor detection, enable remotely operated and autonomous robotic movement in physical landscapes. However, the liminal space between physical and virtual landscapes carries human ramifications. The ambiveillant environment, where EMS-enabled systems increasingly connect and interconnect beyond human dimensions of space, speed, and time, is one of these ramifications. In this environment, the normalisation of techno-speed leads to expectations of instantaneous connection and operation—for example, social media, newsfeeds, and access to the cloud. Increasing autonomy within systems, whether military or civilian, flags Horowitz's ominous phrase, "When Speed Kills", as a serious concern deserving sustained critical attention. Virilio, however, makes a comment that explains why we may not be paying attention to speed's potential lethality and harm. He warns that the "faster we go, the more we look ahead in anticipation and lose our lateral vision".<sup>217</sup> Speed forces an insidious kind of scopic training that elides contemplative time and obliterates laterality.

Virilio's remark that "speed becomes a kind of destiny" is likewise salient.<sup>218</sup> His warnings signpost an ambigrammatic dilemma, even pathology, where speed itself is the reason we are not paying attention to speed. Fuller and Weizman's invocation of hyperaesthesia, an

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<sup>216</sup> "Autonomous Range Movement Vehicle (ARM-V): Phase IIIa," Meat and Livestock Australia, 2021, accessed August 30, 2022, <https://www.mla.com.au/research-and-development/reports/2020/autonomous-range-movement-vehicle-arm-v-phase-3a/>; also see the HDT Global website at <https://www.hdtglobal.com/product/hdt-hunter-wolf/>. The robot can be equipped with third-party autonomy kits, in addition to its own waypoint follow autonomy kit. The latter is a GPS-reliant mobility capability.

<sup>217</sup> Virilio, *The Administration of Fear*, 36–37.

<sup>218</sup> Paul Virilio, *The Great Accelerator*, trans. Julie Rose (Cambridge and Malden: Polity Press, 2012), 46.

inability to make sense of sensing, helps explain this pathology.<sup>219</sup> This research project's written and visual speculations and conjectures attempt to reawaken lateral vision and sensation, to feel and see potential liminal fissures and patterns emerging in speed's slipstream.

After reading Group Captain Brick's essay that I referenced above, I painted a response. My painting titled *Paradox* (2021) (Figure 11), was inspired by the way Brick examined the liminality experienced by remote drone pilots. Brick refers to Peter Lee's term "distance paradox" to help explain a "psychological existence" that "occupies both war and peace".<sup>220</sup> This paradox poses multiple ethical questions about remote military operations. Clearly, repeated experiences of witnessing and perpetrating scopic intimacies of surveillance, targeting, and killing can be profoundly wounding, both psychologically and emotionally. The mortal and psychological outcomes of those being watched and targeted, however, must not be forgotten. As increasingly autonomous systems are incorporated into militarised technologies, to reduce human-caused delays, human in-the-loop or on-the-loop questions must acknowledge that mortal outcomes always keep human beings in the loop—as victims.

*Paradox* is the first painting where I visualise EMS-enabled connectivity as a 'cloud' of interconnecting circles. While I was also stimulated by other research, Brick's discussion of a drone pilot's experience with liminality challenged me to visually conceive it in ways that connected it with EMS-enabled technological processes. I also wanted to ensure that human pathos embraced drone operators as well as those they surveil or target.<sup>221</sup> With an imaginal metaveillance overview, *Paradox*, therefore, is a play with literal and metaphorical perspective. A viewer could, for example, be another drone, a bird, or an intergalactic space traveller, witnessing the interplay of contemporary war through 'cloudy' obscurations. They could also be a person on the ground, whether combatant or not, fearfully or expectantly watching the sky.

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<sup>219</sup> Fuller and Weizman, *Investigative Aesthetics*. Hyperaesthesia is discussed throughout the book, but particularly in chapter five: "Hyperaesthesia: Not Making Sense," 83–103.

<sup>220</sup> Brick, "'Kill the Enemy,'" 4; Peter Lee, "The Distance Paradox: Reaper, the Human Dimension of Remote Warfare, and Future Challenges for the RAF," *Air Power Review* 21, no. 3 (2018): 106–30.

<sup>221</sup> Edney-Brown's, "The Psychosocial Effects of Drone Violence", provides testimonial accounts of the psychosocial, community and cultural effects of drone attacks and drone surveillance on people in Afghanistan.

The colour red demands attention. It signifies danger as it evokes the bloody 'pink mist' of a sniper's successful shot. It shockingly disrupts, but also deepens melancholia, reminding us that militarised EMS-enabled capabilities threaten violent corporeal outcomes. Red visually forces various elements within the smaller cloudy circles to pulse. Is this pulsing a sign of life or a sign of end-of-life arterial rupture? The large red circle, while linking the four cloudy circles, visually recedes. This recession is experienced differently depending on whether a viewer takes an aerial perspective or a ground-based perspective. The insinuation of a viewer's paradoxical position is heightened by the shadowy indication of an ambiguous figure, a red computer-graphic-like tracking square overlaying its head. In an ambiveillant world, perhaps the figure is a drone pilot, even a robotic operator, or, more ominously, a target. The perception of something flying, floating, or hovering induces a melancholic resignation to techno-induced liminality, whether it is a drone pilot's existential ever-readiness, or for those persistently surveilled, an existential ever-hyperawareness.

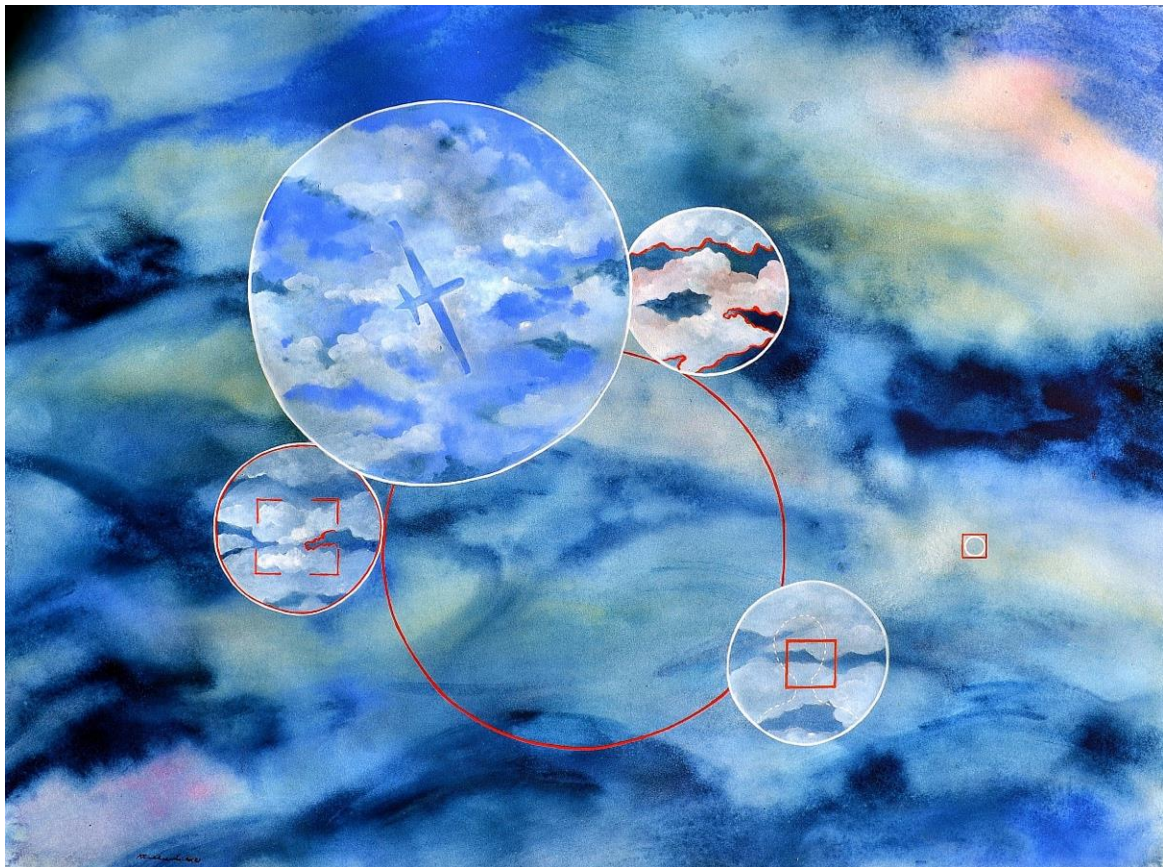


Figure 11. Kathryn Brimblecombe-Fox, *Paradox*, gouache on paper, 56 x 76 cm, 2021.<sup>222</sup>

<sup>222</sup> *Paradox* will not be in my PhD examination exhibition as it has been purchased.

Paintings such as *Paradox*, and those I discussed in chapter one, including *Theatre of War: Plague-Cloud* and *Verified Landing Site*, are visual explorations of insidious and overt EMS-enabled military activity. Circles and lines connecting hardware make invisible signal connections visible, revealing patterns of techno-colonisation. The ambiveillant environment's spawning of new or remixed modes of warfare—for example, remote, network-centric, hybrid, information, grey-zone, and cyber—is exposed. These new modes of warfare rely on light-speed, or near-light-speed, connectivity, interconnectivity, operability, and interoperability across military and civilian systems and hardware. While connectivity can be visualised with painted lines, circles, and binary code, the challenge to visualise light-speed in a painting requires sensing and registering additional thresholds. Virilio's various prescient observations, made in late the twentieth to early twenty-first centuries, about reaching "the light barrier, the speed of light" inform my aesthetic investigations.<sup>223</sup> Taking cues from *Forensic Architecture*, my quest to sense, register, and visualise thresholds of contemporary EMS-enabled techno-speed has influenced the formation of a key argument. This argument is that speed is now an integral defining element of contemporary war, with clear implications for the future of war and humanity.

### **Light-Speed, Crashing, and Cosmology**

My painting *Speed of Light* (2022) (Figure 12) attempts to visualise speed as a cosmological experience. Here, the EMS's universal history provided a contextual and imagined prompt for me to sense light-speed, simultaneously trying to make sense of humanity's increasing need to harness its advantage. The tumultuous background, formed by liquid oil paint poured onto canvas and then further manipulated with brushes, cloths, and hands, is easily understood as a cosmic-like scape. My process of pouring paint of various colours, then tipping canvases in multiple directions before continuing with my painted mark-making, is exciting and nerve-wracking. The contradictory nature of these emotions, however, stirs the senses, awakening them to possibility.

Like a universe unfolding, fast-moving cascading paint can result in something beautiful—but not always. Sometimes, paint needs to be wiped. New paint can then be poured or applied. While I usually have an idea for a painting in mind, poured and manipulated painted backgrounds also stimulate ideas and approaches. Taking cues from Fuller and

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<sup>223</sup> Virilio, "Red Alert in Cyberspace," 2.



Weizman's idea that "aesthetics is always relational", the process I undertake is a 'dialogue' between me, my ideas, and the various elements and actions of paint and painting.<sup>224</sup> This was certainly the case with *Speed of Light*. As the paint dried, the luscious background emitted a glow, as if it were registering speed's slipstream. I decided that a minimalist approach would amplify this sense of speed. Across the painting I repeatedly painted the symbol for light-speed, *c*, to form interconnecting, variously sized circles. The repetition of the circles and the *c* symbols enhances a sense of movement, each *c* appearing like a quantum cog keeping the universal 'mill' moving. As in *Theatre of War: Plague-Cloud*, which I discussed in chapter one, the circles, clearly extend beyond the painting. This, alludes to techno-clouds, domain occupation, and insidiously engulfing techno-colonisation.



Figure 12. Kathryn Brimblecombe-Fox, *Speed of Light*, oil on linen, 112 x 153 cm, 2022.

With paintings such as *Speed of Light*, *Paradox*, and *Theatre of War: Plague-Cloud*, the cosmic perspective is visually implied. This prods curiosity about Earth, humanity, and

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<sup>224</sup> Virilio, "Red Alert in Cyberspace," 35.

universal history, as well as raising questions about risk and hastening advances in EMS-reliant militarised and militarise-able technologies. I take Rees's plea that a "cosmic perspective strengthens the imperative to cherish this 'pale blue dot' in the cosmos" seriously.<sup>225</sup> Rees's concerns that existing and emerging human-made technologies pose potential catastrophic risks are even more alarming when Virilio's warnings about reaching the "light barrier, the speed of light" are considered. As Virilio exclaims, the light barrier is not "something one can cross: you crash into it".<sup>226</sup> In other words, you run out of space, even time. This sense of "spatio-temporal contraction" produces the kinds of fears and anxieties that propel military desires for EMS dominance.<sup>227</sup>

With an art-historical perspective on topics such as light-speed, time, and space, selected works by visual artist James Rosenquist offer some interesting antecedents. Rosenquist is normally described as a Pop artist, although he never thought of himself this way.<sup>228</sup> Influenced by working as a billboard sign-painter, his paintings, lithographs, and collages have bold impact, where references to popular culture are often assembled in strange environments. Several of his later twentieth-century paintings, such as *Time Dust-Black Hole* (1992) and *While the Earth Revolves at Night* (1982), clearly delve into time and space. In 2000, Rosenquist began a series of paintings called *Speed of Light*. He notes that he was always "fascinated by the physics of light, the Einsteinian time/space continuum".<sup>229</sup>

I resonate with Rosenquist's childhood and subsequent lifelong fascination with space and cosmology. Two examples from his *Speed of Light* series are *The Stowaway Peers Out at the Speed of Light* from 2000 (Figure 13) and *Spectator-Speed of Light* from 2001 (Figure 14). Rosenquist does not visually insinuate the militarisation of light-speed. However, both paintings induce feelings of chaotic movement and fractured time. A sense of speed is tangible, enticing the viewer to slip into these paintings, perhaps as an accidental 'stowaway'. The viewer rapidly moves from being an observer, or spectator, to becoming a participant. This effect is achieved by the way spatial elements are folded through painted sheets that curl, and sheath-like and conical conduits that twist and turn. Vibrant colours,

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<sup>225</sup> Rees, *Our Final Century*, 188.

<sup>226</sup> Paul Virilio, "Speed and Information: Cyberspace Alarm!," in *Reading Digital Culture*, ed. David Trend (Oxford: Blackwell, 2001), 23, <http://scottkleinman.net/495dh/files/2011/09/Virilio.pdf>.

<sup>227</sup> Virilio, *The Administration of Fear*, 35.

<sup>228</sup> James Rosenquist with David Dalton, *Painting Below Zero: Notes on a Life in Art* (New York: Andrea A. Knopf, 2009), 344.

<sup>229</sup> Rosenquist with Dalton, *Painting below Zero*, 326.

contrasted with areas of white, suggest explosions, as if the viewer is present at the Big Bang, perhaps flung into the universe's future history. Through the lens of Virilio's warning about "crashing into" light-speed, Rosenquist's curls, twists, and turns seem to indicate impending temporal and spatial limits, perhaps a potential crash, just around the corner.<sup>230</sup>



Figure 13. James Rosenquist, *The Stowaway Peers Out at the Speed of Light*, oil on canvas, 520.7 x 1402.1 cm, 2000. Collection and photo, Estate of James Rosenquist, <https://www.jamesrosenquiststudio.com/artwork/0001-the-stowaway-peers-out-at-the-speed-of-light>.

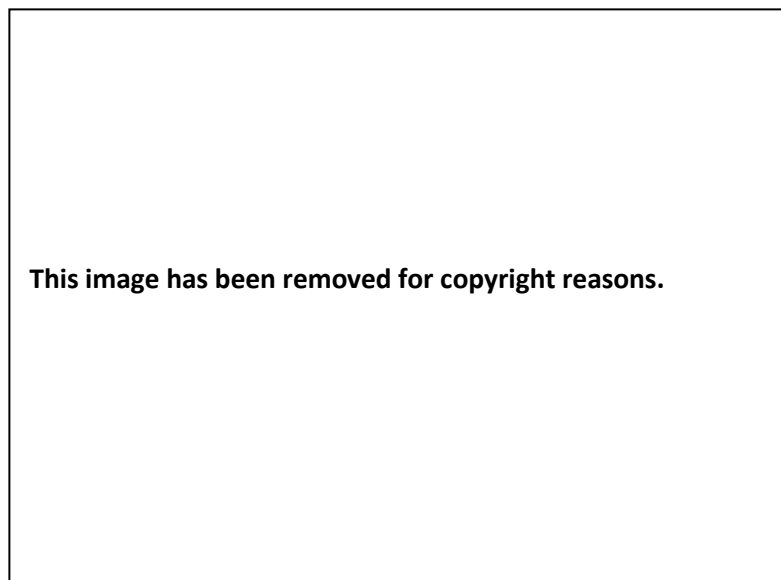


Figure 14. James Rosenquist, *Spectator-Speed of Light*, oil on canvas, 182.9 x 182.9 cm, 2001. Collection of the National Gallery of Art, Washington, DC, <https://www.jamesrosenquiststudio.com/artwork/0104-spectator-speed-of-light>.

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<sup>230</sup> Virilio, "Speed and Information."

My challenge to visualise light-speed, as Rosenquist attempted, is also imbued by my quest to provoke questions about contemporary military and civilian techno-expectations of the EMS, and therefore light-speed. While my painting *Speed of Light* is a quieter introduction to implications of light-speed-enabled technologies, my painting *Light-Speed: Crash (After Virilio)* (2022) (Figure 15) forces confrontations. Virilio's provocation that crossing the light barrier is impossible—"you crash into it"—challenged me to imagine and visualise outcomes of attempts to harness light-speed for tactical and strategic civilian and military technological advantages.<sup>231</sup> The challenge involved visualising something beyond sight, something imaginal. Here, Bachelard's idea—that the "voyage into distant worlds of the imaginary truly conducts a dynamic psyche only if it takes the shape of a voyage into the land of the infinite"—is evocative.<sup>232</sup> He reminds us that imagination transforms us into voyagers with abilities to travel into seemingly impossible worlds. I add here that with imaginal metaveillance, the voyage and the voyager become dynamic forms of scrutiny.



Figure 15. Kathryn Brimblecombe-Fox, *Light-Speed: Crash (After Virilio)*, oil on linen, 66 x 112 cm, 2022.

In *Light-Speed: Crash (After Virilio)*, I have visualised an imagined crash site at the outer edge of a slippery, seemingly uncontrollable scape. The crash site is the gridded wall of  $\gamma$  and  $c$  symbols:  $\gamma$  for photons and  $c$  for light-speed. I do not envisage this as light-speed's

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<sup>231</sup> Virilio, "Speed and Information."

<sup>232</sup> Bachelard, *On Poetic Imagination and Reverie*, 23.

crash site, but instead as humanity's crash site. As Fuller and Weizman remark, hyperaesthesia distorts human abilities to make sense of sensing in ways that can tip over into a crash.<sup>233</sup> Has the crash occurred, or is the painting a pre-emption, a warning of Fuller and Weizman's "danger zone of information overload"?<sup>234</sup> Whatever the answer, confrontation is evident in the deliberate visual impact of an upright gridded structure placed within a tumultuous scape. This confrontation extends to an existential proposition conveyed by the continuation of the universal scape visible through the gridded wall. The universe continues, but maybe human life does not.

### Living in the Futurists' Future

The subject and lure of speed have historical antecedents in the early twentieth-century Futurist movement of painters, poets, and writers. The Futurists, particularly in the first few decades of the twentieth century, embraced the idea of machine speed, enabled by industrial inventions such as the automobile, the train, and the aeroplane. Against a backdrop of the First World War and industrial invention, the Futurists enthusiastically applauded mechanical and industrial speed as a sign of progress. Over one-hundred years later, with Gregory's "everywhere war" and military desires for EMS dominance in mind, I take a more cautious approach to technological innovations enabled by light-speed.

Artist and poet Filippo Tommaso Marinetti wrote *The Futurist Manifesto* in 1909.<sup>235</sup> With exuberant and violent prose, he decries the past, embraces the new, exalts industrial developments, and glorifies war. The manifesto reads as a fascist document where militarism and "contempt for women" are considered part of war's "cure for the world".<sup>236</sup> Speed is also declared as enriching this world with a "new beauty".<sup>237</sup> Marinetti proclaims that "Time and Space died yesterday. We are already living in the absolute, since we have already created eternal, omnipresent speed".<sup>238</sup> This proclamation is violently affirmed as a glorious outcome that nourishes the Futurists with "fire, hatred, and speed".<sup>239</sup>

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<sup>233</sup> Fuller and Weizman, *Investigative Aesthetics*, 83.

<sup>234</sup> Fuller and Weizman, *Investigative Aesthetics*, 83.

<sup>235</sup> Filippo Tommaso Marinetti, *The Futurist Manifesto*, first published in *Le Figaro* (February 20, 1909), reproduced by *Kunstfilosofie/Philosophy of Art*, accessed October 9, 2022, <https://sites.google.com/site/kunstfilosofiesite/Home/texts/marinetti-the-futurist-manifesto-1909>.

<sup>236</sup> Marinetti, *The Futurist Manifesto*.

<sup>237</sup> Marinetti, *The Futurist Manifesto*.

<sup>238</sup> Marinetti, *The Futurist Manifesto*.

<sup>239</sup> Marinetti, *The Futurist Manifesto*.

*The Futurist Manifesto* represents early twentieth-century evidence of speed's seduction and its promiscuous rapture with war, technology, and violence. While Marinetti exalts omnipresent speed's destruction of space and time, nearly a century later Virilio observes the effects of speed's seduction more catastrophically: "With light, the speed of light, matter has been exterminated. The telluric accident of the earthquake is succeeded by the seism of a timequake involving this worldwide time that erases all distance."<sup>240</sup> Here, Virilio incisively penetrates how harnessing light-speed erases or severely imperils human temporal and spatial distance. This is evidenced, for example, in contemporary remote, information, and cyber warfare.

Futurist painters, such as Umberto Boccioni and Giacomo Balla, combined cubist and expressionist influences to portray speed as motion—for example, movement within a busy city, an automobile, a person riding a bike or walking. While influenced by Marinetti, neither painter's works glorify militarism. Boccioni uses small brushstrokes to visually intimate and even irritate constant movement in water, light on buildings, and formations of human gesture and gait. Balla's generally more abstract paintings employ a repetitive geometric and heavily painted visual aesthetic that peers into the mechanisms of speed. His *Swifts: Paths of Movement + Dynamic Sequences* (1913) (Figure 16), which I saw in March 2023, seeks to visualise industrial speed by convoluting and dissecting space. Rosenquist used similar visual ploys decades later in his sleeker visualisations of light-speed.

I recognise the visual efficacy of the kind of repetition seen in Balla's painting. This is why I paint, for instance, repetitions of the light-speed and photon symbols, and multiple interconnecting circles. However, my quest to visualise light-speed is not only to understand it as a phenomenon, but also to understand the lure speed holds for human beings seeking tactical, even violent, advantages. Channelling Virilio, I ask, is this really progress? Maybe it is a progression towards a looming crash site. The futurists tried to mimic movement and speed by turning painting and paintings into visual applauses for industry. In doing so, there is a sense that a painting could also be mechanistic, thus not only reflecting the glory of early twentieth-century industrial developments, but also attempting to *be* industrial. A century later, I paint as a way to retreat from industry and technology, standing back from it so I might independently critique it.

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<sup>240</sup> Virilio, *The Original Accident*, 49.

This image has been removed for copyright reasons.

Figure 16. Giacomo Balla, *Swifts: Paths of Movement + Dynamic Sequencies*, oil on canvas, 96.8 x 120 cm, 1913. Museum of Modern Art, New York. Photo: Unknown. <https://www.moma.org/collection/works/79347>. Photo: Unknown.

One Futurist artist of particular interest is Benedetta Cappa. Although she was married to Marinetti, and clearly influenced by technological advances, her work does not channel his violent ebullience. In 1933, Benedetta was commissioned to paint a series of five paintings for the Central Post Office, Palermo, Sicily.<sup>241</sup> The five tempera and encaustic works collectively called *Synthesis of Communications*, painted between 1933 and 1934 (Figure 17), are visualisations of communication; three paintings address land, sea, and air communication, while a fourth painting addresses telegraphic and telephone communications, and the fifth painting addresses radio communications.<sup>242</sup> Humanities scholar Siobhan M. Conaty describes the paintings as celebrations of “modern technological progress (a first generation Futurist ideal), while foregrounding a sense of

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<sup>241</sup> Benedetta preferred to be called Benedetta, and signed her work this way.

<sup>242</sup> The five titles are *Synthesis of Telegraphic and Telephonic Communications*, *Synthesis of Radio Communications*, *Synthesis of Overland Communications*, *Synthesis of Marine Communications*, and *Synthesis of Aerial Communications*.

the power and mystery of the universe (a second generation Futurist ideal)".<sup>243</sup> The paintings resonate with me because they all take aerial or unusual perspectives that launch the viewer into flight—even cosmic flight. As art historian Franca Zoccoli notes, the paintings are created with a "startling boldness of formal invention, ranging from almost pure abstraction via cosmic visions and lyrical geometrization".<sup>244</sup>

Benedetta's painting representing telegraphic and telephone communications, *Synthesis of Telegraph and Telephone Communications*, and her painting depicting radio communications, *Synthesis of Radio Communications*, are not descriptive depictions of early twentieth-century electronic communication infrastructure. Rather, they are imagined renderings conjuring the thrall of technology. In *Synthesis of Telegraph and Telephone Communications*, the viewer could be airborne or on the ground peering upwards. Radio signals are implied as wavy and zigzag lines laid over abstract building, sky, and landscape forms. As Ashley N. Lindeman notes, the painting invites "viewers to experience a space that involved not only the unseen, but of multiple dimensions".<sup>245</sup>

In *Synthesis of Radio Communications*, a towering aerial disappears into a sky created with circular and arced geometric forms painted in shades of blue. In the bottom two-thirds of the painting, white clouds cut horizontally across the sky. This gives the impression of flight, as if travelling through the sky and into space. The towering aerial reaches into space, its diagonal positioning across the painting offering adventure. A round planet-like orb hovers in the centre of the painting. This gives the impression of celestial travel. There are many elements, including making visible the normally invisible, in Benedetta's paintings that resonate with my visual approach. I, however, seek a more critical stance, attempting to prise open the complexity of an EMS-enabled network-centric world where speed's allure captivates militarised imaginations.

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<sup>243</sup> Siobhan M. Conaty, "Benedetta Cappa Marinetti and the Second Phase of Futurism," *Women's Art Journal*, 30, no. 1 (2009): 19–28.

<sup>244</sup> Franca Zoccoli, "Futurist Women Painters in Italy," in *International Futurism in Arts and Literature*, ed. Günter Berghaus (Berlin, Boston: De Gruyter, 2012), 390, <https://doi-org.ezproxy.library.uq.edu.au/10.1515/9783110804225>.

<sup>245</sup> Ashley N. Linderman, "Memorializing Technology: A Rare Convergence of Futuro-Fascist Objectives in Benedetta's *Synthesis of Communications*," *Athanos XXXV* 35 (2017): 61.



This image has been removed for copyright reasons.

Figure 17. Benedetta Cappa, *Synthesis of Communications*, tempera and encaustic on panel, 300 x 200 cm each panel, 1933–1934. Left to Right: *Synthesis of Telegraphic and Telephonic Communications*, *Synthesis of Radio Communications*, *Synthesis of Overland Communications*, *Synthesis of Marine Communications*, *Synthesis of Aerial Communications*. Central Post Office, Palermo, Sicily. Exhibited at Guggenheim Museum, New York, 2014. Photo: Unknown.<sup>246</sup>

Like the Futurists I also peer into the future. I do this from a stance of living in the Futurists' future, a future where distributed digital and cyber technology provides dispersed, but connected, platforms for potential militarism and militarisation. Unlike Balla, Boccioni, and Benedetta, my approach to speed and technology is not imbued with the Futurists' hopefulness for a grand or heroic future. While their paintings flourish with awe of human technological endeavour, my paintings reflect a more cautious and critical stance.

The contemporary rise of fascism and far-right militarism echoes elements of the *Futurist Manifesto* of 1909. Would the Futurists view contemporary militarised techno-fetishism as a “cure for the world”?<sup>247</sup> Would they consider light-speed, or near light-speed, digital and cyber connectivity, interconnectivity, networking, and interoperability as enriching the world with a “new beauty”?<sup>248</sup> I suggest that Virilio's twenty-first century observation of a “timequake” that “erases all distance”, including “expanse and duration”, portends a

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<sup>246</sup> Image in Adriana Baranello, “A Day in History: August 14,” Italian Art Society (blog). Accessed May 23, 2023, <https://www.italianartsociety.org/2015/08/futurist-artist-and-author-benedetta-was-born-on-14-august-1897/>.

<sup>247</sup> Marinetti, *The Futurist Manifesto*.

<sup>248</sup> Marinetti, *The Futurist Manifesto*.

diminished future rather than one glowing with beauty.<sup>249</sup> This kind of diminishment is insinuated in my painting *Light-Speed: Crash (After Virilio)*. The grid of symbols indicates a “seism of a timequake” where time and duration cease, foreclosing a future—for humanity.<sup>250</sup>

### **Cosmic Perspective: A Circumspect Attitude**

The erasure of distance, expanse, and duration that Virilio identifies are outcomes of his earlier warning that reaching the “light barrier, the speed of light, disorients history and also disorients the relation of human beings to the world”.<sup>251</sup> To address the disorientation of history, as I mentioned in the Introduction, I re-anchor historical duration and time by acknowledging the EMS’s cosmological history. With imaginal metaveillance providing critical and creative perspectives, this research project acknowledges cosmological history through this exegesis and a body of paintings.

Because the EMS is humanity’s natural resource for light-speed technological prowess and efficiency, I argue that we must question how we use the EMS-commons, from Earth to orbiting satellites. As the plague-winds and plague-clouds of the twenty-first century are bellowed by techno-military infatuations with speed, the EMS-commons becomes contaminated. However, military goals for “EMS superiority”—justified as progress, security, strategy, and tactics—obscure the contamination. Here, Virilio’s statement that “Speed, the cult of speed, is the propaganda of progress” acts as a critical provocation.<sup>252</sup> His comment that speed’s “success is also its damage”, something he views as “catastrophic”, places twenty-first century ideas of progress in a critical spotlight.<sup>253</sup> Imaginal metaveillance and painting help to illuminate, map, and scrutinise what the spotlight exposes.

To delve into the “cult of speed” and beliefs about techno-progress, my painting *Theatre of War: Photon* (2021) (Figure 18) visually plays with the  $\gamma$  symbol for photons. The painting attempts to draw attention to photons as the fundamental quantum particles of EMS frequencies. This cosmological focus elicits questions about how we harness the EMS in

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<sup>249</sup> Virilio, *The Original Accident*, 94.

<sup>250</sup> Virilio, *The Original Accident*, 94.

<sup>251</sup> Virilio, “Red Alert in Cyberspace,” 2.

<sup>252</sup> Virilio, *The Administration of Fear*, 38.

<sup>253</sup> Virilio, *The Administration of Fear*, 69.

the age of network-centric warfare. As electronic warfare officer in the United States Army Major John G. Casey remarks, the “EMS knows no limits and the photons do not care about threat envelopes, fire support coordination lines, national interests, or boundaries”.<sup>254</sup> In *Theatre of War: Photon*, I have painted five wavy photon symbols, each in a different colour. Their wavy appearance visualises photons as particles that travel at light-speed in a wave movement. As in many of my paintings, the viewer’s positionality can be fluid: above, below, in front of, even all simultaneously. The photons’ colours—grey, white, red, and blue—were chosen after I read a statement in the USDoD’s *Electromagnetic Spectrum Superiority Strategy* about validating data via group categorisation, “The data requirements to support operations and analysis span all red (adversary/hostile), blue (U.S.), gray (coalition or potentially friendly), and white (commercial/non-military) EMS sensor systems, associated support equipment, weapons and space platforms, order of battle, RF telecommunications, combat support, and modeling, simulation, experiments, exercises, testing, and wargaming”.<sup>255</sup>

With an imaginal metaveillance approach, the interconnected y symbols and the smaller circular cross-section of waves reveal how the USDoD’s colour-coding signposts an insidious militarisation of the EMS. The appropriation of colour to identify home forces, friend, foe, military, and non-military is an aesthetic code of categorisation. Reflecting on the explanation from the USDoD above, I suggest that this visualised code exposes the strategic military importance of the EMS across military, as well as civilian, worlds. In *Theatre of War: Photon*, the photon symbols could be interpreted as counter-cartographic means of exposure, each photon acting as a visualised marker of military techno-colonising infiltration. As the viewer focusses on the symbols, the background seems to recede. This layered effect helps to conjure a sense of speed, possibly light-speed propulsion, as if flying back in time to the Big Bang, or maybe into the future. These cosmological perspectives, inspired by ‘journeys’ of imaginal flight, allow novel points of metaveillant scrutiny. In this case, colour-coded categorisations for strategic appropriations of the EMS are visualised to draw attention to an ambigrammatic

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<sup>254</sup> John G. Casey, “Cognitive Electronic Warfare: A Move Towards EMS Maneuvre Warfare,” *OTH: Over the Horizon Multi-Domain Operations and Strategy*, July 3, 2020, <https://othjournal.com/2020/07/03/cognitive-electronic-warfare-a-move-towards-ems-maneuver-warfare/>.

<sup>255</sup> USDoD, *Electromagnetic Spectrum Superiority Strategy*, 12.

environment underpinned by “data requirements” that encompass civilian and military technological hardware and systems.

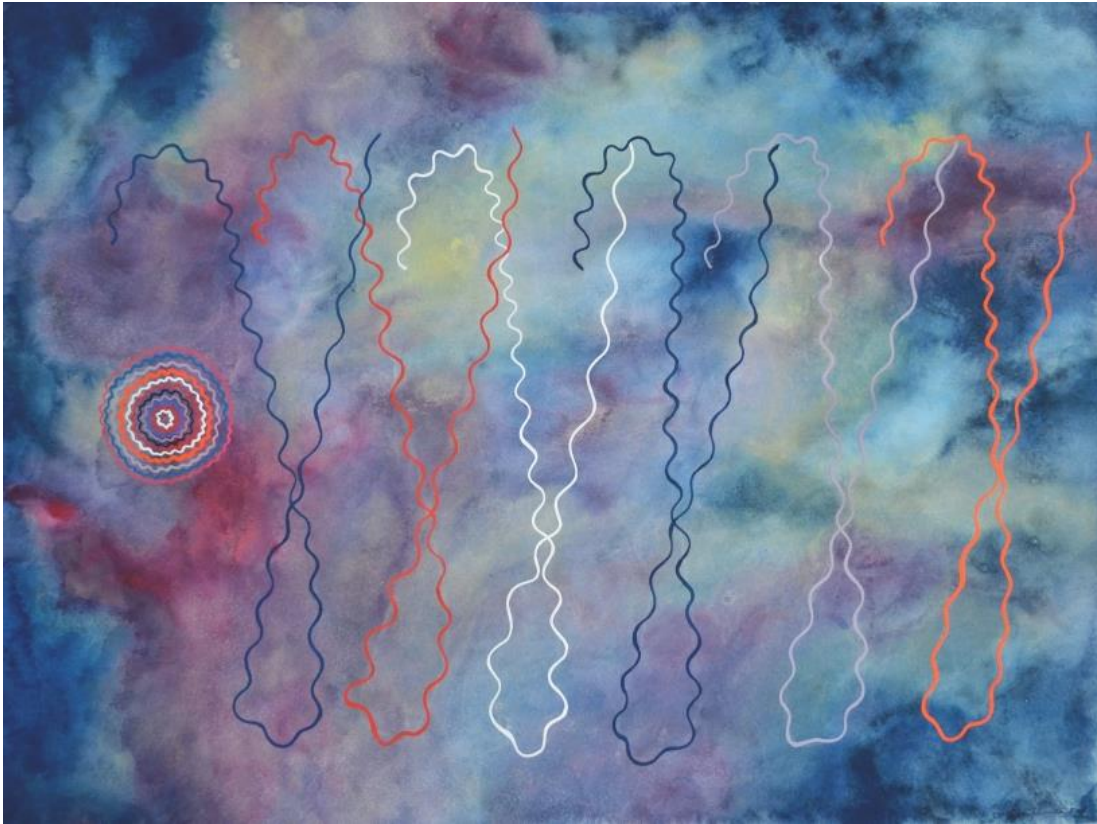


Figure 18. Kathryn Brimblecombe-Fox, *Theatre of War: Photon*, gouache on paper, 56 x 76 cm, 2021.

*Theatre of War: Photon* visually suggests that the EMS, in our sphere of influence, is increasingly colonised, territorialised, categorised and compartmentalised by militaries in a similar fashion to other traditional domains—land, sea, air. But these traditional domains, plus contemporary cyber and space domains, rely upon EMS access not only for military operational success, but also for civilian technological purposes. Military and civilian reliance on, and use of, the EMS-commons places us all in a persistent potential threat situation. Threats, and fear of threats, permeate as a kind of menace.

As we subconsciously or consciously sense this menace, sensor systems monitor our reactions and behaviours, data-harvesting our virtual ‘likes’, our faces, and our activities. Fuller and Weizman’s observation that information overload contributes to traumatic states of hyperaesthesia echoes Virilio’s salient disclosure of an “*informational*” bomb that “plays

a prominent role in establishing fear as a global environment”.<sup>256</sup> He observes: “Because of the absolute speed of electromagnetic waves, the same feeling of terror can be felt in all corners of the world at the same time. It is not a localized bomb: it explodes each second, with the news of an attack, a natural disaster, a health scare, a malicious rumour”.<sup>257</sup>

Ubiquitous global threat—and fear of threat—radiating into domestic, corporate, government, and military arenas, via tentacular signals, impels military justifications for continuous surveillance, operational readiness and optimised sovereign capabilities. Fear and incumbent threat readiness are key characteristics of the ambiveillant light-speed techno-looping environment.

Viewed as an ‘everywhere war’ situation involving everyone, everywhere, an encompassing global threat poses questions about civilian complicity, albeit unwitting in most cases. Appropriation of civilian technologies in a techno-militarised system, potentially including those used in the arts, is a concern. Unlike any other time in human history, war and war readiness could now be considered as ubiquitously and persistently perpetrated by light-speed interconnected technologies. Here, Virilio’s declaration that speed’s “success is also its damage” positions success and damage in an ambigrammatic relationship.<sup>258</sup> This demands attention. From the stance of living in the Futurists’ future, their early twentieth-century decrees that “Time and Space died yesterday”, and that “We are already living in the absolute, since we have already created eternal, omnipresent speed”, are not heroic aspirations, but omens.<sup>259</sup>

In *Theatre of War: Photon*, the five interconnected y photon symbols can be interpreted as wall-like, similar to the grid in *Light-Speed: Crash (After Virilio)*. While neither of my paintings references the Oslo School of Architecture and Design researchers’ performative installation and subsequent video, *Immaterials: Light Painting WiFi* (2011), the use of WiFi signals to generate walls of light is interesting.<sup>260</sup> These walls were visualised by vertically holding a “light-wand, a stick with a string of lights along it” that connected to ambient WiFi

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<sup>256</sup> Virilio, *The Administration of Fear*, 30.

<sup>257</sup> Virilio, *The Administration of Fear*, 30.

<sup>258</sup> Virilio, *The Administration of Fear*, 69.

<sup>259</sup> Marinetti, *The Futurist Manifesto*.

<sup>260</sup> Timo Arnall, “The Immaterials Project,” *Elastic Space*, accessed November 27, 2021, <https://www.elasticspace.com/>. *The Immaterials: Light Painting* video can be seen on this site. The researchers were Timo Arnall, Jørn Knutsen, and Einer Sneve Martinussen.

signals.<sup>261</sup> As the researchers walked around an urban environment, the “stronger the WiFi signal, the more lights lit up”.<sup>262</sup> Long-exposure photographs documented WiFi signal and networking prevalence.<sup>263</sup> The reliance on technology for performance and documentation, however, belies the use of ‘painting’ in the project’s title.

Claiming that light is a ‘painting’ medium invokes a traditional medium. This romanticises the Oslo researchers’ technological illumination, and their subsequent photographic and video documentation processes.<sup>264</sup> This documentation of the project shows how the light-walls took on an in-situ but ephemeral architectural appearance. The night-time backdrop enhanced illuminations, becoming formal, but fleeting, evocations of fairy lights in avenues of trees. The creators expressed concerns about the “enormous scale and pervasiveness of ad-hoc WiFi networks in urban spaces”.<sup>265</sup> However, rather than addressing civilian technological vulnerability to criminal, state, or non-state military appropriation, they focus on issues of urban and interactive design in the digital age.

*Immaterials: Light Painting WiFi* does not focus on military use of WiFi or potential militarisation of civilian WiFi. But a statement that the “city is filled with an invisible landscape of networks” resonates with my aim to visualise the invisible.<sup>266</sup> The idea of an invisible landscape intersects with my painted visualisations of signals, constantly ricocheting around the globe and into space, as a volumetrically imposed invisible ‘landscape’. Taking the idea of the invisible landscape beyond the city, I ‘see’ an expansive and pervasive signalic landscape that insidiously occupies our global and near-space landscape. As it connects, surveils, and tracks us, this invisible scopic-landscape stealthily mediates how we move and live in our earthly environment. As Bridle notes, “The network that brings us knowledge wraps around us, refracting our perspective into a million points of view, simultaneously illuminating and disorienting us.”<sup>267</sup> In this way, Bridle’s observation of simultaneous illumination and disorientation intersects with Virilio’s warning of disorientation. However, the simultaneity of illumination and disorientation, an

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<sup>261</sup> Timo Arnall, Jørn Knutsen, and Einer Sneve Martinussen, “Immaterials: Light Painting Wifi,” *Significance* 10, no. 4 (2013): 38–30.

<sup>262</sup> Arnall, Knutsen, and Martinussen, “Immaterials.”

<sup>263</sup> Arnall, Knutsen, and Martinussen, “Immaterials.”

<sup>264</sup> This kind of romancing of technological mediums, by invoking traditional processes, is played out in heated debates about non-fungible tokens (NFTs) and AI-text-generated images and videos. This is an avenue for further research.

<sup>265</sup> Arnall, “The Immaterials Project.”

<sup>266</sup> Arnall, “The Immaterials Project.”

<sup>267</sup> Bridle, *New Dark Age*, 206.

ambigrammatic process, is now a kind of crafty torture, albeit one we may be oblivious to. That is the “catastrophic” success of disorientation wrought by speed.<sup>268</sup>

### **Increased Military Interest in the EMS: When Speed Kills**

Increased military focus on the EMS is evident in recent policy and position documents produced by defence departments around the world. I list a few here to corroborate my claim. I then scrutinise defence motivations and potential ramifications.

I have already referenced the USDoD’s October 2020 *Electromagnetic Spectrum Superiority Strategy*. This strategy document was preceded in May 2020 by a *Joint Electromagnetic Spectrum Operations* publication.<sup>269</sup> In this publication, light-speed’s operational advantage is acknowledged: “Since EM energy travels at the speed of light, military activities in the EMS may provide a decisive advantage by enabling commanders to make decisions, conduct operations, and create effects more rapidly than the threat.”<sup>270</sup> In 2021, the United States Army published *Cyberspace Operations and Electromagnetic Warfare*.<sup>271</sup> In this publication, electromagnetic warfare (EW) characterises speed as an advantage: “Commanders can also use cyberspace and EW capabilities to decide and act faster than an adversary or enemy.”<sup>272</sup> The Australian Defence Force (ADF) *2020 Force Structure Plan* states, “In an environment where threats to connectivity are becoming more prevalent, the ability of the ADF to operate in a contested, congested and degraded communications environment forms the foundation of joint cyber effects.”<sup>273</sup> In 2019, the United Kingdom Ministry of Defence published *Electromagnetic Spectrum Blueprint: Version 1*, with an opening statement declaring that the “EMS enables almost every form of command, control, communications, sensing and the concept of Information Advantage,

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<sup>268</sup> Virilio, *The Administration of Fear*, 69.

<sup>269</sup> United States Department of Defense, *Joint Force Electromagnetic Operations*, Joint Publication 3-85 (Washington DC: USDoD, May 22, 2020), [https://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/jp3\\_85.pdf](https://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/jp3_85.pdf).

<sup>270</sup> USDoD, *Joint Force Electromagnetic Operations*, 1–3.

<sup>271</sup> United States Department of the Army, *FM 3-12 Cyberspace and Electromagnetic Warfare* (Washington, DC: Department of the Army, August 2021), <https://irp.fas.org/doddir/army/fm3-12.pdf>.

<sup>272</sup> US Department of the Army, *FM 3-12*, 1–4.

<sup>273</sup> Australian Defence Force, *2020 Force Structure Plan* (Canberra: Commonwealth of Australia, 2020), 28, <https://www.defence.gov.au/about/strategic-planning/2020-force-structure-plan#:~:text=The%202020%20Force%20Structure%20Plan,the%202020%20Defence%20Strategic%20Update.>

as both a medium for information exchange and an opportunity for information exploitation”.<sup>274</sup>

The USDoD’s publications respond to concerns that nations such as China and Russia have studied US and ally EMS reliance. As their 2020 strategy states, “Our adversaries have recognized DoD’s reliance on EMS-dependent capabilities and are seeking to exploit this vulnerability.”<sup>275</sup> The document also notes that the “DoD faces rapidly increasing challenges to its historical EMS dominance”.<sup>276</sup> The UK Ministry of Defence EMS Blueprint expresses concerns about the electromagnetic spectrum environment (EME), stating that “peer and near-peer adversaries have significantly developed their abilities to operate and control the EME, leading to a greater contest for spectrum access”.<sup>277</sup>

A January 2021 *War on the Rocks* article, “To Rule the Invisible Battlefield: The Electromagnetic Spectrum and Chinese Power”, examined accelerating Chinese research in EMS use and management for offensive and defensive operations. The author, writing with an identity-protecting pseudonym, comments that in 2016, “the People’s Liberation Army reportedly shifted its focus from equipment testing to combat-oriented spectrum management”.<sup>278</sup> Of notable importance for this chapter’s discussion on speed, the author also asserts: “Speed appears to be another key focus in the People’s Liberation Army’s discussions about future electronic warfare capabilities. The advancement of AI and machine learning can significantly accelerate the processing of thousands of unknown, new, and unusual emitters that exist in a complex and constantly changing electromagnetic spectrum battlefield”.<sup>279</sup> Here, the author identifies Chinese military attention paid to speed. While the US and ally EMS strategy and policy documents mention light-speed, and speed is viewed as an advantage, an emphasis on speed as a defining characteristic of contemporary war, and war preparation, is not readily apparent.

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<sup>274</sup> United Kingdom Ministry of Defence, *Electromagnetic Spectrum Blueprint: Version 1* (Westminster, UK: Ministry of Defence, August 9, 2019), 3, [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/833094/Electromagnetic\\_Spectrum\\_Blueprint\\_V1-O.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/833094/Electromagnetic_Spectrum_Blueprint_V1-O.pdf).

<sup>275</sup> USDoD, *Electromagnetic Spectrum Superiority Strategy*, 1.

<sup>276</sup> USDoD, *Electromagnetic Spectrum Superiority Strategy*, 18.

<sup>277</sup> UK Ministry of Defence, *Electromagnetic Spectrum Blueprint: Version 1*, 4.

<sup>278</sup> Marcus Clay, “To Rule the Invisible Battlefield: The Electromagnetic Spectrum and Chinese Power,” *War on the Rocks*, January 22, 2021, <https://warontherocks.com/2021/01/to-rule-the-invisible-battlefield-the-electromagnetic-spectrum-and-chinese-military-power/>.

<sup>279</sup> Clay, “To Rule the Invisible Battlefield.”



With perceived accelerating threats to US and allied EMS dominance, the USDoD seeks to reinforce partnerships with allies and commercial partners. With reference to previously discussed USDoD colour-coding, allies are grey, and commercial partners are white.<sup>280</sup> “Enduring partnerships” are sought to ensure “EMS advantage” and to “achieve dominance in the presence of ever-increasing military and civilian use”.<sup>281</sup> Here, geopolitical, military, commercial, and academic partnerships forge research and development, operational, supply-chain, and procurement links and assurances. For instance, the trilateral security alliance between the United Kingdom, Australia, and the United States (AUKUS), announced in September 2021, is a favourable geopolitical partnership. AUKUS is geared for mutually beneficial technological research, development, and access. As the Australian Government announced, AUKUS will “enable the partners to significantly deepen cooperation on a range of emerging security and defence capabilities, which will enhance joint capability and interoperability”.<sup>282</sup>

In April 2022, the United States White House published an AUKUS update that directly intersects the partnership with the USDoD’s 2020 *Electromagnetic Spectrum Superiority Strategy*’s aim to reinforce relationships with allies. Under “Advanced Capabilities”, the White House update states that the “electromagnetic spectrum is increasingly contested” and that the “three countries will work together to share understanding of tools, techniques, and technology to enable our forces to operate in contested and degraded environments”.<sup>283</sup> Significantly, in October 2022, the Australian Chief of Joint Capabilities, Lieutenant General John Frewen, officially opened the Pitt-Johnston Electromagnetic Warfare Research Centre, Edinburgh Defence Precinct, in Adelaide, South Australia.<sup>284</sup> Along with attention paid to the EMS, the 2022 White House update also focused on other speed-related technologies, including autonomous systems, advanced cyber capabilities, and quantum technology.<sup>285</sup> Here, I make a contentious proposal:

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<sup>280</sup> USDoD, *Electromagnetic Spectrum Superiority Strategy*, 12.

<sup>281</sup> USDoD, *Electromagnetic Spectrum Superiority Strategy*, I, 5.

<sup>282</sup> Minister for Foreign Affairs, “Australia to Pursue Nuclear Powered Submarines Through New Trilateral Enhanced Security Partnership,” Department of Foreign Affairs and Prime Minister’s Office joint media release, September 16, 2022, <https://www.foreignminister.gov.au/minister/marise-payne/media-release/australia-pursue-nuclear-powered-submarines-through-new-trilateral-enhanced-security-partnership>.

<sup>283</sup> The White House, “Fact Sheet: Implementation of the Australia – United Kingdom – United States Partnership (AUKUS),” *Briefing Room*, April 5, 2022, <https://www.whitehouse.gov/briefing-room/statements-releases/2022/04/05/fact-sheet-implementation-of-the-australia-united-kingdom-united-states-partnership-aukus/>.

<sup>284</sup> Australian Government, “World-Class Electromagnetic Warfare Research Centre Officially Opened,” Department of Defence, October 1, 2022, <https://news.defence.gov.au/media/media-releases/world-class-electromagnetic-warfare-research-centre-officially-opened>.

<sup>285</sup> The White House, “Fact Sheet.”

access to the EMS is more fundamental for contemporary and future war than hardware such as nuclear submarines and hypersonic weapons. Why? Because as joint-force network-centric warfare accelerates, hardware could be rendered useless without signal connectivity, interconnectivity, and, therefore, interoperability.

I return to Horowitz's article "When Speed Kills: Lethal Autonomous Weapon Systems, Deterrence and Stability" to focus on the second part of the title, autonomous weapon systems. Autonomous systems, incorporated into military and civilian technological systems, are key technologies, researched and developed to enhance outcomes, including speed. Utilising artificial intelligence (AI) and machine learning (ML), autonomous systems increase computational problem-solving and data analysis capabilities, as well as reducing points of delay, often caused by slower human beings. In a military situation, these human-caused delay points include, for example, remote piloting and analytic, command, and decision-making roles. In an increasingly congested and contested EMS military and civilian environment, autonomous systems designed to undertake these roles reduce needs to transmit data to and from human operators and analysts. Tactical and operational speeds are, therefore, enhanced.

One example of an autonomous system designed for on-board data collection and analysis is the Agile Condor Pod, developed by US-based not-for-profit company SRC.<sup>286</sup> The Pod's "high-performance embedded computing (HPEC) architecture offers sensor-agnostic, on-board, real-time data processing to deliver actionable intelligence to the warfighter".<sup>287</sup> The pod connects with on-board sensors, autonomously analysing collected data to identify and nominate potential threats and targets, before sending intelligence to remote operators or warfighters. Of significance, "on-board processing reduces communication bandwidth" normally required to connect with remote operators.<sup>288</sup> Thus, the Agile Condor Pod minimises the need for repeated data and instructional signal transmissions, which reduces human-caused delays, as well as disruptions caused by congested or contested bandwidths. On-board autonomous analysis of sensor data, therefore, accelerates decision-making and operation processes. Apart from ethical issues surrounding autonomous target identification and nomination, the Agile Condor Pod

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<sup>286</sup> See "Agile Condor©: High Performance Embedded Computing," SRC: Redefining Possible, accessed July 15, 2023, <https://www.srcinc.com/products/intel-collection-and-analysis/agile-condor-high-performance-embedded-computing.html>.

<sup>287</sup> "Agile Condor©."

<sup>288</sup> "Agile Condor©."

demonstrates technological efforts to strategically retain force-multiplying capabilities, while optimising EMS frequency access.

The tactical motivation for the Agile Condor Pod is similar to high-frequency financial stock-trading platforms housing computers as close as possible to stock exchanges. As James Bridle notes, “Financial information now travels at the speed of light” with the “greatest prizes” going to “those with the lowest latency”.<sup>289</sup> The Agile Condor Pod’s close proximity to a drone’s sensors facilitates fast AI-enabled parsing to isolate relevant data. Parsing involves self-learning algorithms, trained on large datasets, rapidly undertaking complex data sorting and analysis. It is worth reminding ourselves here that isolating relevant data is a decision-making process.

Autonomously collated data reports are transmitted to human controllers who currently make final decisions to engage nominated targets or not. While the attack or killing decision is still in human hands, preceding AI data-parsing processes require scrutiny, especially regarding the assignation of responsibility. Here, Virilio’s insight that the “acceleration of reality tends to reverse the principle of responsibility” penetrates speed’s insidious efficacy.<sup>290</sup> Autonomous systems within an operational chain are not necessarily described as lethal autonomous weapons systems (LAWS), or weapons with autonomous killing capabilities. However, as Horowitz points out, “machine-like accuracy in following programming” comes with the potential risk of a “loss of control”, with outcomes such as “accidents, adversarial spoofing and miscalculation”.<sup>291</sup> Losing control clearly signposts a potential crash.

## **Law-Speed-War**

The use of hyphens in the heading of this section is a reference to Der Derian’s textual and aesthetic invocation of “mimetic power” via his play with hyphens in the term “Military-Industrial-Media-Entertainment-Network”.<sup>292</sup> I use hyphens to raise questions about responsibility in a hyper-connected world where the mechanisms of war channel through multiple EMS-enabled conduits. The issue of responsibility and increasing operational speeds is exemplified by recent research to develop an AI legal assistant tool for United

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<sup>289</sup> Bridle, *The New Dark Age*, 107.

<sup>290</sup> Virilio, *The Original Accident*, 90.

<sup>291</sup> Horowitz, “When Speed Kills,” 766.

<sup>292</sup> Der Derian, “Virtuous War/Virtual Theory,” 786.

States military Judge Advocates (JAGs). In January 2022, data company Visimo announced a partnership with West Point Military Academy to “develop a legal assistant tool that will use artificial intelligence (AI) to significantly speed up legal advising during use-of-force decision-making”.<sup>293</sup> The AI legal assistant tool is envisaged to provide “critical legal advice during combat” because “Judge Advocates are not equipped to keep pace with modern combat”.<sup>294</sup> This observation is reinforced by political geographer Craig Jones’s comment that the “pace of modern aerial targeting operations mean that most legal advice is rendered under severe time constraints and is sometimes bypassed altogether”.<sup>295</sup> In contemporary war, the human JAG has become a delay point in an already intense environment where increasingly autonomous systems and light-speed connectivity escalate intensity.

The announcement of the Visimo and West Point collaboration directly inspired my painting *Theatre of War: Law* (2022) (Figure 19). Clearly linked to paintings such as *Theatre of War: Plague-Cloud* and *Speed of Light*, I wanted to visually question how an AI military legal assistant tool might diffuse decision-making activities, and responsibility for them, between AI and human beings. Taking an imaginal metaveillance perspective, I see this diffusion as a sign or symptom of the ambigrammatic loop, a loop that swiftly swills responsibility, rendering it difficult to ascribe, and therefore potentially avoidable. In the centre of the painting, a circle of painted binary code ‘instructs’ MILITARY LAWYER. Painted in red, this circle reverberates with other interconnected red circles to indicate a bloodied techno-cloud. White circles painted with light-speed’s *c* symbol, and one with the *y* symbol for photon, interconnect with the red ‘cloud’, visually underscoring the techno-cloud’s reliance on the EMS. Painted symbols and code visualise normally invisible enablers of contemporary techno-proliferations. They expose an invisible landscape that exists in the seemingly unoccupied spaces between the materiality of technological hardware and the mortality of war and conflict.

The techno-cloud clearly extends beyond the edges of *Theatre of War: Law*. Thus, the central MILITARY LAWYER circle may not be the only AI-enabled legal assistance node. If

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<sup>293</sup> Visimo, “Visimo and West Point Advancing Artificial Intelligence for Judge Advocates,” *PRNewswire*, January 11, 2022, <https://www.prnewswire.com/news-releases/visimo-and-west-point-advancing-artificial-intelligence-for-judge-advocates-301458727.html>.

<sup>294</sup> “Visimo, “Visimo and West Point.”

<sup>295</sup> Craig Jones, “Legal Advice in Modern Aerial Warfare,” Lieber Institute, West Point, *Articles of War*, November 22, 2021, <https://lieber.westpoint.edu/legal-advice-modern-aerial-warfare/>.

the image had been digitally created, we could imagine swiping, or zooming in and out. However, because the image is a painting, these data-producing and feeding activities are avoided, ensuring that my creative activities, and viewers' responses, are not fodder for systemic data feeds. Movement and space, however, are not avoided, but imaginatively, physically, and spatially amplified. As a viewer physically moves or imaginatively 'flies', *Theatre of War: Law* offers multiple perspectives. Viewed from a literal distance, or the distance of imagined flight, an insidious occupation of landscape or environment is evident. Viewed up close, the smallness of the painted binary code, and c and y symbols, reveals normally unseen techno-cloud-forming mechanisms, such as algorithms, speed, and signals.

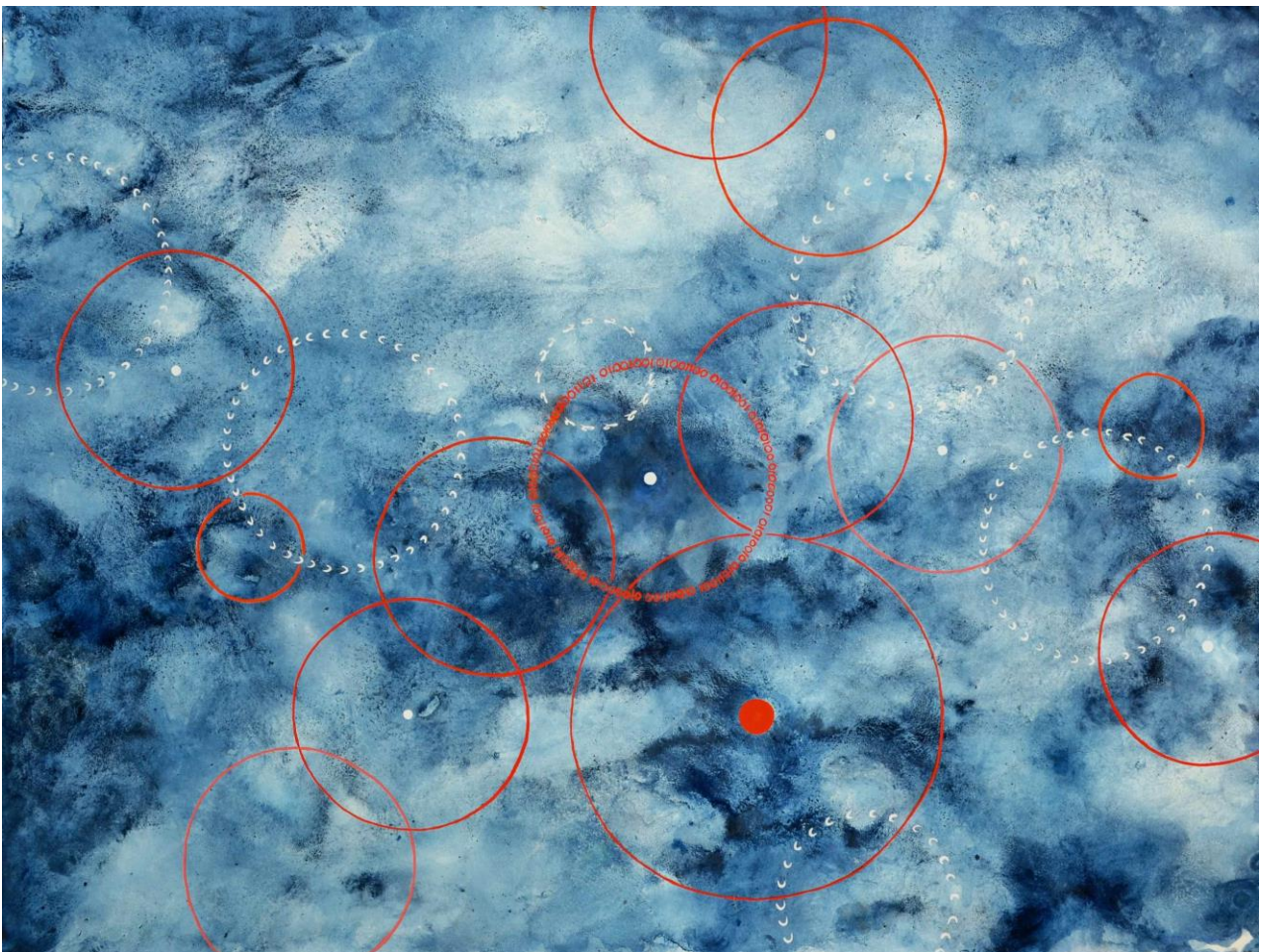


Figure 19. Kathryn Brimblecombe-Fox, *Theatre of War: Law*, gouache on paper, 56 x 76 cm, 2022.

In chapter one, I suggest that Forensic Architecture's digital analysis and modelling processes turn 'the cloud' inside out. However, these processes maintain technological referentiality with the system, like turning a sock inside out—the sock is still a sock.

Imaginational metaveillance and painting, however, provide ways to turn ‘the cloud’ inside out without technological referentiality, thus presenting novel independent perspectives that also act as forms of technologically unmediated, and therefore un-trackable, witnessing. Paintings such as *Theatre of War: Law* could also be described as pre-emptive counter-maps, albeit speculative, of future techno-colonisations.

Like the Agile Condor Pod, once the AI legal assistant tool autonomously analyses data through “Natural language Processing (NLP) and Computer Vision (CV) techniques”, JAGs will be presented with “packages” for quick review.<sup>296</sup> This is, of course, while human beings remain in decision-making loops. As speed becomes more tactically and strategically pivotal, the presence of human beings is likely to be further reduced. In an oxymoronic way, while speed takes over, the removal of the human being incrementally occurs as a process of creeping normalisation. While the decision to employ AI for military activities may be considered necessary due to operational and tactical needs for speed, who takes responsibility, for example, for potentially flawed or biased data analysis and parsing? As Amoore reminds us, “All algorithmic decisions contain within them the residue, or the sediment, of past political weightings”.<sup>297</sup> Her comment that there is potential for “profound violence in the algorithm’s foreclosure of alternative futures” reminds us that in a war situation, “profound violence” could result in death, the ultimate foreclosure of any future.<sup>298</sup>

In-combat legal issues encompass laws of war, formally known as International Humanitarian Law. These laws, as described by the International Committee of the Red Cross (ICRC), are “international rules that set out what can and cannot be done during an armed conflict”.<sup>299</sup> The ICRC notes that the “main purpose of international humanitarian law (IHL) is to maintain some humanity in armed conflicts, saving lives and reducing suffering”.<sup>300</sup> While applying IHL, a military JAG needs to understand on-the-ground conflict situations, including strategy and tactics. They also need to have knowledge about an operation and an understanding of contemporary militarised technology. Clearly, an AI military tool will need to possess an array of capabilities to parse data in ways that identify

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<sup>296</sup> Visimo, “Visimo and West Point.”

<sup>297</sup> Amoore, *Cloud Ethics*, 164.

<sup>298</sup> Amoore, *Cloud Ethics*, 161.

<sup>299</sup> “The Laws of War in a Nutshell,” International Committee of the Red Cross, October 19, 2016, <https://www.icrc.org/en/document/what-are-rules-of-war-geneva-conventions>.

<sup>300</sup> ICRC, “The Laws of War in a Nutshell.”

relevant in-situ battlefield and technical information for the application of IHL. Given that the development of an AI legal assistant tool aims to meet and enhance the speed of a military action, I ask, does speed itself pose IHL implications? How can speed “maintain some humanity in armed conflicts”? These questions are particularly pertinent if we consider Amoores contention that algorithmic applications can perpetrate “profound violence” by foreclosing “alternative futures”.

### **Blurriness: Speed, Time, and Militarised Imaginations**

Contingent with speed is the imperative to save time. As demonstrated by the development of the Agile Condor Pod and plans for the Visimo AI legal assistant tool, saving time clearly provides strategic and tactical advantages. A remark made in 2019 by Bruce Jette, US Assistant Secretary of the Army, Acquisition, Logistics and Technology, speaks to the weaponisation of time, and therefore to Horowitz’s provocation that “speed kills”. While touting the virtues of technological speed, Jette said, “Around the acquisition community we’re trying to get a philosophy going. Time is a weapon.”<sup>301</sup> While Gregory’s notion of the “everywhere war” extends beyond geography into space and cyberspace, I propose that war now occupies speed and time in ways that stimulate and fascinate militarised imaginations.<sup>302</sup> The Futurists’ idealisation of a “splendor of the world” that “has been enriched by a new beauty: the beauty of speed” is revealed as a tentacular seduction.<sup>303</sup> This not only perpetuates the “everywhere war”, but also extends it as a pre-emptive militarisation of the future.

This fascination with speed and saving time, particularly in relation to a militarised future, is alarming. Virilio’s warning that reaching the light barrier “disorients history” is prescient.<sup>304</sup> This disorientation is exacerbated by a time-based disconnect or paradox between the preoccupation with speed and the length of recent wars. As Sten Rynning, Oliver Schmitt, and Amelie Theussen observe, “recent Western military interventions in Afghanistan, Iraq,

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<sup>301</sup> Association of the U.S. Army, “AUSA Sustainment Hot Topic 2019 - HON Bruce Jette” (ASAALT, keynote at a professional development forum presented by the Association of the United States Army’s Institute of Land Warfare), YouTube video, 16:40, May 29, 2019, <https://www.youtube.com/watch?v=LYIMIRihG9g>.

<sup>302</sup> I use the term “militarised imagination” in my MPhil thesis: Fox, “Drones and Night Vision,” 45, 49, 72, 87, 106.

<sup>303</sup> Marinetti, *The Futurist Manifesto*.

<sup>304</sup> Virilio, *The Original Accident*, 90.

and other countries and regions have demonstrated how difficult it is for the West to translate its preponderance and its proclivity toward speed into swift victories” .<sup>305</sup>

Increasing military and defence interest in the EMS, speed, and time propel militarised imaginations into the future. The future is essentially, therefore, pre-emptively militarised. It is also weaponised by defence industry players planning and imagining technologies that will meet imagined future warfare needs. Militarised imaginations are evident, for instance, in future-of-war rhetoric.<sup>306</sup> This kind of rhetoric emanates from defence departments, the military, and the defence industry. For example, in the Australian Army’s 2018 *Futures Statement: Accelerated Warfare*, the words “futures” and “accelerated” portend the militarisation of speed, time, and the future. In this statement, the Chief of the Army at the time, Lieutenant General Rick Burr, even stated, “We must pull the future towards us rather than wait for it.”<sup>307</sup> Imaginational metaveillance provides a time-travelling way to ‘visit’ the future, to confront militarised imaginations. Painting, in this research project, bears witness to these speculative confrontations, prompting questions and revealing new perspectives.

Future-of-war rhetoric is closely associated with being constantly war ready or prepared. An example is the UK Defence Secretary Ben Wallace’s November 2021 speech announcing the government’s *Future Soldier* strategy for the British army.<sup>308</sup> For the future soldier, speed is clearly coupled with readiness. As Wallace notes, “Our future army will be leaner but more productive, prioritising speed and readiness over mass and mobilisation”.<sup>309</sup> Defence corporations also place emphasis on future warfighting needs, with highly produced technical and promotional materials.<sup>310</sup> Northrup Grumman’s “Future Autonomous Air”, BAE Systems’ “Future Technologies”, and Lockheed Martin’s “21st Century Technologies” all tout technological developments for future scenarios.<sup>311</sup> A

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<sup>305</sup> Sten Rynning, Oliver Schmitt, and Amelie Theussen, “Introduction,” in *War Time: Temporality and the Decline of Western Military Power*, ed. Sten Tynning et al. (Washington: Brookings Institute, 2021), 11.

<sup>306</sup> Fox, “Drones and Night Vision,” 49.

<sup>307</sup> Rick Burr, *Accelerated Warfare: Futures Statement for an Army in Motion* (Canberra: Australian Army, 2018), [https://www.army.gov.au/sites/default/files/2019-11/futures\\_statement\\_accelerated\\_warfare\\_booklet\\_u.pdf](https://www.army.gov.au/sites/default/files/2019-11/futures_statement_accelerated_warfare_booklet_u.pdf).

<sup>308</sup> “Speech: Defence Secretary Announces Future Soldier for the British Army,” Gov.UK, November 25, 2021, <https://www.gov.uk/government/speeches/defence-secretary-announces-future-soldier-for-the-british-army>.

<sup>309</sup> Gov.UK, “Defence Secretary Announces Future Soldier for the British Army.”

<sup>310</sup> This was also evident on my 2021 and 2022 visits to the Australian Army’s “Land Forces: International Land Defence Exposition” at the Brisbane Convention Centre. See <https://www.landforces.com.au/>.

<sup>311</sup> “Future Autonomous Air,” Northrup Grumman, accessed February 2, 2023, <https://www.northropgrumman.com/what-we-do/air/autonomous-systems/future-aa/>; “Future Technologies,”



defence industry focus on the future meets future-of-war rhetoric in ways that sustain war preparedness, and defence markets. The political–military–industry relationship feeds on a militarised and weaponised future for sustenance.

The weaponisation of time in an age of light-speed technological prowess menaces the present and the future. In an age of persistent war readiness, and Rynning, Schmitt, and Theussen’s observed paradox of a “proclivity toward speed” and lengthy wars, terms such as ‘war time’ and ‘time of war’ need to be rethought.<sup>312</sup> With Jette’s sci-fi-like pronouncement and Burr’s strangely poetic statement in mind, I propose that the term ‘war time’ is increasingly irrelevant. What if we flipped ‘war time’ to ‘time wars’ in a kind of ambigrammatic counterplay that mirrors the “proclivity toward speed” and lengthy wars paradox? Would this reconfiguration prompt different questions? As speed helps to blur boundaries between civilian and military EMS-reliant technologies and activities, I propose human citizens morph into ‘*ambicitizens*’ and environments into ‘*ambizones*’. With an imaginational metaveillance perspective, I argue that these kinds of *ambi*-identifications provide further evidence of liminal fissures and emergent tensions in an insidiously militarised world.

The blurring of boundaries between military and civilian technology and activities has occurred in tandem with the blurring of traditional military land, sea, and air domains. As digital and cyber systems and devices populate submarine to space landscapes, traditional armed forces—army, navy, air force—merge into an operational network called “joint force”.<sup>313</sup> This network now also includes space and cyber. The Australian Defence Force’s *2020 Force Structure Plan* notes that “modern warfare is a joint activity and requires the greatest possible degree of integration across all elements”.<sup>314</sup> While armies, navies, and air forces have obviously worked together previously, twenty-first century operations rely not only upon EMS-enabled connectivity, but also interconnectivity to enable interoperability of systems and hardware. Of note, in 2017, the Australian

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BAE Systems, accessed February 2, 2023, <https://www.baesystems.com/en/what-we-do/future-technologies>; “21st Century Security: All-Domain Deterrence Now and for the Future Needs for Those Who Serve,” Lockheed Martin, accessed February 2, 2023, <https://www.lockheedmartin.com/en-us/capabilities/21st-century-security-networked-solutions.html>.

<sup>312</sup> Rynning, Schmitt, and Theussen, *War Time*, 11.

<sup>313</sup> Various defence departments around the world produce joint-force doctrines. For example, see Australian Government, “Joint Studies Series,” Australian Defence Force, accessed June 1, 2023, [https://defence.gov.au/ADC/publications/Joint\\_Studies.asp](https://defence.gov.au/ADC/publications/Joint_Studies.asp); United States Government, “Joint Doctrine Publications,” Joint Chiefs of Staff, accessed June 1, 2023, <https://www.jcs.mil/Doctrine/Joint-Doctrine-Pubs/>.

<sup>314</sup> ADF, *2020 Force Structure Plan*.

Government Department of Defence established the Joint Capabilities Group, under the command of a Chief of Joint Capabilities.<sup>315</sup> Sovereign joint-force capabilities and ally joint-force cooperation are imperative in an interconnected world of speed. AUKUS, for example, is underpinned by joint-force aspirations.

As we become increasingly dependent on the EMS for our technological needs, blurred and merged boundaries are signs of standardising, synchronising, and homogenising techno-efficient speedy processes. As we adapt to living in an ambigrammatic environment, Major Casey offers a germane reminder that the “EMS knows no limits” and that “photons do not care” about operational or political aspects of war.”<sup>316</sup> This is a blunt reminder that if human beings and their technologies did not exist, the EMS would continue to do so.

### **Last Curtain Call?**

We now live in the Futurists’ future. Marinetti’s glorious overtures to militarism as a “cure for the world”, and to speed as a “new beauty”, have withered.<sup>317</sup> Militarism, rather than being a cure, needs to be cured, and speed’s “new beauty” is revealed as an empty promise in a world where standardised and synchronised techno-efficiencies normalise increasingly homogenised aesthetics. Virilio’s observation that “We are now in a situation of occupation in both temporal and martial meanings of the word” attests to Futurism’s fanatical blindness.<sup>318</sup> The ominous issue is this: Are we still blind fanatics, enthralled by nano-second strategic edges that light-speed capabilities seem to promise? Or are we players in a drama beyond our control? In the next chapter, “Visualising Contemporary ‘Theatre of War’”, I discuss the performativity of contemporary war and the ‘roles’ played by an array of ‘characters’. If the contemporary theatre of war is an everywhere theatre, continuously playing, what are the implications for the future of war—and humanity?

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<sup>315</sup> Australian Government, “Joint Capabilities Group” Department of Defence, accessed February 3, 2023, <https://www.defence.gov.au/about/who-we-are/organisation-structure/joint-capabilities-group>; ADBR, “Joint Capabilities Group Opens for Business,” July 3, 2017, Australian Defence Business Review, <https://adbr.com.au/joint-capabilities-group-opens-for-business/#:~:text=The%20newly%20formed%20Joint%20Capabilities,Deputy%20Chief%20of%20Air%20Force>.

<sup>316</sup> Casey, “Cognitive Electronic Warfare.”

<sup>317</sup> Marinetti, *The Futurist Manifesto*.

<sup>318</sup> Virilio, *The Administration of Fear*, 47.

## Chapter Three

### Visualising Contemporary 'Theatre of War'

War is no longer a means but rather a drama. A major accident. The technologies employed are too powerful.

Paul Virilio, *Desert Screen: War at the Speed of Light*, 1991

#### Setting the Scene

Painting and imaginal metaveillance have provided the stimulus for my novel ideas of ambiveillance, the ambiveillant environment, the ambicitizen, and ambizones. As I have developed and extended these ideas in my writing and my studio, in my mind's eye I have caught glimpses of the contemporary theatre of war's ambigrammatic deployment. I see glimpses of this deployed performance, for example, in human tendencies to anthropomorphise, idealise, and hype technology. These tendencies, fostered by human desires for metaphor and relationship, sustain the ambigrammatic or looping character of technology and war. This sustenance propels, and is propelled by, increasing speeds of technological development and technological operation. Speed is a protagonist and a support entity, stirring human hopes and desires, as well as fears about keeping pace with technological advances and their perceived advantages. This choreographs the contemporary theatre of war as an existential theatre hosting threats not only to mortal existence, but also to human identity and being-ness.

I use a Clausewitzian nineteenth-century concept—"theatre of war"—to introduce this chapter. This concept foregrounds my aim to re-conceptualise and re-visualise theatre of war in ways that might help us understand twenty-first century war. Here, my goal is not to provide a definitive re-conceptualisation of the term, but to elicit multiple potential re-conceptualisations as stimulants for further speculation. The chapter proceeds with a discussion of some contemporary intersectional and critical literature that contributes theoretical and stimulatory insights into the changing nature of war. This overview provides cues and clues for the kinds of stimuli I visually respond to in my paintings, particularly those paintings that explicitly refer to theatre of war. Art-historical pivots include references to work by two previously mentioned artists, Joseph DeLappe and James Rosenquist.

This chapter is also an opportunity to discuss how my ideas of imaginal metaveillance and ambiveillance help to re-conceptualise and re-visualise theatre of war. However, as I have developed and extended these ideas in my writing and studio, this chapter is not entirely what I had initially envisaged. As planned, I discuss how the contemporary theatre of war is choreographed by reliance on the EMS, oscillating between intimate and remote spaces, and extending beyond geography into speed, time, and the future. However, two paintings, *On the Edge of Being* (2022) (Figure 29) and *Where's the Beating Heart?* (2022) (Figure 30), created after working through creative and written research for chapters one and two, have prompted further questions and insights. These questions and insights reflect upon contemporary war as a battle for human identity in the face of self-afflicted threats to human being-ness. Could it be that the theatre of war is within us, experienced internally but projected externally? If so, this ambigrammatic mirroring would complete the everywhere visualisation of twenty-first century theatre of war, potentially confining us to an inescapable mobius-strip-like existence. Here, the ambiveillant loop finds its lock.

### **Theatre of War, Clausewitz, and Critiques**

In his famous tome, *On War* (published posthumously in 1832), Prussian General Carl von Clausewitz often uses the term “theatre of war”, describing it as a “portion of the space over which war prevails as has its boundaries protected, and thus possesses a kind of independence”.<sup>319</sup> He goes on to say, “Such a portion is not a mere piece of the whole, but a small whole complete in itself.”<sup>320</sup> This theatre of war containment, he argues, means that “changes which take place at other points in the seat of war have only an indirect or no direct influence upon it”.<sup>321</sup> Taking a temporal and spatial imaginal metaveillance overview, I propose that Clausewitz’s theatres of war were more like separate ‘stages’ in a larger theatre of war, which he seems to call the “seat of war”.<sup>322</sup> This seat of war was grounded in “immovable” geographically based features such as “fortresses, the natural divisions of ground”, and the ground’s surface.<sup>323</sup> In this chapter, I ‘unseat’ the groundedness of Clausewitz’s seat of war by re-conceptualising the idea of theatre of war through

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<sup>319</sup> von Clausewitz, *On War*. Book V, Chapter II, Section 1.

<sup>320</sup> von Clausewitz, *On War*, Book V, Chapter II, Section 1.

<sup>321</sup> von Clausewitz, *On War*. Book V, Chapter II, Section 1.

<sup>322</sup> von Clausewitz, *On War*. Book V, Chapter II, Section 1.

<sup>323</sup> von Clausewitz, *On War*, Book V, Chapter XXIX.

creative painting practice. In this way, I visualise contemporary war's infiltrative and insidious 'performance' beyond geography, into speed, time, and the future.

I argue that a re-visualisation and re-conceptualisation of theatre of war, a notion steeped in war history, helps us to understand how radically different twenty-first century war is from past wars. To penetrate this difference, novel approaches that go beyond compare and contrast are needed. Here, my ideas of imaginational metaveillance, ambiveillance, and the ambicitizen provide catalytic and divergent methods of conceptual and creative inquiry and provocation. The importance of identifying contemporary war's radical difference is exemplified in Matthew Ford and Andrew Hoskins's recent book, *Radical War: Data, Attention, Control*.<sup>324</sup> The authors ascribe the term "radical war" to the capabilities and effects of contemporary mediated and connected technology. They "explicitly reject Clausewitzian definitions of war", for example, radically re-evaluating Clausewitz's famous statement that "war is a mere continuation of policy by other means".<sup>325</sup> They do this by drawing attention to the fact that in the contemporary era the "use of violence is not exclusively under the control of the state or the military. Strategists and the military may prefer to define war as a continuation of politics by other means. By contrast, in *Radical War*, we seek to understand how political violence gains meaning in a 24/7 always online environment".<sup>326</sup>

Significantly, in his 2002 book, *Desert Storm*, Virilio also rejects "Clausewitzian form".<sup>327</sup> Referring to nuclear deterrence, he declares "mass war is no longer the continuation of politics by other means, *it is a major historical event*".<sup>328</sup> I propose that a re-examination of the term theatre of war helps us understand why Clausewitz's definitions of war limit insights into understanding twenty-first century war. Undertaking this re-examination through research-based creative painting practice is a novel approach, one that offers revelatory visualisation as a prompt for further questions.

In *Radical War*, Ford and Hoskins claim that we need to "rewrite how we come to know and understand war".<sup>329</sup> Pivoting around the increasing capabilities and effects of

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<sup>324</sup> Matthew Ford and Andrew Hoskins, *Radical War: Data, Attention, Control* (London: Hurst Publishers, 2022).

<sup>325</sup> Ford and Hoskins, *Radical War*, 27; von Clausewitz, *On War*, Book I, Chapter I, Section 24.

<sup>326</sup> Ford and Hoskins, *Radical War*, 27.

<sup>327</sup> Virilio, *Desert Screen*, 38.

<sup>328</sup> Virilio, *Desert Screen*, 38.

<sup>329</sup> Ford and Hoskins, *Radical War*, 20.

connectivity, speed, data, techno-corporate power, and smart phones, their book is an experiment in this kind of rewriting. This chapter's aim to re-visualise and re-conceptualise theatre of war takes a cue from Ford and Hoskins's idea of rewriting, as a way to "know and understand war".<sup>330</sup> The idea of 'theatre' helps to articulate and reveal how technological systems and devices 'cast' us all in various unwitting and witting oscillating 'roles'. Ambiveillant oscillation or looping of roles occurs in a society described by Ford and Hoskins as being "stuck in a violent loop from which there is no obvious way out; where it is unclear how representation and reality relate to each other".<sup>331</sup> I posit that creative painting practice and imaginational metaveillance provide revelatory methods of representation that disclose contemporary ambiveillant world-forming techno-practices of violent war-perpetuating looping. With this hyperbolic description in mind, I grasp the spirit of Ford and Hoskins's radical rewriting, to propose that re-visualising and re-conceptualising theatre of war through creative painting practice is a novel approach.

Ford and Hoskins's idea of "radical war" intersects with Gregory's notion of the "everywhere war", where blurred battlefield boundaries extend beyond geography or "cartographic reason" into what Gregory calls "labile spatialities".<sup>332</sup> He describes these labile, changeable, and "slippery" spatialities as the "contrapuntal geography of the everywhere war".<sup>333</sup> Taking the wars in Iraq and Afghanistan as examples, Gregory describes a dispersed militarised landscape where "borderlands" and "shadowlands" shift and diffuse as multiple local and foreign actors perpetrate the mechanisms and supply chains of violence.<sup>334</sup> Gregory's description is a clear departure from the battlefield containment described by Clausewitz. In chapter two, I used the phrase "slippery scape" to describe my painting *Light-Speed: Crash (After Virilio)*. Represented as an icy-like environment, where a sense of slipperiness indicates precarity, speed is envisaged as both a cause and an environment. Given that contrapuntal is a word used to describe a piece of music with more than one melody, *Light-Speed: Crash (After Virilio)* could be described as a cacophony of "slippery" and "labile spatialities".

With its musical association, contrapuntal aesthetically plays into the theatre of war theme. It is an example of how certain words and phrases, used in critical commentary, stimulate

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<sup>330</sup> Ford and Hoskins, *Radical War*, 20.

<sup>331</sup> Ford and Hoskins, *Radical War*, 43.

<sup>332</sup> Gregory, "The Everywhere War," 239.

<sup>333</sup> Gregory, "The Everywhere War," 239.

<sup>334</sup> Gregory, "The Everywhere War," 239.

my speculative responses to various questions about war and technology. For example, how can theatre of war be re-conceptualised and visualised in ways that help us understand twenty-first century techno-war? It is important to note that the contemporary theatre of war kaleidoscope of contrapuntal ‘scapes’ and environments includes civilian and domestic spaces. Ford and Hoskins’s reminder that “people participate in war by virtue of their connected devices” provides insight into how to think about the witting and unwitting martialised roles civilians in private and domestic environments ‘perform’.<sup>335</sup> Here, my idea of the ambicitizen offers a way to radically rethink and reinterpret what ‘citizen’ might mean in an ambient environment of militarisation. Cultural studies scholars Michael Richardson and J. D. Schnepf’s April 2023 article, “Home Drone: How to Militarize the Smart Home with the Ring Always Home Camera”, prisms open the roles people/citizens play.<sup>336</sup> Referring to technologically “mundane” but militarise-able “household items that aid in the labor of homemaking”, the authors even invoke the term “theatre of war”: “Juxtaposing the deliberately stereotyped ‘housewife’ with the theater of war raises questions about the quiet migration of these objects and technologies from battlefield to kitchen, or bathroom, or garden”.<sup>337</sup>

### **The Electromagnetic Spectrum and ‘Theatre of War’**

Gregory’s notion of the “everywhere war”, Ford and Hoskins’s idea of “radical war”, and Virilio’s description of “mass war” are descriptions that collapse Clausewitz’s account of war’s protected boundaries, portions of space, and independence. Contemporary descriptions of war, such as everywhere war and radical war, subsume Clausewitzian theatres and seats into an immersive theatre of war. In this immersive theatre, the ambigrammatic environment plays oscillating roles of place, space, and protagonist. Clausewitzian “independence” is dissolved into a ‘theatre’ of complexity and chaos. In this theatre, Bousquet’s description of “chaoplexic war” finds its labile and slippery *mise en abyme*, as well as its cast of mutable characters.<sup>338</sup> What part does the EMS play in this immersive chaoplexic, everywhere, mass, and radical theatre of war? The USDoD’s 2020 *Electromagnetic Spectrum Superiority Strategy* provides a clue: “The EMS not only

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<sup>335</sup> Ford and Hoskins, *Radical War*, 70.

<sup>336</sup> Michael Richardson and J. D. Schnepf, “Home Drone: How to Militarize the Smart Home with the Ring Always Home Camera,” *Catalyst: Feminism, Theory, Technoscience* 9, no. 1 (2023), <https://doi.org/10.28968/cftt.v9i1.38355>.

<sup>337</sup> Richardson and Schnepf, “Home Drone.”

<sup>338</sup> Bousquet, *The Scientific Way of Warfare*, 173–235.

provides the critical connective tissue that enables all-domain operations, but represents a natural seam and critical vulnerability across joint force operations.”<sup>339</sup>

In the USDoD statement above, photons and light-speed are transformed into “critical connective tissue” providing a “natural seam” that is also vulnerable. While the EMS is a natural universal phenomenon, the USDoD’s use of “tissue” to describe EMS-enabled signal-carrying connectivity implies an alive-ness typically associated with living and organic matter. The word ‘tissue’ animates, even anthropomorphises and embodies, the EMS. This evocation of viscera subliminally raises the potential drama of war and security issues, especially when its so-called ‘viscerality’ is also described as vulnerable. One could say the scene is set, a perpetual theatre of war scene where the connective tissue is potentially always considered vulnerable. This scene requires constant vigilance, even choreography. Thus, the militarised ambiveillant loop is justified and therefore continues.

While the USDoD’s *Electromagnetic Spectrum Superiority Strategy* provides a clue to my question about the EMS’s role in the contemporary theatre of war, this research project postulates and stimulates additional clues and speculations. This alterity is articulated and enhanced through creative painting practice as a form of disruption—for example, disrupting creeping techno-normalisations of often poetically presented tropes of anthropomorphisation and animalisation. Painting, in this research project, achieves this disruption through creative and informed visualisations of the normally invisible constructs of EMS-enabled connectivity and interconnectivity. For this reason, I emphasise the word ‘constructs’ as an alternative to connective tissue. The disruption is amplified by the fact that while painting does not require EMS-enabled technology, it can still critically re/present technology without falling into didactic traps. In an age of generative AI, painting can be a form of independent resistance.

During this research project, I have created a large body of paintings that reflect my creative responses to, and interrogations of, a plethora of stimulants. These stimulants range across academic literature to defence policy statements, technical information to techno-hype, art history to contemporary painting practices. I have spent time with my chosen medium, pouring and manipulating paint, and hand-painting arrays of lines, strings of binary code, ‘cloud’ circles, symbols for light-speed and photons, plus various militarised

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<sup>339</sup> USDoD, *Electromagnetic Spectrum Superiority Strategy*, 3.



and militarise-able hardware. This repeated physical, creative, imaginal, and intellectual engagement with visible and invisible aspects of contemporary war transforms painting into a vehicle of co-presence. This co-presence is a 'being with', for example, EMS frequencies, speed, or an airborne drone. The 'doing' part of creating a body of paintings means that over time, my physical, creative, imaginal, and intellectual relationships with subject matter develop into a 'knowing' that is difficult to explain in words.

Johnson, whom I mention in chapter two, makes a comment in *Painting Is a Critical Form* that sheds light on the difficulty to explain in words the kind of 'knowing' that can evolve in and through creative painting practice. She incisively observes that it is "arguably necessary for the painter to work outside rational knowledge in order to retain a condition of becoming, and to resist a point of conclusion".<sup>340</sup> In an age of computation and informational prioritisation, painting as a form of knowing and becoming can act as an important reminder of human being-ness. As a computationally unscripted visual and physical activity, painting can elicit, create, and stimulate new knowledge and questions that defy compartmentalisation and conclusion. Unlike AI-generated imagery or digital image production, neither the activity of painting nor the viewing of a painting is dominated by ambigrammatic mechanisms that require techno-iterative actions. As Fuller and Weizman propose, "We need imaginaries that can no longer be contained within disciplinary taxonomies but that are also able to work across them."<sup>341</sup> A painting, or a body of paintings, can work across "disciplinary taxonomies", providing ways of knowing that exist in addition to written, spoken, and computational modes of knowledge dissemination and inquiry.

My painting *Theatre of War: Techno-Seduction* (2022) (Figure 20), like my painting *Theatre of War: Law*, which I discussed in chapter two, exemplifies the kind of knowing that long-term painting practice elicits and creates. In *Theatre of War: Techno-Seduction*, the EMS, as an array of lines and strings of binary code, is clearly represented as a scaffold for connected and interconnected nodes. The representation of synthetic and channelled connectivity visually refutes USDoD's allusions of "connective tissue", thus depleting the allure of poetically construed anthropomorphisation. Strings and circles of

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<sup>340</sup> Johnson, *Painting Is a Critical Form*, 76.

<sup>341</sup> Fuller and Weizman, *Investigative Aesthetics*, 14.

stridently coloured painted binary code, ‘instructing’ words such as DRONE, HELLFIRE, MILITARY LAWYER, SATELLITE, TARGET, and HUMAN, act as algorithmic proxies for both organic elements, such as human beings, and non-organic elements, such as drones. The painted zeros and ones disembody the organic and strip the non-organic by visually reducing them to the same instructional code. This visual reduction to equivalence exposes insidious relationships, questions forces of techno-homogenisation, and raises issues of aesthetic homogenisation in an age of increasing generative AI.



Figure 20. Kathryn Brimblecombe-Fox, *Theatre of War: Techno-Seduction*, gouache on paper, 56 x 76 cm, 2022.

While graphic-like in presentation, *Theatre of War: Techno-Seduction* is not a graphic design; rather, it echoes a computer chipboard appearance, translating this normally unseen component into an expansive revelatory map, even a counter-map. Placed against a cosmic-like background, this visual mapping-counter-mapping alludes to, and crosses, multiple scales of space and time. This multi-dimensional scaling definitively ungrounds the contemporary theatre of war from Clausewitz’s emphasis on “immovable”

geographically based features.<sup>342</sup> Additionally, the prospect of militarised speed and time, across reigns of interconnectivity and interoperability, propels militarising forces into the future.

*Theatre of War: Techno-Seduction's* stridently coloured 'map' of algorithms, painted over an equally colourful cosmic-like background, creates a futuristic almost alien-like aesthetic that shifts between being recognisable to unrecognisable. This 'uncanny valley' aesthetic sense creates a space where interpretation and imagination can take 'flight'. In this space, imaginal metaveillance divulges the insidious mechanisms of contemporary 'theatre of war'. This revelatory process is a shared artist and viewer experience. As a teaser, the binary code at the bottom of the painting 'instructing' TARGET may indicate a human or infrastructure target, but it may also indicate the future as the prime target.

As a result of interrogating and examining increasing military interest in the EMS through creative painting practice, the doing and knowing that I mentioned above have informed a key and novel argument. In particular, I argue that the EMS, made up of elementary particles travelling at the speed of light, is literally and figuratively both the elemental stage and the elemental protagonist of the contemporary theatre of war. I suggest that these elemental roles, as stage and protagonist, are shapeshifting mechanisms of ambiveillant looping. This proposition extends Ford and Hoskins's observation that a "new war ecology is being reshaped around a vision of battlefield singularity, that point where analogue and digital worlds fuse into one visual, haptic and mental register".<sup>343</sup> The authors' concept of a "battlefield singularity" could also be described as an immersive theatre of war that, like fundamental particles, is elementally everywhere.

## **Singularity and Black Holes**

The word 'singularity' is a physics term that describes the point of density in black holes.<sup>344</sup> Loaded with multiple meanings, it has been appropriated by transhumanists to describe a future human-machine singularity. Seen by some as a utopic future, speculations about artificial general intelligence (AGI) overtaking humanity also cast fears of dystopic futures. Taking an imaginal metaveillance viewpoint, my idea of the ambiveillant environment

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<sup>342</sup> von Clausewitz, *On War*, Book V, Chapter II.

<sup>343</sup> Ford and Hoskins, *Radical War*, 136.

<sup>344</sup> More information about black hole singularity can be found in numerous places, but NASA's "Black Holes" site is easy to understand. See [https://imagine.gsfc.nasa.gov/science/objects/black\\_holes1.html](https://imagine.gsfc.nasa.gov/science/objects/black_holes1.html).

helps us understand the mechanisms of Ford and Hoskins's "battlefield singularity". The ambiveillant environment draws peripheries into its standardised and synchronised net. Ford and Hoskins's observation that "analogue and digital worlds fuse into one visual, haptic and mental register" attunes us to the absorption of peripheries.<sup>345</sup> This attentiveness is key to understanding how the contemporary theatre of war is encompassing, immersive, insidious, and chaoplexic. I ask, what if the contemporary theatre of war, casting everyone and everything into a point of singularity, is a 'black hole'? According to physics, there is no escape.

In chapter one, I discuss my novel idea of a 'sensation' to describe arrays of civilian and military sensors. My painting *Theatre of War: Sensation* (2022) (Figure 21) was painted after I wrote chapter one, and before I began writing this third chapter. During the process of writing this chapter, the painting has stimulated further thoughts that intersect with Ford and Hoskins's book *Radical War*, which I read after finishing the painting. Their proposition that a "vision of battlefield singularity" is that "point where analogue and digital worlds fuse" reverberates with my conceptualisation of a diversity of civilian and military sensors as a 'sensation'.<sup>346</sup> The authors' suggestion that this fusing occurs as "one visual, haptic and mental register" underscores my proposition that standardising and synchronising forces insidiously choreograph the contemporary theatre of war.<sup>347</sup> This *mise en abyme* of iterative efficiency leads to aesthetic homogenisation, already increasingly promulgated by generative AI.

*Theatre of War: Sensation* visually presents the contemporary sensorised theatre of war as mandala-like. Is it a promise, or an omen? Painted symbols for light-speed and photons form two concentric circles. These circles are completed with wavy lines, EMS frequencies presented as conduits, not alchemical connective tissue. A circle of crosses acts variously as geo-markers, crosshairs, tombstones. A central targeting sight pinpoints the sensation's primary surveillance purpose. Against a cosmic-like background that engages an imaginal metaveillance view, the theatre-of-war mandala could be a planet, even a galaxy. It could even be a dream catcher hanging over a window looking out onto a view of a blue sky, an ocean, a mirage, a space, or a dream. However, in keeping with the cosmological theme, the mandala could also represent a black hole

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<sup>345</sup> Ford and Hoskins, *Radical War*, 136.

<sup>346</sup> Ford and Hoskins, *Radical War*, 136.

<sup>347</sup> Ford and Hoskins, *Radical War*, 136.

singularity where everything is compressed. These possible interpretations reach across scales of time, space, and size, and in doing so alert us to the pervasive characteristics of the contemporary everywhere theatre of war.

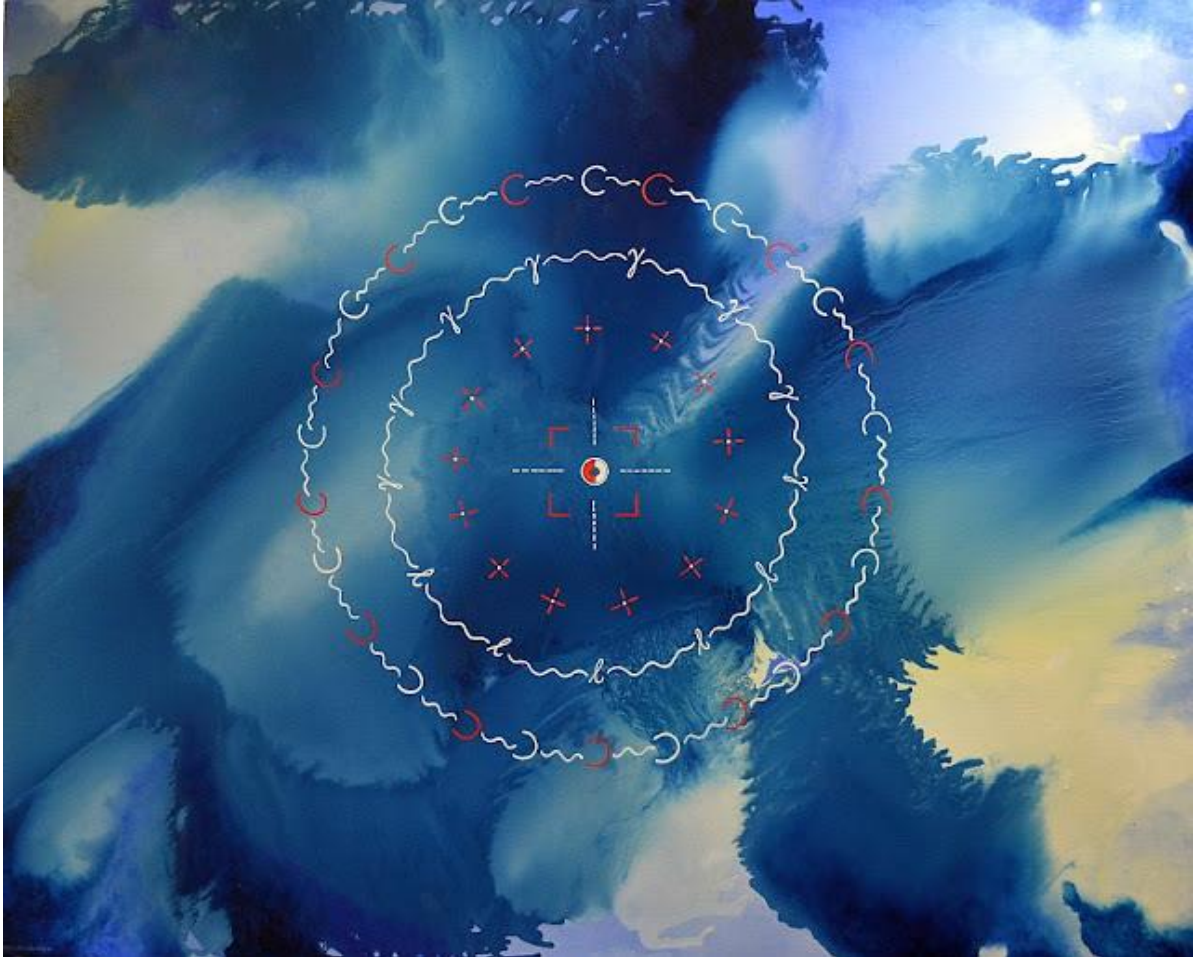


Figure 21. Kathryn Brimblecombe-Fox, *Theatre of War: Sensoration*, oil on linen, 122 x 153 cm, 2022.

*Theatre of War: Sensoration* was not intentionally painted as a mandala-like image; however, as I painted the circles and crosses, I realised my visual responses to techno-hyped promises of techno-speed revealed a techno-chimera. This chimera is infused with hyped techno-obsessions feeding promises of technologically aided transcendence and a transhuman more-than-human future.<sup>348</sup> As I painted, I did not draw away from the mandala-like appearance. Rather, I decided that it intersected with the painting's cosmological interpretations, by presenting hype as a human and planetary risk. I was also reminded of Virilio's insight that a "digital civilization" represents a "return to numerical

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<sup>348</sup> The term "more-than-human" is often used as a way to describe effects of AI and technological augmentation/relationship. An example is the *AI: More than Human* exhibition at the Barbican, London, May 16 – August 26, 2019.

paganism and its cults of yore”.<sup>349</sup> For Virilio, “the cult of speed” is a twenty-first century form of propaganda disguised as progress.<sup>350</sup> Here, my proposition that the EMS is both the elemental stage and the elemental protagonist of the contemporary theatre of war places the lure of light-speed capabilities at the core of potentially cultish and chimeric forces. This is a radical proposition, but Clausewitz’s claim that “war is a mere continuation of policy by other means” is rendered obsolete by forces that exceed politics, policy, law, and planning, mutating instead into a drama-accident—even a cult.<sup>351</sup>

*Theatre of War: Sensoration* exemplifies my research process, one that thrives on the frisson between re/conceptualisation and re/visualisation, thinking and painting. This frisson creates space and distance for imaginational flight and imaginational metaveillance to agitate new perspectives. Bachelard provides a useful perspective, noting that rather than forcing the imaginative and the conceptual to cooperate, “it might even be a good idea to stir up competition between conceptual and imaginative activity”.<sup>352</sup> He continues by saying that “all efforts to make them cooperate are doomed to disappoint. The image cannot give matter to the concept, the concept, by giving stability to the image, would stifle its existence”.<sup>353</sup> This research project’s cross-disciplinary examination of increasing military interest in the EMS is an example of Bachelard’s provocation to stir up competition between conceptual and imaginative activity. As a process, it is also counter-ambigrammatic, a refusal to get caught in the iterative loop.

In his 2019 book, *Unstaging War, Confronting Conflict and Peace to Unstage War*, design theorist and philosopher Tony Fry calls for an unstaging of war.<sup>354</sup> His book is a provocation to “reconfigure how war and peace are mostly understood”.<sup>355</sup> While he does not pre-empt how war will be unstaged, he uses the term to stimulate discussion about how “counter-discourse and critical practices” can “help divert, diminish, shorten and constrain war”.<sup>356</sup> Similarly to Ford and Hoskins, Fry believes that “all terms are now contestable”.<sup>357</sup> These terms include “war”, “violence”, and “peace”.<sup>358</sup> Fry also states that

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<sup>349</sup> Virilio, *The Great Accelerator*, 16.

<sup>350</sup> Virilio, *The Administration of Fear*, 38.

<sup>351</sup> von Clausewitz, *On War*, Book I, Chapter I, section 24.

<sup>352</sup> Bachelard, *On Poetic Imagination and Reverie*, 6.

<sup>353</sup> Bachelard, *On Poetic Imagination and Reverie*, 6.

<sup>354</sup> Tony Fry, *Unstaging War, Confronting Conflict and Peace* (Cham, Switzerland: Palgrave MacMillan, 2019).

<sup>355</sup> Fry, *Unstaging War*, viii.

<sup>356</sup> Fry, *Unstaging War*, viii.

<sup>357</sup> Fry, *Unstaging War*, vii.

<sup>358</sup> Fry, *Unstaging War*, vii.

to unstage war, new ways of thinking are demanded, and that a “great deal of imagination” is required.<sup>359</sup>

I propose that without re-conceptualising and re-visualising what theatre of war might mean in the twenty-first century, identifying stages to unstage is impossible. This may remain the case, even if a clearer picture of the contemporary theatre of war emerges. In the spirit of offering multiple possibilities, I propose two speculative and provocative reasons, although there are likely to be more. Firstly, unstaging the contemporary theatre of war might involve severing the tentacular mechanisms—that is, the connective tissue—of the militarised EMS. Given the shared military–civilian nature of the EMS, severing tentacular-like techno-dependency could ‘unstage’ life as we know it. Secondly, if the contemporary theatre of war is considered as something like a black hole, crossing its event horizon and pummelling towards a point of singularity means there is no escape, no unstaging.

George Barber’s video *The Freestone Drone* (2013) is a measured, thought-provoking work that gives no reason to suggest that war can be unstaged.<sup>360</sup> Rather, it darkly reinforces the message that history shows wars are repeatedly restaged. The message is even darker because the main character, the Freestone Drone, reminds viewers that each war becomes more complex, less delineated, more diffuse, and potentially more catastrophic. Barber uses an armed drone as the main protagonist. The drone is ascribed a voice, like the locomotive in the children’s television show *Thomas the Tank Engine*. The drone’s voice is mechanical. Barber, however, avoids over-anthropomorphising the drone because the voice is mechanical. It utters statements about humanity and its propensity for war in an expressionless tone. This tone, however, does carry an accusatory inflection, clearly implying that humanity is to blame for reiterative but worsening wars. This implication becomes more sinister as the video progresses through images from war history, scenes of seemingly doomed romance, drone footage of domestic situations, and aerial views of cities. The Freestone Drone clearly acknowledges that it—the drone—is a human invention. It seems to castigate humanity for its invention, but it has the last ‘laugh’,

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<sup>359</sup> Fry, *Unstaging War*, vii.

<sup>360</sup> George Barber, “The Freestone Drone,” HD video, 12:55, 2013, United Kingdom, <https://www.vdb.org/titles/freestone-drone>. I saw the video in the Queensland Gallery of Modern Art exhibition called *Limitless Horizon: Vertical Perspective*, curated by Ellie Buttrose, 2018.

a punchline that sums up the contemporary theatre of war. As the drone serenely flies over New York, it matter-of-factly says, “I’m a bit creepy”.

## Virtual Reality and Peripheral Vision

To help understand the twenty-first century trajectory towards chaotic, black hole, immersive, cultish theatre of war, I now turn to art history. In this section, I conduct a discursive examination, starting with a return to Rosenquist, whose speed-of-light paintings I discussed in chapter two. I also return to DeLappe’s series *Virtual Paintings*, which I discussed in chapter one. I weave VR experiences and questions about peripherality and peripheral vision into my art-historically embedded examination. This weaving brings to light how art-historical paintings can inform contemporary critiques of technology and war. It also sheds light on how digital and cyber technology used by artists and art galleries can potentially ‘cast’ them into the vicissitudinous everywhere contemporary theatre of war.

In 1964–1965, against a backdrop of the Cold War and the Vietnam War, and a quarter of a century before his speed-of-light paintings, Rosenquist created a monumental 304.8 x 2621.3 cm politically charged work called *F-111* (Figure 22). I saw *F-111* at the Museum of Modern Art (MOMA) in New York, in March 2023. Hung around three walls in its own designated room, this large fifty-nine-piece artwork presented as a kind of enclosure. The MOMA hang referenced the painting’s initial exhibition at the Castelli Gallery, New York, in 1965. At the Castelli gallery, *F-111* was hung across the gallery’s four walls, leaving a space for the entry door, an aperture that ensured freedom of movement.<sup>361</sup> Additionally, the painting’s three-metre height was almost the height of the Castelli Gallery’s walls. This closeted feeling was not replicated in the high-walled MOMA space, but a sense of being surrounded was still achieved. This was helped by the fact that the two doorways into *F-111*’s room were closely adjacent to each other.

When he exhibited *F-111* at Castelli Gallery, Rosenquist wanted the viewer to feel as if they were “inside the painting”, with a sense that something was happening in their peripheral sight.<sup>362</sup> In 2023, at MOMA, the sense that something is happening in peripheral

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<sup>361</sup> Castelli Gallery installation views are available on the gallery’s website. See <https://www.castelligallery.com/exhibitions/james-rosenquist9>.

<sup>362</sup> Rosenquist with Dalton, *Painting below Zero*, 155.



sight is still evident. As I sat on a central bench or walked around the room, I found myself repeatedly turning around, trying to grasp both the enormous proportions and minutiae of the piece. If I looked at one wall, I could see the other walls in my peripheral vision. I kept returning to *F-111* over my day-long visit to MOMA. Each encounter surprised me with details I had not previously noticed. Feeling as though I was inside the painting, I experienced a sense of co-presence. This is not the same as feeling immersed, for example, by a simulated VR environment.



**This image has been removed for copyright reasons.**

Figure 22. James Rosenquist, *F-111*, oil on canvas with aluminium, 304.8 x 2621.3 cm, 1964–65. Installation in *Collection 1940s–1970s*, Museum of Modern Art, New York. Photo: Emile Askey, 2022, <https://www.moma.org/calendar/galleries/5512>.

A VR experience currently requires a head-mounted goggle-screen, which often incorporates earphones and other wearable devices. These are wired and wirelessly connected to embedded or external computer software. VR equipment and software can be triggered, for example, by a Quick Response (QR) code. Once they activate it, rather than being aware of peripherality as a constant, the VR viewer's eye and head movements are tracked, precipitating image elements to appear and disappear. Peripherality is selectively elided for the sake of a simulated immersion into a virtual world. In 2012, Virilio made a statement about augmented reality (AR) technology and its use that presciently

raised the issue of peripheral vision.<sup>363</sup> While AR is experienced in the real world via a device, such as a mobile phone, and VR is entirely experienced in a virtual world via wearable devices, Virilio draws attention to a creeping techno-elision of lateral or peripheral vision. He plainly states that “Augmented reality is a fool’s game, a televisual glaucoma. Screens have become blind. Lateral vision is very important”.<sup>364</sup> He goes on to remark that “there is a loss of visual field and the anticipation of what really surrounds us”.<sup>365</sup> This effect is particularly amplified when the screen is mounted over our eyes, integrating them into scopic VR armature. An experience with VR interpolates participant and audience roles. This interpolation is extended into further oscillating and participatory roles, including data-generating and techno-choreographing support roles, which further elide the experience of anticipating what really surrounds us. Does the virtual reality sensorised experience train the ambicitizen for their contemporary multi-role character in the theatre of war?

The absorption of the human viewer into the sensoration is visibly articulated by the VR hardware mounted on the viewer-participant’s head and face, as well as hand-held devices. DeLappe’s *Virtual Paintings* series clearly reflects how VR headdress and mask-like ‘costumes’ help perform an alienation from reality. This ‘enstrangement’ includes an uncanny alienation from people, even if they are in the same physical space. DeLappe’s paintings reveal a strange performativity that occurs when VR prosthesis-like equipment is attached to the human body. This performativity can be seen particularly in the way figures hold their heads, indicating a kind of blind stare. In contrast, my experience viewing Rosenquist’s *F-111* involved my whole body, for instance, moving back and forth from the painting to gain close and distant perspectives, and twisting my body to connect one visual element with another. Although many consider VR an enhanced experience, DeLappe’s figures expose the human–machine interface as one dictated by physical and sense inhibition and restraint.

In his *Music Festival, FOST* (2018) (Figure 23), DeLappe depicts four people inside a tent, standing on a stage-like platform.<sup>366</sup> Each person is wearing VR equipment that covers their ears and eyes. The outside world of reality and sensation is inhibited by the

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<sup>363</sup> Virilio, *The Administration of Fear*, 37.

<sup>364</sup> Virilio, *The Administration of Fear*, 37.

<sup>365</sup> Virilio, *The Administration of Fear*, 37.

<sup>366</sup> FOST refers to the Future of Storytelling (FoST), a community that includes people interested in media, technology, and communication. See more at <https://futureofstorytelling.org/fest>.

headwear, and the tent imposes a closed environment. In this environment, the sensed VR participants are wired or wirelessly connected to computers and VR-enabling software. The four people are visibly and invisibly tethered by signals to a network. Each person is surrounded on three sides by protective railings to ensure that their inhibited spatial referentiality does not cause them to fall off the stage or into each other. The staging gives the impression of a boxing or wrestling ring, usually a place of high drama. There is, however, no indication of an audience or cheering crowds, because VR participants are also the audience. In contrast, when I viewed *F-111* I needed to be aware of other people who wandered through or stayed in the gallery space. I also enjoyed watching people react, or not, to the work.



Figure 23. Joseph DeLappe, *Music Festival, FOST*, watercolour on paper, 20 x 20 cm, 2018– (ongoing), Courtesy of the artist. <https://www.delappe.net/virtual-paintings2>.

*Music Festival, FOST* invites viewers of the painting to be an audience for, even witnesses of, what could be interpreted as a revelatory microcosm of the ambiveillant theatre of war environment. The removal of external sight and sound from the human participants ironically contrasts with anthropomorphising processes that endow sight and hearing to machines. As machines are anthropomorphised, and human beings are sensed, stealthy processes of synchronisation, standardisation and homogenisation are perpetrated. Like many commentators, Gregoire Chamayou in his book *Drone Theory* (2015) fell into the entrapment of anthropomorphisation when he claimed, “Drones have not only eyes, but also ears and many other organs”.<sup>367</sup> *Music Festival, FOST* and DeLappe’s other *Virtual Paintings* subvert these kinds of claims by exposing the strangeness of human sensorisation processes, or as Mark Andrejevic calls it, the “droning of experience”.<sup>368</sup>

In *Music Festival, FOST*, DeLappe’s use of watercolour paint and his clearly evident brushstrokes defy the sensor-enabled hyper virtual reality in which the four participants are immersed. His use of translucent colour and spare brushstrokes to create the tent environment, and his more detailed rendering of the four figures, translates into a varied and uninhibited, but thoughtful, reaction. This reaction enhances the awkward inhibited stances exhibited by the sensed audience-participants. Given that DeLappe’s *Virtual Paintings* series is ongoing, since 1996, he is clearly still fascinated by observing people’s performance while connected to VR technology. The body of paintings indicates a contrary kind of satisfaction in painting human–machine interactions. I certainly feel a contrary satisfaction in viewing the paintings. I argue that contrariness, like a frisson, imbues a radical and divergent criticality that counters techno-converging influences. Here, the medium of paint, in this case watercolour, revives sensation, making it more obvious that the four VR participants are not connected to real-world sensation. The protective railings, for example, act as metaphors for a loss of physical space awareness. Viewers of DeLappe’s *Virtual Paintings* series may be witnesses of the kind of accident Virilio calls the “accident of instantaneousness, simultaneity and interactivity that have now gained the upper hand over ordinary activities”.<sup>369</sup> In his series of paintings, created across decades, DeLappe has revealed a recurring accident that gains momentum.

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<sup>367</sup> Gregoire Chamayou, *Drone Theory*, trans. Janet Lloyd (London: Penguin Books, 2015), 41.

<sup>368</sup> Mark Andrejevic, “The Droning of Experience,” *The Fibreculture Journal: Apps and Affect* 25 (2015): 202.

<sup>369</sup> Virilio, *The Administration of Fear*, 45.

The tent featured in DeLappe's *Music Festival, FOST* is reminiscent of the tent in the historical painting *Wheatstone Automatic Telegraph, Boer War*, which I mentioned in the introduction to this exegesis. Each painting represents technology and people using it in a focused manner. Daylight, visible through a folded opening of each tent, entices. However, in *Wheatstone Automatic Telegraph, Boer War*, the outside light illuminates further military zone details. In *Music Festival, FOST*, the bright light dazzles, blinding us to exteriority. The wartime aesthetic in the Boer War painting is monochromatically cast in the colour of sand, dirt, tent, and officer's uniform. This aesthetic is echoed in DeLappe's dirt-brown tent walls and floor, and the monochromatic black, white, and grey clothes worn by the four audience-participants. This uniform-like appearance is reinforced by the uniformly coloured black and white VR headsets. Dark shadows cast by the stage appear almost abyss-like. Visually anchoring the scene, perhaps the abyss is a black hole. The people on the stage, therefore, may be hovering at the edge of a black hole's event horizon.

A comparison between the Boer War painting (Figure 24), DeLappe's painting (Figure 25), a photograph taken at the 2017 FoST Festival (Figure 26), and a photograph of four Australian soldiers at a 2022 VR simulation training session (Figure 27) reveals uncanny similarities. The four images each expose the interiority of technological immersion—and the elision of externalities. The tent in three of the images can be read as a chassis, like a drone chassis housing multiple sensors that connect to one another, to other infrastructure, and to remote operators. As human beings are sensed, they become internal nodes 'housed' within the ambiveillant theatre-of-war chassis-system. Andrejevic's description of the "droning of experience" serves as an important warning.<sup>370</sup> The textural quality of the two painted images contrasts with the even flat reality of the two documentary photographs.

Placed together, these four images, two military and two civilian, clearly pose questions about militarised technology and the militarisability of civilian technology in the contemporary network-centric environment. In the three contemporary images, the mediated performativity of the sensorised human beings also reveals a sameness of stance and posture that alerts us to further aesthetic homogenising forces. Like the Freestone Drone, it is all a "bit creepy".

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<sup>370</sup> Andrejevic, "The Droning of Experience," 202.

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Figure 24 (left). Unknown Artist, *Wheatstone Automatic Telegraph, Boer War*, oil on board, 91.5 x 67 cm, n.d. Photo: Unknown. <https://artuk.org/visit/collection/royal-signals-museum-133>.

Figure 25 (right). Joseph DeLappe, *Music Festival, FOST*, watercolour on paper, 20 x 20 cm, 2018. Photo: Unknown. Courtesy of the artist. <https://www.delappe.net/virtual-paintings2>.

Figure 26 (left). Image from FoST Festival website's "Overview" page. Photo: Unknown-Melcher Media, <https://futureofstorytelling.org/fest>.

Figure 27 (right). Australian Army, Soldiers from the 3rd Battalion, The Royal Australian Regiment, trial military simulation training at Lavarack Barracks, Townsville, September 6, 2022. Photo: Brodie Cross, [http://images.defence.gov.au/20220906army8616835\\_0005.jpg](http://images.defence.gov.au/20220906army8616835_0005.jpg).

In some VR works based in art gallery or museum situations, sensors are triggered by audience-participants moving through a designated exhibition space. This was the case

with a collaboratively produced “mixed reality experience” (MR) work called *Medusa*.<sup>371</sup> I experienced *Medusa*—a combination of VR, AR, and music—at Pioneer Works, Brooklyn, in March 2023. I spent about forty minutes at *Medusa*, walking around the large Pioneer Works space, sitting on benches and on the floor. The AR element allowed some ability to be aware of other people, and objects, in the gallery space. Other visitors also moved around the space, our movements apparently contributing to the “mixed reality experience”.<sup>372</sup> Over the forty minutes, the VR’s thin, cascading vertical columns, which appeared and disappeared via my head-mounted “optically transparent glasses that overlay virtual architecture onto the real world”, became expected and therefore unsurprising.<sup>373</sup> At one point, my headset stopped working, allowing reality to re-enter my experience. As the headset would not restart with the exhibit’s signal-trigger, I was provided with another headset. Despite the disruption, the immersive experience remained mundane and repetitive, albeit clever and somewhat hypnotic. Again, could AR, MR, and VR experiences, including those considered artworks, be training grounds for the ambiveillant environment where peripheries, even imagination, are absorbed by homogenising, synchronising, standardising, and hypnotic techno-forces?

Like many places, art galleries and museums are now sensorised, not only triggering access to VR experiential exhibits, but also other systems designed for didactic, data-gathering, and security purposes. Thus, the networked participation, whether witting or unwitting, of the human gallery visitor is optimised. What happens if we think of galleries as militarised or militarise-able metaphorical ‘tents’? On my day-long visit to MOMA, I used the QR code entry point for smart device connection to hear a short explanation of *F-111*. I do not usually access information via QR codes, as I am hypervigilant about my device security. However, because I was there to research, I felt I should access all that MOMA provided, even though connectivity was not required to see or enjoy the experience of being with Rosenquist’s work. The QR code, however, is an example of how the museum or gallery visitor performs networked and datafication roles. As Caroline Wilson-Barnao remarks the “museum audience performs the work of producing data as people experience exhibits, which in turn enables the museum to respond. This shift allows museums to gain

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<sup>371</sup> Tin Drum, Sou Fujimoto, and Yoyo Munk, *Medusa*, an exhibition at Pioneer Works, Brooklyn, March 17 – April 16, 2023, <https://pioneerworks.org/exhibitions/tin-drum-medusa>.

<sup>372</sup> *Medusa*, exhibition explanation.

<sup>373</sup> *Medusa*, exhibition explanation.

a holistic look at data across different departments and use it in combination.”<sup>374</sup> This might sound like a democratising process, but it poses key security and privacy concerns.

With regard to QR codes, in January 2022, the Federal Bureau of Investigation (FBI) issued a warning “to raise awareness of malicious Quick Response (QR) codes”. They explained: “Cybercriminals are tampering with QR codes to redirect victims to malicious sites that steal login and financial information.”<sup>375</sup> This is one example of the insidiousness of contemporary theatre of war, where techno-enabled multi-actor criminal, surveillance, security, and targeting activities can potentially draw artists, art galleries, and museums into the ambiveillant loop. Once absorbed, promises of update-able security, data, and information systems maintain the loop. Here, synchronising and standardising computational mechanisms are disguised as democratic processes of access, participation, representation, and even creation.

### **The F-111 Aircraft and the MQ-28 Ghost Bat Drone<sup>376</sup>**

Rosenquist’s *F-111* depicts an F-111 military multi-role fighter bomber aircraft that extends the entire length of the work. The figure of the aircraft is intersected with various seemingly disconnected elements and scenes—for example, a cake, underwater bubbles, a young girl under a hairdryer, a tyre, an atomic bomb mushroom cloud, and ‘fields’ of spaghetti. The F-111 acts as a visual unifying factor. With the intersected elements and scenes overlaying the length of the aircraft, it also ties the era’s burgeoning military-industrial complex to impacts across 1950s and 1960s society. Rosenquist’s early experiences as a billboard painter are evident in the hard edges, expanses of colour, and realistic rendering. While photographs of *F-111* give the suggestion of a hyper-realistic work, a physical encounter with it reveals brushstrokes, paint drips, and different textures.

In his autobiography, Rosenquist remarks, “In *F-111* I used a fighter bomber flying through the flak of consumer society to question the collusion between the Vietnam death machine, consumerism, the media and advertising”.<sup>377</sup> In this way, Rosenquist engages

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<sup>374</sup> Caroline Wilson-Banao, *Digital Access and Museums as Platforms* (London: Routledge, 2021), 54.

<sup>375</sup> Federal Bureau of Investigation, “Cybercriminals Tampering with QR Codes to Steal Victim Funds,” FBI Public Service Announcement, January 18, 2022, <https://www.ic3.gov/Media/Y2022/PSA220118>.

<sup>376</sup> More information about the MQ-28 Ghost Bat drone is available at the Australian Defence Force’s RAAF website at <https://www.airforce.gov.au/our-work/projects-and-programs/ghost-bat> and the Boeing website at <https://www.boeing.com/defense/MQ-28/>.

<sup>377</sup> Rosenquist with Dalton, *Painting Below Zero*, 158.



astutely with several antecedents that characterise the twenty-first century theatre of war. These antecedents include the lure of speed, the role of war-mongered prosperity, the military-industrial complex, the influence of the media, and the rise of consumerism. While not overt, the issue of speed is nascent in Rosenquist's *F-111*. The artwork intersects with the history of military aviation research and development, particularly during the 1940s and 1950s, to fly at or exceed the speed of sound (Mach 1). In 1947, the Bell X-1 was the first aircraft to fly supersonically.<sup>378</sup> Further advances in supersonic flight were made during the 1950s, and in 1962 General Dynamics was awarded the contract to design the first iteration of the supersonic F-111.<sup>379</sup> This multi-role combat aircraft was first flown in December 1964, and in November 1966 "set a record for the longest low-level supersonic flight".<sup>380</sup> It was deployed to the United State Airforce in 1967. Rosenquist created and exhibited his *F-111* during the development of the F-111.

Rosenquist's use of the word "flak" to describe his F-111's flight path through consumer society is insightful, because in military terms the word 'flak' means anti-aircraft fire. He also describes his luridly painted spaghetti as 'flak'.<sup>381</sup> However, Rosenquist's F-111 aircraft is not destroyed by the flak of consumer society or spaghetti, and the aircraft has not caused consumer society or the spaghetti to destruct. The tension between persistent threat or attack and constant resilience is visually choreographed in a measured manner. With such a large and long painting, Rosenquist's composition allows the viewer's peripheral vision to keep details in sight. It also provides time for the viewer to think about the relentless persistence of war and its underbelly of media influence, consumerism, and the military-industrial complex.

I argue that Rosenquist's measured composition of multiple elements reveals early indications of Bousquet's twenty-first century chaoplexic warfare. This is gruesomely amplified if the spaghetti is read as a kind of disembowelment that could represent collateral damage. Or, alternatively, the spaghetti could now be seen as a homogenous goo, a metaphor for Ford and Hoskins's claim that "Reality and its representation appear to have collapsed, inverting into each other, challenging how meaning is generated and

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<sup>378</sup> Bob van der Linden, "Breaking the Sound Barrier: Chuck Yeager and the Bell X-1," National Air and Space Museum: The Smithsonian, October 13, 2022, <https://airandspace.si.edu/stories/editorial/breaking-sound-barrier-75th>.

<sup>379</sup> For more information about the F 111's history, see "F 111," Lockheed Martin, October 1, 2020, <https://www.lockheedmartin.com/en-us/news/features/history/f-111.html>.

<sup>380</sup> Lockheed Martin, "F 111."

<sup>381</sup> Rosenquist with Dalton, *Painting Below Zero*, 158.

the effects of war are to be understood”.<sup>382</sup> Another alternative parodic reading is that the spaghetti visualises the absurdity of the USDoD’s claim that the EMS is a “connective tissue”. This reading casts the contemporary theatre of war into the realms of a ‘theatre of the absurd’. An image of a fork dug into the spaghetti suggests a bizarre consumption of the disembowelled-goo-tissue. It is interesting to note that a term used to describe entangled cables is “cable spaghetti”.<sup>383</sup> These entangled cables can cause various problems, such as signal interference and dangerous airflow issues. Another term, “spaghetti code”, is used to describe unstructured, and therefore, difficult to control source code.<sup>384</sup> With “cable spaghetti” and “spaghetti code” in mind, Rosenquist’s spaghetti-flak could also metaphorically suggest that entangled infrastructure underpins the chaoplexic quagmire we now call war. These multiple interpretations of Rosenquist’s spaghetti, depicted in a painting created nearly sixty years ago, demonstrate that painting can convey a meaningful alive-ness across time.

Significantly, the F-111 bomber and anti-aircraft flak are both propelled by speed. The F-111 could fly at the speed of sound, and fired bullets can exceed the speed of sound. With hindsight, Rosenquist’s *F-111*, emblazoned with painted script US AIR FORCE, provides clues to help us understand how speed has become an increasingly important ‘director’ and ‘character’ in the contemporary theatre of war. The trajectory from the speed of sound to the speed of light is fuelled by military and defence desires and needs. It is, as Virilio notes, a conscientious establishment of an “ideology of speed, with all of the fear and terror that comes with it”.<sup>385</sup> Rosenquist’s *F-111*, however, does not initially appear to be terrifying. Viewing the work is not a shock-and-awe experience. Rather, it is an experience of—and with—unfolding details and realisations that awakens deep concerns.

In *F-111*, the depiction of an umbrella superimposed over an atomic bomb mushroom cloud presents a curious discord that prompts reflection. In 1964–1965, Rosenquist was responding to the absurdity of people sitting under umbrellas at Utah resorts where nuclear bomb tests were promoted as tourist attractions.<sup>386</sup> The umbrella acts as a sign of naivety and futility in the face of nuclear threat. Like Forensic Architecture with their work

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<sup>382</sup> Ford and Hoskins, *Radical War*, 44.

<sup>383</sup> Brief information about cable spaghetti is available at the Academic Kids website. See [https://academickids.com/encyclopedia/index.php/Cable\\_spaghetti](https://academickids.com/encyclopedia/index.php/Cable_spaghetti).

<sup>384</sup> Brief information about spaghetti code is available at the Science Direct website. See <https://www.sciencedirect.com/topics/computer-science/spaghetti-code>.

<sup>385</sup> Virilio, *The Administration of Fear*, 43.

<sup>386</sup> Rosenquist with Dalton, *Painting Below Zero*, 159.

*Cloud Studies*, Rosenquist reveals the atomic mushroom cloud as not only a literally toxic cloud, but a sign of toxic geopolitical grandstanding. Futility is enhanced if the spaghetti-sky above the umbrella is read as a maggoty disembowelment. The umbrella and spaghetti-sky could now be considered signs of a nihilistic and militarised theatre of the absurd. Here, the creepiness of Barber's Freestone Drone is now macabrely embroiled with absurdity. In the contemporary age of speed, AI, and increasingly autonomous systems, my contrary, speculative, and radical propositions provoke important questions about human and planetary protection, war, and technology, now and into the future.

Futility also hovers in the image of a young girl under a hairdryer. Rosenquist describes her as "really the pilot of the plane, just as middle-class society was really the momentum behind the plane".<sup>387</sup> Here, Rosenquist was critical about wealth generated by the production of the "death-dealing" F-111.<sup>388</sup> As Rosenquist notes, the hairdryer has two metaphorical readings: a pilot's helmet and a bomb.<sup>389</sup> The word QUEEN is painted on the front of the hairdryer-helmet-bomb. The meaning is ambiguous, but the prettiness of the little girl might suggest that when she is older, she could be a prom queen. This interpretation reinforces Rosenquist's critique of middle-class dreams of military-industrial-generated prosperity, and its accompanying entitlements and accoutrements. In 2023, in an era of unmanned drones, remote piloting, and autonomous flying functions, the child-pilot continues to prompt questions about who or what is piloting contemporary military aircraft.

Rosenquist's *F-111* inspired me to create a large multi-piece painting called *MQ-28 Ghost Bat* (2022–2023) (Figure 28). I have referenced the Ghost Bat drone in several paintings, but this large work directly responds to Rosenquist's *F-111*. The development of the Ghost Bat drone, previously called the Loyal Wingman, is a collaboration between Boeing and the RAAF.<sup>390</sup> My painting is not as large as *F-111*, however, I tried to keep it proportional at about a fifth of the size and with half the number of pieces.<sup>391</sup> I did this as a reference, rather than an homage, to *F-111*. More significantly, I sought the challenge of creating a

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<sup>387</sup> Rosenquist with Dalton, *Painting below Zero*, 160.

<sup>388</sup> Rosenquist with Dalton, *Painting below Zero*, 160.

<sup>389</sup> Rosenquist with Dalton, *Painting below Zero*, 160.

<sup>390</sup> More information about the MQ-28 Ghost Bat drone is available at the Australian Defence Force's RAAF website at <https://www.airforce.gov.au/our-work/projects-and-programs/ghost-bat>. Also see "MQ-28 Ghost Bat," Boeing, accessed April 28, 2023, <https://www.boeing.com.au/products-services/Research%20&%20Technology/boeing-airpower-teaming-system.page>.

<sup>391</sup> Rosenquist's work is made up of 59 pieces. I have used 28 rectangular or square pieces, plus a couple of circles to denote a fraction, i.e., half of 59 is 29.5.

multi-piece work. This challenge presented practical problems and aesthetic questions. Practical issues included decisions about type of surface and how to aggregate different sized pieces. Aesthetic questions related to how to draw upon this project's earlier paintings in ways that used the multi-piece format as an opportunity to experiment with the kinds of visual junctures, surprises, and metaphors evident in *F-111*. As is often the case in creative painting practice, aesthetic challenges collided with practical issues. These were amplified because, unlike *F-111*, I planned that *MQ-28 Ghost Bat's* pieces could be rearranged. The possibility of rearrangement speaks to rapid technological and geopolitical changes in the contemporary age.

Like Rosenquist's creation of *F-111*, my creation of *MQ-28 Ghost Bat* has occurred during the drone's development. Its first test flight occurred in 2021. Like the F-111 in 1964–1965, the Ghost Bat drone, a multi-role aircraft, is also considered a gamechanger. The F-111 was the first military aircraft in history to perform multiple roles, for example, bombing, reconnaissance, and electronic warfare.<sup>392</sup> The Ghost Bat drone is Australia's first military aircraft developed in fifty years.<sup>393</sup> It is "designed to fly autonomously alongside crewed aircraft, including fighter jets, the first-of-its-kind system deploys fighter-like abilities and performs a range of missions".<sup>394</sup> The Ghost Bat drone is swarm-able, its interchangeable nose cones enabling multiple payloads, including munitions, across a swarm.



Figure 28. Kathryn Brimblecombe-Fox, *MQ-28 Ghost Bat*, oil on 30 interchangeable canvas boards, 61 x 500 cm, 2022–2023.

Unlike the side view of the F-111 aircraft in Rosenquist's painting, the large Ghost Bat drone in my painting does not extend the length of the work. Rather, its frontal armature, painted on one moveable piece, confronts the viewer. The drone hovers as if watching, maybe even targeting. Painted in shades of blue, the drone appears like a ghost in the dark. This references the Australian cave-dwelling ghost bat mammal, after which the

<sup>392</sup> Lockheed Martin, "F 111."

<sup>393</sup> Boeing, "MQ-28 Ghost Bat."

<sup>394</sup> Boeing, "Uncrewed but Not Alone: Meet the Team Who Empowers the Loyal Wingman to Fly on its Own," *IQ Innovation Quarterly* 5, no. 8 (2021): 6, <https://www.boeing.com/resources/boeingdotcom/features/innovation-quarterly/iq-2021-q3-4.pdf>.

drone is named. The ghost-like hovering of the drone in my painting was also influenced by Atef Abu Saif's diary of the 2014 Gaza War, *The Drone Eats With Me: A Gaza Diary* (2014).<sup>395</sup> While the drones Saif refers to are not Ghost Bat drones, his description of walking at night knowing that "at least one drone is always up there, hiding among the constellations" is haunting.<sup>396</sup> The contemporary theatre of war's shadows harbour 'ghostly' ghoulish characters.

Unlike Rosenquist, I chose not to superimpose other images over the Ghost Bat drone. Rather, the unimpeded view of the drone within a multi-piece painting indicates the increasingly central techno-colonising role that drones play in the ambiveillant theatre of war. Like *F-111*, *MQ-28 Ghost Bat* offers an array of visual metaphors for the viewer to contemplate. Painted pixel-like squares indicate digital-imaging capabilities, prodding questions about virtual reality or fake AI-generated imagery. Various pieces depict painted binary code 'instructing', DRONE, PILOT, and question marks. To replace Rosenquist's child-pilot, and to indicate autonomy and surveillance, I have painted 'AI' in red on a night-vision green painted circular piece. This choice continues Rosenquist's questioning of who or what controls not only aircraft, but also the military-industrial complex. In his autobiography, Rosenquist remarks that the F-111 aircraft's development was a "lapse in ethical thinking".<sup>397</sup> The question marks painted in binary code (00111111) in *MQ-28 Ghost Bat* also prompt questions about a plethora of ethical issues associated with accelerating developments in militarised and militarise-able technology. They are also pleas for more critics of the contemporary theatre of war.

### **On the Edge of Being**

While I was thinking about this chapter, but before I wrote it, I created two paintings, *On the Edge of Being* (Figure 29) and *Where's the Beating Heart?* (Figure 30), both in 2022. Like my other paintings, these paintings were inspired by research and reading, which I admit, causes melancholic thinking about the state of humanity and the world. While my speculative re-conceptualisations and re-visualisations of the contemporary theatre of war extend Gregory's notion of the "everywhere war" into time, speed, and the future, I also see the everywhere war inside us. What if this internalised theatre of war is projected onto

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<sup>395</sup> Atef Abu Saif, *The Drone Eats With Me: A Gaza Diary* (Great Britain: Fasila, 2015).

<sup>396</sup> Saif, *The Drone Eats with Me*, 225.

<sup>397</sup> Rosenquist with Dalton, *Painting Below Zero*, 154.

our world, and in a perfect ambigrammatic loop is projected back into us? Perhaps this is a sign of Virilio's observation that "We are facing the emergence of a real, collective madness reinforced by the synchronization of emotions".<sup>398</sup> As ambicitizens with multiple witting and unwitting roles to play in the contemporary theatre of war, maybe we are all mad, but we do not realise it.

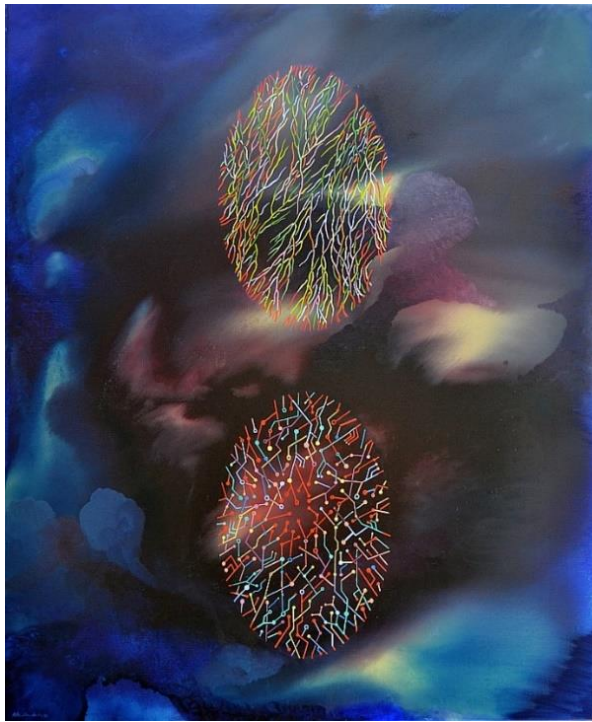


Figure 29 (left). Kathryn Brimblecombe-Fox, *Where's the Beating Heart?*, oil on linen, 112 x 92 cm, 2022.  
Figure 30 (right). Kathryn Brimblecombe-Fox, *On the Edge of Being*, oil on linen, 112 x 92 cm, 2022.

With an imaginal metaveillance perspective, *On the Edge of Being* and *Where's the Beating Heart?* burrow into the human psyche, suggesting that the contemporary theatre of war is a battle not only for mortal survival, but also the survival of human being-ness, even sanity. In both paintings, I play with ambigrammatic visual ploys, mirroring the branching character of vascular, river, or arboreal systems with the branching patterns of computer circuitry, neural networks, or computer programming. A tension between the natural world and the synthetic world of computation is possibly the essence of the contemporary theatre of war. I was thinking about this when I painted the fiery red section that divides the two types of trees in *On the Edge of Being*. While the fiery red could be a bloodied battlefield, it could also be a sign that tension may bring forth a fertile future. I

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<sup>398</sup> Virilio, *The Administration of Fear*, 75.

propose that painting's independence from the computational system allows the indulgence of hope.

This tension between the natural and computational worlds is inscribed into how the EMS, a natural resource, is harnessed to enable and fortify the ambigrammatic computational environment that fosters the contemporary theatre of war. This speculative, but informed, insight reinforces my argument that the EMS is both the elemental stage and the elemental character of the contemporary theatre of war. Here, the EMS-elemental stage could be regarded as the natural world, and the EMS-elemental character the synthetic world. This conceptualisation of the contemporary theatre of war highlights why this research project's examination of increasing military interest in the EMS is timely. As Ford and Hoskins remark, "defining what counts as war is highly complex".<sup>399</sup>

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<sup>399</sup> Ford and Hoskins, *Radical War*, 141.

## Conclusion

How, perhaps, might a painting be made in order to evade the fate of being a singular mode of coherence?

Matthew Fuller and Eyal Weizman, *Investigative Aesthetics*, 2021

### Painting, Paintings, and Paying Attention

This project has examined creative painting practices, processes, and outcomes of visualising normally invisible EMS-enabled facilitations of contemporary militarised and militarise-able civilian technology. In doing so, I have identified key concerns associated with the under-researched issue of increasing military interest in the EMS. The preceding chapters clearly indicate that creative painting practice and paintings can, therefore, provoke novel speculations and questions that contribute to critical discussions about war and technology, now and into the future. In an age of accelerating technological developments, particularly in AI, the combination of creative painting practice with imaginal metaveillance positions technologically unaided human creative activity and imagination as important epistemological and critical modalities. If we pay attention, paintings created by a human being can be viewed as visual devil's advocates, technologically independent disruptors that offer a critical ballast in debates regarding human-machine relationships.

The significance of research that positions human creative painting practice and human imagination as creative and critical methods to scrutinise contemporary technology is clearly timely. This timeliness is reinforced by the fact that, as I finish this project, access to and use of generative AI tools are exploding across an array of human activities, including cultural production. Crucially, this project's examination of issues associated with EMS-reliant military and civilian technologies and systems provides perspectives that incisively intersect with concerns about generative AI. In an age where technological issues are normally addressed with further technological inputs, this project disrupts looping techno-referentiality by offering additional and divergent avenues to critically think about technology, including AI. I propose that divergence is relevant when attempting to foreshadow, for example, unintended consequences, aberrant use, and accidents. Divergent practices and thinking are particularly important in an age where techno-speed's



efficacy demands the kinds of synchronisation and standardisation of systems that elide divergence.

The military lens casts AI-generated imagery and text within the purview of information and network-centric warfare, geopolitical exploitation, and societal instability. In June 2023, Scharre warns that generative AI's "general-purpose abilities make these models inherently dual-use, with both civilian and military applications".<sup>400</sup> It is piercingly ironic that an examination of human painting practices and imagination, as methods to critique EMS-enabled technology, have perceptively identified increasing dual-use capabilities and the militarise-ability of civilian technology as major concerns. Imaginational metaveillance approaches have also identified creeping normalisation of dual-use and militarise-able devices and systems as foundational for concerns that are now becoming more apparent.

Together, imaginational metaveillance and painting create an independent space for a revelatory overview that exposes how normally invisible signalic connectivity facilitates creeping normalisations of techno-colonisation. As I conclude this exegesis, an imaginational metaveillance overview of my written and visual research garners further insights. For example, the cloud metaphor is one of the key threads that 'floats' across the body of paintings I have created, and this exegesis. I invoked Ruskin's idea of plague-winds and plague-clouds to conceptualise and visualise increasing military interest in the EMS as a plague-wind that contaminates our contemporary techno-cloud. I connected environmental and political toxicity exposed in Forensic Architecture's *Cloud Studies* with Rosenquist's depiction in *F-111* of an atomic bomb mushroom cloud. After painting multiple visualisations that expose the normally invisible mechanisms of techno-colonisation, I suggest that toxicity continues as generative AI use and deployment also mushrooms, at speed, very much like a plague-cloud. In an everywhere theatre of war environment where technological dual-use is pervasive, a mushrooming AI-bellowed plague-cloud increasingly threatens positive uses of technology. In our contemporary theatre of war, the threat of militarisation is performed by both witting and unwitting actors across civilian and military arenas.

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<sup>400</sup> Paul Scharre, "AI's Gatekeepers Aren't Prepared for What's Coming," Center for a New American Security, June 19, 2023, <https://www.cnas.org/publications/commentary/ais-gatekeepers-arent-prepared-for-whats-coming>.

Like canaries in a coal mine, I propose that my observations of techno-induced aesthetic and behavioural homogeneity—liminal fissures and emergent tensions—are signs of what researchers are now calling a potentially impending “model collapse”.<sup>401</sup> A recently published technical article by British and Canadian researchers describes model collapse as a process that is “universal among generative models that recursively train on data generated by previous generations”.<sup>402</sup> However, as I noted in chapter one, code that allows infinite loops is not a good programming practice because it can result in programs crashing.<sup>403</sup> Infinite looping, which Hofstadter calls “free looping”, is “dangerous because the criterion for abortion may never occur”.<sup>404</sup> Generative AI’s process of looping back on itself, to scrape from a pool of content increasingly filled with its own productions, is potentially a kind of “free looping”. I offer ‘techno-autovampirism’ as a term that encapsulates the increasingly bizarre and rapid trajectory of generative AI technology. While bizarre, if scrutinised via an ambigrammatic lens, it can be read as a necessary function for the ambiveillant theatre of war’s continued operation—and it is therefore inevitable.

## Timely Speculation

By offering multiple critical, informed, and technologically unaided perspectives of increasing military interest in the EMS, this project’s painted visualisations likewise represent independent counterpoints to “inherently dual-use” generative systems and their proliferating productions.<sup>405</sup> This potential clearly demonstrates why this research project’s informed speculative approach is both valuable and timely. It shows how human-created written and visual speculations and methodologies can be adapted to probe not only current concerns about militarised and militarise-able technology, but also emerging and future concerns. This adaptability addresses Fuller and Weizman’s question, which I quoted as the epigraph to this conclusion: How, perhaps, might a painting be made in

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<sup>401</sup> Examples of two articles in mainstream publications are Carl Franzen, “The AI Feedback Loop: Researchers Warn of ‘Model Collapse’ as AI Trains on AI-Generated Content,” *VentureBeat*, June 12, 2023, <https://venturebeat.com/ai/the-ai-feedback-loop-researchers-warn-of-model-collapse-as-ai-trains-on-ai-generated-content/>, and Petra Stock, “Degenerative AI: Researchers Say Training Artificial Intelligence Models on Machine-Generated Data Leads to Model Collapse,” *Cosmos*, June 16, 2023, <https://cosmosmagazine.com/technology/ai/training-ai-models-on-machine-generated-data-leads-to-model-collapse/>. A technical article is Iliia Shumailov et al., “The Curse of Recursion: Training on Generated Data Makes Models Forget,” *ARXIV*, updated May 31, 2023, <https://arxiv.org/pdf/2305.17493.pdf>.

<sup>402</sup> Iliia Shumailov et al., “The Curse of Recursion,” 5.

<sup>403</sup> TechTerms, “Loop.”

<sup>404</sup> Hofstadter, *Godel, Escher, Bach*, 149.

<sup>405</sup> Scharre, “AI’s Gatekeepers Aren’t Prepared for What’s Coming.”

order to evade the fate of being a singular mode of coherence?<sup>406</sup> I take the authors' cautionary comment as a warning against didacticism, and the influence of what Bridle calls "computational thinking", and its link to what he calls "militarised computation".<sup>407</sup> A "singular mode of coherence" suggests an answer; however, as I have noted, I aim to provoke questions, not to provide answers.

While I make a contentious proposition, it is important to note that digital and AI technologies could be described as computational answering mechanisms, albeit very sophisticated ones. As they scope archived digital data, they essentially rely on the past to generate outcomes triggered initially by prompts. This occurs at the same time as they contribute data, in a loop, back into the archive. Answers piled upon other answers ultimately fuel processes of homogenisation. Where will independent questions come from? At this critical juncture, I will offer an emphatic answer: from research projects such as this one.

As Ford and Hoskins aptly observe, the "digital archive has become the epicentre of Radical War, the place where individuals are folded into a myriad of potentially unlimited data manipulations".<sup>408</sup> This project's examination of hands-on human painting practices and human imagination, as creative and critical methods to investigate militarised technology, provide ways to disrupt reiterative looping connections to the past. Imagination and wonder, coupled with painting, expand the connection with time across the past and the present, as well as into the future. While a painting is not durational, like a video, a painting can stimulate wonder, which can lead to imaginal time travel. By not looping digital data back into the digital archive, painting and other hands-on creative practices can metaphorically break potentially dangerous free-looping processes.

In this exegesis, I have discussed a number of my paintings. These paintings are inspired by a series of challenges associated with thinking about increasing military interest in the EMS. Creative practice has elicited multiple ways to meet these challenges, which means that although an inspirational thread runs through my body of work, each painting can be interpreted in multiple ways, again avoiding the "fate of a singular mode of coherence".

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<sup>406</sup> Fuller and Weizman, *Investigative Aesthetics*, 172.

<sup>407</sup> Bridle, *The New Dark Age*, 34, 29.

<sup>408</sup> Ford and Hoskins, *Radical War*, 30.

DeLappe also avoids this fate by cross-referencing his own work with a meta-analytic approach that incorporates different mediums, including painting.

As a result of my research, and my thinking about creative practice and human imagination, I argue that in the twenty-first century, artists of all kinds benefit from critically appraising why and how they use their chosen medium, or mediums. The publication for artists *Making AI Art Responsibly: A Field Guide* speaks volumes about ethical, moral, and legal considerations confronting contemporary artists, particularly those who use connected digital and cyber technology, including AI.<sup>409</sup> In the wake of the 2021 non-fungible token (NFT) hype, and in the midst of the 2023 generative AI hype, heated debates about art, and being an artist, proliferate. I see the binary debates about whether AI-generated images are art or not as emblematic of an ambigrammatic environment, where nuance is elided. A more productive perspective, which I argue deserves further research, is to discuss whether image and textual content generated by AI can be called cultural product, rather than art or creative product. This kind of interrogation would open debates to broader concerns, including aspects of inherent dual-use.

### **What Is at Stake?**

What is at stake if debates are not broadened? At this point, I again reference Der Derian's use of hyphens as visual channels of "mimetic power", to suggest that a Techno-Industrial-Military-Political-Entertainment-Corporate-Cultural-Network (TIMPECC-Net) is developing. This EMS-enabled 'net' poses a multitude of dilemmas. For example, how can human beings *be* in an environment potentially dominated by the mechanisms of techno-mimesis? This is a particularly poignant question if techno-mimesis is interpreted as a form of programmed deception.<sup>410</sup> Keeping this in mind, I ask: If technology is designed to mimic us, sensor-anticipate our needs, but also exceed our capabilities, how is human being-ness affected? Questions relating to techno-mimesis and human being-ness are issues I plan to pursue further.

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<sup>409</sup> Saltz, Coleman, and Leibowicz, *Making AI Art Responsibly*.

<sup>410</sup> I am informed here by roboticist Ron Arkin from Georgia Tech, USA. I heard him speak at a few events about deception and robots when he was on sabbatical leave at the Queensland University of Technology (QUT) and Commonwealth Scientific and Industrial Research Organisation (CSIRO), June 2017 – June 2018. I heard him speak several times at QUT, and once at a seminar in the School of Engineering at The University of Queensland. This short video provides some information: Age of Robots, "Dr Ronald Arkin Interview", YouTube video, 6:40, September 9, 2017, <https://www.youtube.com/watch?v=SYSX5nqydJs>.

Important questions about human being-ness also bring me to a linked issue, which I have already mentioned in this exegesis. The issue revolves around human tendencies to anthropomorphise and animalise technology, for example, by ascribing sentience to an AI system, vision to a drone, and calling robotic quadrupeds ‘dogs’. My ideas of ambiveillance and the ambicitizen, differentiating between human sensing and device sensing, and replacing vision with the word ‘scoping’ to describe imaging technology, raise critical awareness. I argue that neologisms such as “ambiveillance”, “scopophilic necro-intimacy” and “sensation” are necessary mechanisms to shift perspectives. They also offer lenses for my further research, which, I argue, is not just necessary but urgent.

While human beings have anthropomorphised technology in the past, it is increasingly important to examine whether our tendencies to anthropomorphise and animalise expose us to potentially dangerous and misleading fantasies about human–machine relationships. As we all play multiple roles in the contemporary theatre of war, fantasies such as militarised imaginations stirred by future-of-war rhetoric also have roles. Here, Hu’s 2015 warning that the techno-cloud induces “cultural fantasies about security and participation” perceptively discloses conditions for perpetual ‘casting’ into the ambiveillant theatre of war.<sup>411</sup>

As I proposed at the end of chapter three, if the everywhere theatre of war is projected from within us, to beyond us and back again, the endless looping reveals a metaphorical black hole, a fake fantasy. Like a robot programmed to mimic empathy, fake fantasies are perpetuated by deception. If light-speed EMS-enabled connectivity, interconnectivity, and interoperability exceed the pace of politics, policy, law, and planning, Clausewitz’s claim that “war is a mere continuation of policy by other means” is no longer tenable.<sup>412</sup> What happens if we think about war as the continuation of fantasy by other means?

In an increasingly pervasive dual-use world, if speed is a defining, if not *the* defining, characteristic of contemporary war, it is also the defining characteristic of a technologically reliant civilian world. Civilian–military boundaries are blurred by speed and a shared reliance on the EMS. The spawning of hybrid modes of war—such as information, remote, grey-zone, network-centric, and cyber warfare—is the outcome and evidence of blurred boundaries. As the war in Ukraine has demonstrated, kinetic warfare is now interpolated

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<sup>411</sup> Hu, *A Prehistory of the Cloud*, XVI.

<sup>412</sup> von Clausewitz, *On War*, Book I, Chapter I, section 24.

into an array of technological EMS-enabled force-multiplying systems and processes that connect and interconnect at nearly the speed of light. If, as I propose, speed is considered as both a weapon and a purveyor of weaponry, the use of AI to mitigate against slower human reactions poses multiple issues that require further research. While questions that revolve around issues including the loss of human jobs, and who or what takes responsibility, are important, an imaginal metaveillance view places speed itself in the spotlight.

If, as Virilio warned, speed is a “destiny”, a “cult”, it becomes fantasy-omen, like Marinetti’s 1909 proclamation of “eternal, omnipresent speed”.<sup>413</sup> By placing speed itself at the centre, issues such as blurriness caused by speed operating beyond human dimensions can be examined. Is blurriness paradoxically the reason we are not paying attention to speed as a martialise-able phenomenon, a form of weaponry? As I proposed in chapter two, additional research questions that focus on speed as a perpetrator of negative human outcomes will address the implications that speed poses to IHL, and how speed can or cannot “maintain some humanity in armed conflicts”.<sup>414</sup>

In a June 2023 interview about AI and his book *Gödel, Escher, Bach*, Hofstadter provides sobering insights into what is at stake in a world of speed.<sup>415</sup> While he does not dissect the issue of speed itself, he laments the speed of technological developments and the speed of computational and AI operation. He comments that he had previously thought some current advances were hundreds of years away.<sup>416</sup> He talks about advancing technologies as a “tidal wave that is washing over us at unprecedented and unimagined speeds”, which he finds “quite terrifying”.<sup>417</sup> Here, I suggest, an accelerating ‘tidal wave’ could metaphorically be described as a condition causing blurriness, enhanced by terror. Hofstadter goes on to say that “accelerating progress has been so unexpected”, and that he and many others have been caught completely “off-guard”.<sup>418</sup>

Ironically, by translating Hofstadter’s idea of the ambigram to conceptualise an ambigrammatic environment, this project offers insight into why “accelerating progress has

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<sup>413</sup> Marinetti, *The Futurist Manifesto*.

<sup>414</sup> ICRC, “The Laws of War in a Nutshell.”

<sup>415</sup> Game Thinking TV, “Gödel, Escher, Bach Author Doug Hofstadter on the State of AI Today,” YouTube video, 37:55, June 30, 2023, <https://www.youtube.com/watch?v=lfXxzAVtdpU>.

<sup>416</sup> Game Thinking TV, “Gödel, Escher, Bach Author Doug Hofstadter,” 28:33.

<sup>417</sup> Game Thinking TV, “Gödel, Escher, Bach Author Doug Hofstadter,” 28:39.

<sup>418</sup> Game Thinking TV, “Gödel, Escher, Bach Author Doug Hofstadter,” 32:33.

been so unexpected". As peripheries are absorbed into the ambigrammatic environment's light-speed (or near light-speed) propelled loop structure, not seeing or sensing the unexpected is an outcome of losing lateral vision. Virilio's comment that the "faster we go, the more we look ahead in anticipation and lose our lateral vision" implicates speed as a force that narrows vision, mutating it into a kind of scoping.<sup>419</sup> As I have suggested, vision is not just about seeing with an eye; human vision also includes 'seeing' in our mind's eye, imagination, dreaming, and visionary thinking. Narrowed vision is, therefore, an elision of the kinds of human sensibilities that might sense signs of the unexpected. The issue of speed is not unexpected for some, including Virilio.

If Virilio's warnings, made decades ago, about the speed of technological development and speeds of technological operation had been understood as core concerns, and incorporated into risk analyses, would the contemporary world be experiencing Hofstadter's description of a techno-tidal wave? If Virilio's observation that "the cult of speed" is a form of propaganda disguised as progress, would Hofstadter's fears of "accelerating progress", rather than being "unexpected", be anticipated and addressed?<sup>420</sup> These are difficult questions to answer. I point out, however, that informed cross-disciplinary and creative research projects, like this one, offer significant perspectives and divergent insights that could stimulate much-needed critical lateral vision. For this reason, the issue of speed will be an ongoing research area for me.

Harnessing the EMS enables an array of militarised and militarisable systems and technologies. As these technologies incorporate more autonomous functions, how will we know who cares? When speed operates beyond human dimensions of time and space, how will we even notice that we should care? How will we react to robots that, for example, mimic empathy? I argue that human creative painting practices and imagination can hold contemporary technology, and the politics that surround it, to account. This is an act of human caring. If we lose sight of this kind of sentient agency in the blurriness of our techno-colonised environment, Major Casey offers us a poignant reminder when he remarks that the "EMS knows no limits and the photons do not care" (Figure 31).<sup>421</sup>

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<sup>419</sup> Virilio, *The Administration of Fear*, 36–37.

<sup>420</sup> Virilio, *The Administration of Fear*, 38.

<sup>421</sup> Casey, "Cognitive Electronic Warfare."

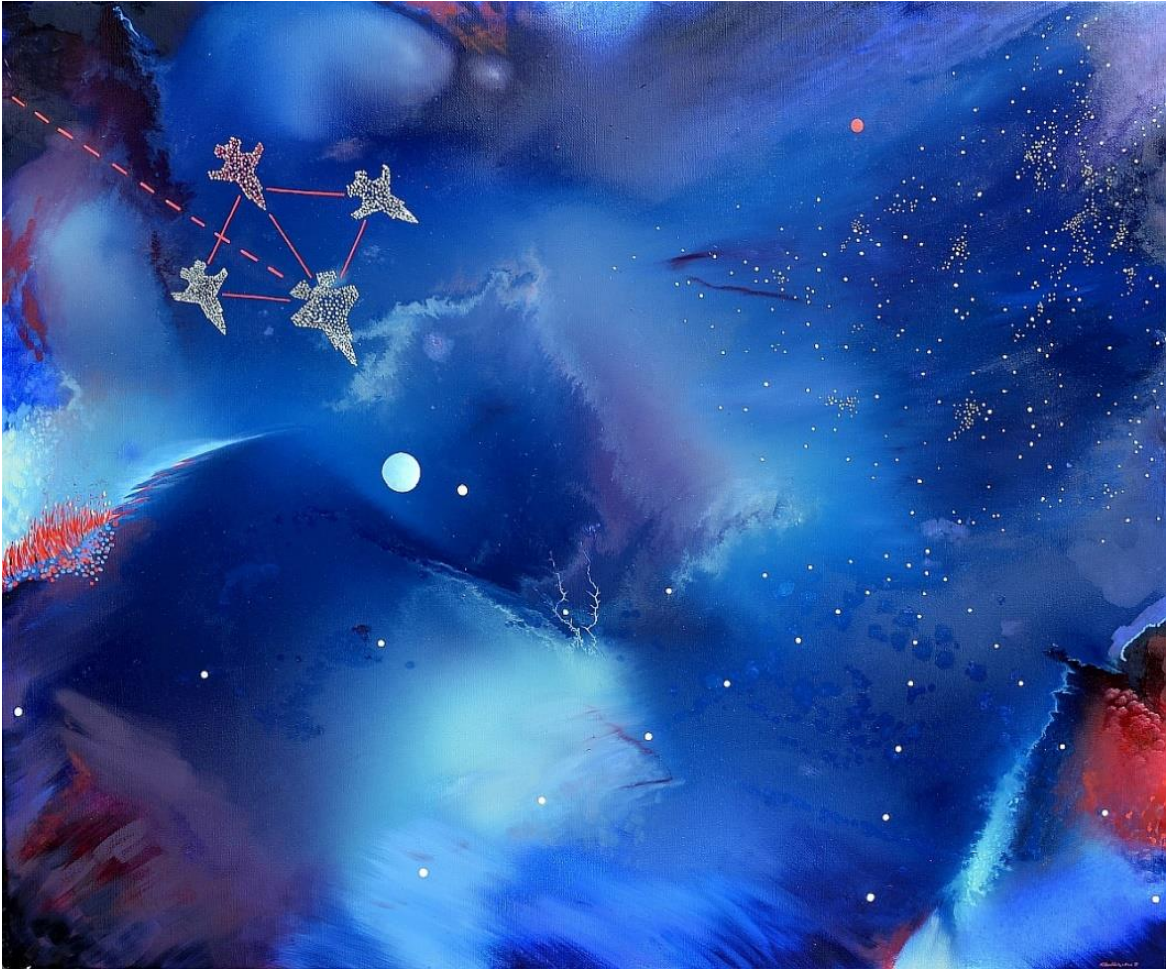


Figure 31. Kathryn Brimblecombe-Fox, *Theatre of War: Photons Do Not Care*, oil on linen, 92 x 112 cm, 2021.



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## **APPENDIX**

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