Unruly Encounters: Re-staging Images of Drone Warfare through an Embodied Art Practice

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I wish to thank my friends, research colleagues and family for helping me to see sense.

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Abstract

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This practice-based research centres upon censored operative images uploaded to YouTube by the UK and US militaries. These images present drone warfare as disembodied, clean and precise. Through theoretical research and a fine art practice of writing, video, sculpture and installation, the project develops a response to the central question of the thesis: how can art practice create an embodied encounter with these military drone images?

Employing and recalibrating Donna Haraway's theory of 'situated knowledges and partial perspectives', the research engages with a range of methodological concerns; embodiment, fictioning, posthuman assemblages and new materialism. The generation of this research methodology has been iterative; each of the four bodies of practice-based research assimilated appropriate and useful concerns from the previous one. These decisions were reached through critical reflection enabled by the installation and public exhibition of the work, theoretical research and an ongoing dialogue with other artists working in the field.

The hybrid and experimental nature of the practice engenders experiential sensory modes of encountering the re-staged images in an installation-based setting. In these encounters, the vulnerability of human and non-human bodies, materials, spaces, technical processes and sounds also emerge as markers of their agency, interrupting the ideology of technical precision and bodies as calculative entities. These vulnerabilities registered through subtle human and non-human frictions and resistances in the practice-based research generate unruly experiential registers with bodies resisting categorisation and establish an embodied encounter with the restaged operative image. Artistic production in this context opens momentary disruptions in the perception of bodiless and technically precise warfare propagated through these images online, creating the conditions for a relational response. Through exploring multiple instantiations of vulnerability, the research contributes an embodied, decentred feminist methodology and a body of artistic practice that intervenes in techno-scientific modes of visualising employed by the military and which have become prominent in art practice concerned with drone warfare.

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Introduction

Opening

In 2015 I came across a number of YouTube channels uploading content from military drone strikes. I was shocked to see that the United Kingdom (UK) Ministry of Defence (MoD), the Royal Air Force (RAF) and the United States Central Command (US CentCom) were uploading short, edited videos of strikes to YouTube playlists with titles such as Operations and #DefeatingDaesh. A military drone is often described as a 'remotely operated Unmanned Aerial Vehicle (UAV)' and 'autonomous', yet as geographer and military war theorist Derek Gregory points out, 'to describe them as "unmanned" is misleading, however, because while a UAV does not carry a pilot, the system is operated and supported by several hundred personnel'.[1] Similarly, as many scholars have pointed out, the rhetoric of 'autonomy' arguably removes any human, moral and ethical dimension.[2] My reaction beyond the initial shock at seeing these moving images online was to contemplate the beauty in the dusty explosion clouds, yet simultaneously their familiar sense of technicality. In addition, what I found compelling were the conflicting visual and linguistic signifiers. The images characterised film theorist Paula Amad's description of aerial reconnaissance images as 'enigmatic' and 'wayward' and historically dependent on a 'textual supplement' to determine their meaning.[3] On the one hand, the videos appeared as low resolution, pixellated and ambiguous moving images. On the other, the structural and linguistic framework of the targeting cross hairs and captioning implied a technical ideology of exactitude, clarity and an unequivocal relationship to fact.

Further research revealed that many other militaries such as the Israeli Defence Force, the French Armée de l'Air and the Russian Ministry of Defence were also uploading similar videos to their channels, among the thousands of news, media and propaganda channels also uploading, sharing and promoting this and other types of conflict related material. Unlike many of those videos, however, it was the ideology associated with this particular content, mandated by official western governmental institutions, the US Department of Defence and the UK Ministry of Defence, that I found most provocative. In the leaked US

1   Derek Gregory, 'From a View to a Kill: Drones and Late Modern War', *Theory, Culture & Society* 28, no. 7–8 (December 2011): 207.
2   Peter Adey, 'Making the Drone Strange: The Politics, Aesthetics and Surrealism of Levitation', *Geographica Helvetica* 71, no. 4 (November 2016): 324 and Nina Franz and Moritz Queisner, 'The Actors Are Leaving the Control Station. The Crisis of Cooperation in Image-Guided Drone Warfare', in *Image — Action — Space*, ed. Luisa Feiersinger, Kathrin Friedrich, and Moritz Queisner (Berlin, Boston: De Gruyter, 2018), 132. An analysis of how robotic technology acts autonomously in weapons systems' decision making capacities is beyond the scope and focus of this research.
3   Paula Amad, 'From God's-Eye to Camera-Eye: Aerial Photography's Post-Humanist and Neo-Humanist Visions of the World', *History of Photography* 36, no. 1 (February 2012): 83.

military video now known as Collateral Murder published (and edited) by Wikileaks,[4] bodies can clearly be seen in the operative images of the Apache helicopter gunsight footage. Operative images are functional in nature rather than solely representative, in this case used for the active targeting of weapons.[5] According to Wikileaks, over a dozen people were killed in the strike, including a number of children and two Reuters staff.[6] Yet nowhere in the images I was watching online could the bodies of those living and dying under drones be seen. In this thesis, when I refer to bodies living and dying under drones, I am referring specifically to people who are subjected to oppressive military aerial and drone regimes. The videos I am concerned with on YouTube are primarily referring to military interventions in Iraq, Afghanistan, Syria and Libya; however, I also refer to covert military operations in countries such as Somalia and the formerly semi-autonomous region known as the Federally Administered Tribal Areas (FATA) of Pakistan.[7]

I am in the habit of printing out images and sticking them up on my studio wall. Encountering them in this way allows me to live with the images and contemplate them slowly. Having trained and worked for a couple of years as a therapy radiographer, the thermal images of the strike resembled the radiographic image, both in their grey-scale aesthetic and the visual signifiers of technicality; cross hairs for example. The careful attention to captioning also resembled the meticulous labelling of radiographic images. Following my short-lived career in radiography, I studied fine art printmaking for six years, both at undergraduate and masters level.[8] This grounding in a practice that is concerned with the intertwined nature of the material, representative and signifying capacities of an image, undoubtedly also informed my response. As an artist, my practice primarily consisted of printmaking and sculptural reliefs and it was through these haptic visual practices that I envisaged researching how an art practice could create an embodied experience with these censored images. Haptic visuality, according to media theorist Laura U. Marks, is when 'the eyes themselves function like organs of touch'.[9] My doctoral research takes these online uploads of operative images of military drone strikes by the agencies of the United States and United Kingdom's militaries as the material and conceptual starting point. This thesis is directly addressing these operative images published by the US

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4   It is important to note that the shortened, edited version of this video, (available at https://collateralmurder.wikileaks.org/) was publicly released. The fact that it was edited was criticised by the US military and certain US media groups. The full length and edited version are both available at this website link. See Christian Christensen, 'WikiLeaks, Transparency, and Privacy: A Discussion with Birgitta Jónsdóttir', *International Journal of Communication*, no. 8 (2014): 2558–2566.
5   In Chapter 1, I will describe and analyse these types of images in detail, drawing on filmmaker Harun Farocki and media theorists Aud Sissel Hoel and Volker Pantenburg among others.
6   'Collateral Murder', Wikileaks, accessed November 01, 2019, https://collateralmurder.wikileaks.org.
7   As of 2018, FATA has been merged with the Pakistani province of Khyber Pakhtunkhwa.
8   In 2006 I completed a BSc. in Radiation Therapy, (Therapy Radiography in the United Kingdom) and worked in practice for two years.
9   Laura U. Marks, *Touch: Sensuous Theory and Multisensory Media* (Minneapolis: University of Minnesota Press, 2002), 2.

and UK militaries. Operative images are central to the military drone assemblage, as I state elsewhere in this thesis. Although I consider the many bodies, both human and non-human relevant to the drone assemblage, the perspective from which the research springs is that of encountering these specific operative images on YouTube. It is important to note that this research primarily addresses the absenting of bodies from these specific images and the nature of the habitual experience of scrolling through them online rather than military drone warfare and the regime of the drone in surveillance and missile guidance more generally.

Studying these images over a number of years has brought forth new questions, going beyond the realms of images and asking broader questions about art practice conducted by a white, western female artist-researcher, operating within institution(s) of knowledge production, concerning bodies marked as *different* or as *other*. I am cautious of using the term *other* within my own lexicon because of its potential to enact and inscribe the very gesture it names. Inscription, according to philosopher Bruno Latour, refers to the 'types of transformations through which an entity becomes materialised into a sign'.[10] Throughout this thesis text I refer to 'bodies living and dying under drones' where possible to attempt to avoid any inscription of what I understand as *other* as an 'identity marker which signals the dangerous, the deviant, the different' based on the articulation of feminist drone theorist Lindsay C. Clark.[11] Furthermore, if 'we' are those of us who live at a safe distance from these images and find the images and the victims of drone strikes difficult to relate to, then 'we' are a group of homogenous westerners who can be easily categorised. I must also acknowledge that 'we' and 'I' are diverse and unstable and could include victims of international conflict among many other spectators. The images online produce a detached, objective perception of drone warfare as clean, rational and precise. The logic of these images of drone warfare is, according to feminist science and technology scholar Lucy Suchman, based on the promise that '"our" bodies (the presumed audience for these stories) will be kept in safe spaces as they project lethal force at a distance'.[12] Despite that not all viewers of these images are in the west, and not all viewers in the west are detached from the conflict and/or normalised to warfare by the media, 'I' am the body whose life is preserved at 'their' expense. 'They' are bodies marked as *other* or whom I refer to where possible as 'bodies living and dying under drones' throughout this text. My use of italics indicates that when I do use the word 'other', it is not my lexicon or voice.

10   Bruno Latour, *Pandora's Hope Essays on the Reality of Science Studies* (Cambridge; London: Harvard University Press, 2000), 306.
11   Lindsay C. Clark, 'Grim Reapers: Ghostly Narratives of Masculinity and Killing in Drone Warfare', *International Feminist Journal of Politics* 20, no. 4 (October 2018): 614.
12   Lucy Suchman, 'Situational Awareness: Deadly Bioconvergence at the Boundaries of Bodies and Machines', *MediaTropes Test Journal* 5, no. 1 (2015): 9.

This introductory chapter intends to outline how an iterative methodology was generated through practice, drawing on gender theorist Judith Butler's writing on vulnerability, literary theorist Elaine Scarry's writing on the role of the body in the study of war and feminist science and technology scholar Donna Haraway's theory of situated knowledges and partial perspectives. Out of each of the four bodies of work emerged a methodological stance which was incorporated into the next; multi-sensory embodiment, fictioning, posthuman assemblages and new materialist practices. I will discuss the implications of this methodology on my practice which also evolved over the course of the research to incorporate moving image, sound, hybrid and installation-based ways of making. Finally, I will articulate the structure of this thesis and the modes of writing it embodies. This introduction is intended to guide the reader through the hybrid nature of the thesis itself and will hopefully offer initial insights and motivations which will be useful at later stages.

Research Question and Contributions to Knowledge

The US and UK militaries' representation of drone strikes has shaped the perception of contemporary warfare. By the word 'encounter', used in this thesis, I mean broadly the ways bodies watching these videos online understand the impact of drone strikes on bodies from a distance. This encounter, or non-encounter, is between bodies, both individual and multiple, with whom we are intertwined yet whom we may never come into contact with, except perhaps through the media and / or culture. The bodies of work discussed in each chapter iteratively develop a response to the central question of the thesis: how can art practice create an embodied encounter with military drone images? The question specifically addresses censored operative content uploaded to the official YouTube channels of the US and the UK militaries. The research aims first, through various modes of studio-based experimentation, to explore the restaging of the operative image. This experimentation evolved from still images translated into a range of media, into moving image embedded in hybrid sonic, sculptural and installation-based environments. These installations generated multi-sensory, multi-perspective and multi-scalar encounters with re-staged operative images. Secondly it aims to disrupt the ideology of technical seamlessness, precision and control propagated by the videos online both visually and textually. In response to this the research progressively adapted a situated and partial approach, exploring the vulnerability of bodies, both human and non-human. Technical vulnerabilities appeared through investigating error, spoofing and digital artefacts in the practiced based methods, whilst bodily vulnerabilities emerged through leaks, stutters, ticks and narrative inconsistencies; both modes acted to disrupt the ideology of seamless interactions with technology. Thirdly the research aims to challenge the eschewal of encounter with absented bodies whilst avoiding both re-inscribing the body through colonial modes and disavowing the impact of drone strikes. As the research progressed, the vulnerability of bodies, materials, spaces and sounds also emerged as markers of their agency, interrupting the ideology of bodies as calculative entities and generating unruly experiential registers with bodies resisting categorisation and representation. These subtle human and non-human frictions and resistances registered through the practice-based research established an embodied and relational encounter with the restaged operative image.

This thesis offers three unique contributions to knowledge. First, the embodied, decentred feminist research methodology is a unique contribution to the field of art practice concerned with drone warfare. It recalibrates an embodied and situated approach towards a more relational and agential understanding of bodies marked as other by military visual practices, specifically the operative drone image. Secondly, the thesis contributes a non-corrective body of art practice. By exploring multiple instantiations of vulnerability; of bodies, both human and non-human, including technology, materials and spaces, the practice establishes

a hybrid body of work including moving-image and sculpture. The installations produced during the research period establish embodied encounters through hybrid sensory registers rather than re-presenting bodies marked as other. The installations also resist using spectacular and cartographic modes of representation and didactic or moralising practices; our responses are not mobilised through a fixed subject position. Thirdly, the practice-based research contributes a unique adjustment of Butlerian vulnerability, read through both posthuman and new-materialist theories. Practice-based research generated a re-conception of vulnerability as agential, exploring its interruptive and disruptive capabilities. Bodies, both human and technical materialise in their unruliness; as both vulnerable and agential entities they resist categorisation and calculation. By means of these contributions, the thesis demonstrates the complexities within the field of art practice concerned with drone warfare. It establishes and draws attention to the potential opportunities of how an embodied feminist approach can inform an ethical art practice concerned with operative drone images, the bodies absented from them and the nature of our habitual encounter with them online.

Methodology

In 'Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective', Donna Haraway discusses a specific type of objective vision, one that is embodied rather than transcendent, that is partial and situated, and takes into account how visual systems work, 'technically, socially and psychically'.[13] She argues for a split and contradictory self, an epistemological position that is partial and locatable in opposition to relativism and totalisation, both of which she claims are 'god tricks'. The 'god trick' is a metaphor for how science furnishes a disembodied, objective form of knowledge through technically mediated positions. Machine vision for example, promises 'vision from everywhere and nowhere, equally and fully', yet Haraway also argues against a position that claims to see from the vantage point of the subjugated and against appropriating this perspective.[14] This split and contradictory self is the 'one who can interrogate positionings and be accountable', 'splitting' referring to 'heterogeneous multiplicities' that are 'within and among subjects'.[15] Employing situated practice and partial perspectives locates the research in my own body, rather than in or through the body of another, with the acknowledgement that this position is split and contradictory, always partial and multi-dimensional. As the research progressed, this position recognised an openness and permeability to the bodies relevant to the research; the body of the spectator of the videos on YouTube, the body of the drone operator, the targeted body, non-human and technological bodies, the body of the viewer of the practice based research and the body of the phantom data-double among others.[16] Yet it acknowledges that this can only ever be a partial and constructed momentary inhabitancy, one that is explored through and perpetually returns to my own unstable body, 'able to join with another, to see together without claiming to be another'.[17] Thus, the research is located primarily in and through my body, permeable and porous to multiple other bodies. Political geographer Marijn Nieuwenhuis argues that the notion of holes and pores destabilise ideas of authority, containment, control and binary relations in what he terms 'porous politics'.[18] I explore porosity further in the forthcoming chapters as a vulnerability that is also relational, drawing upon feminist reclamations of porous and leaky bodies. In practice, it is this destabilised ontology of porosity that I apply to Haraway's

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13 Donna Haraway, 'Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective', *Feminist Studies* 14, no. 3 (1988): 575-599.
14 Haraway, 'Situated Knowledges', 581, 583.
15 Haraway, 586.
16 The data-double is, according to drone theorists Kevin Haggerty and Richard Ericson, disembodied flows of information, generated through the surveillance of an 'observed' and 'monitored body' abstracted and then reassembled into a 'decorporealised body' of 'pure virtuality'. They are 'new type of individual, one comprised of pure information', differentiated according to 'how useful they are in allowing institutions to make discriminations among populations'. See Kevin D. Haggerty, Richard V. Ericson, 'The Surveillant Assemblage', *British Journal of Sociology* 51, no. 4 (December 2000): 614.
17 Haraway, 'Situated Knowledges', 586.
18 Marijn Nieuwenhuis, 'Porous Skin: Breathing through the Prism of the Holey Body', *Emotion, Space and Society*, 33 (2019): 2.

theorisation of the science question. Haraway's theory is particularly relevant to drone warfare and this research, because it challenges the algorithmic and aerial visuality of the technical image.

This approach, while attempting to situate a materially orientated conceptualisation of bodies at the core of the research, acknowledges its own limitations in that this position is always a partial perspective. Yet at its most problematic, it places my white western body (operating in the realm of knowledge production in academic and cultural institutions), at the centre of the research, thus potentially disavowing the precariousness of the lives targeted by the operative image and those living and dying under drones. Contending with the complexity of my position as artist-researcher, I also acknowledge subaltern studies scholar Gayatri Chakravorty Spivak's critical theorisation of the way western intellectuals and institutions desire to re-present and give voice to a pure subaltern subject. She argues that it is impossible for us to recover the voice of the subaltern or precarious colonial subject marked as *other*. Heterogenous and not entirely disclosed to themselves, they are subjects 'whose consciousness we cannot grasp'.[19] Although it cannot be generalised, subalternity is an oppressed position without agency, identity, social mobility or ability to speak which does not 'permit the formation of a recognisable basis of action'.[20] Attempts to speak for but also listen to the subaltern can silence them and results in them becoming not subaltern anymore or in fact reinscribed and represented according to a potentially western intellectual logic which is colonialist in nature, a practice which Spivak terms 'epistemic violence'.[21] It is this concern I have carried through the research project. My methodology progressively acknowledges these limitations and attempts to address through practice, the inscription of the colonial gaze on oppressed and marked bodies living and dying under drones. The colonial gaze can be defined as a European occularcentic gaze based on the promise of the discernment with clarity and accuracy of the 'truth' about particular human bodies through white, racist discursive practices. Its predication on objectivity and science creates the 'theoretical space for a view to develop subjectless bodies for analyses, classification and categorisation'.[22] Like Haraway, I am arguing for 'the view from a body, always complex, contradictory, structuring and structured [...] versus the view from above, from nowhere, from simplicity',

19   Gayatri Chakravorty Spivak, 'Can the Subaltern Speak?', in Cary Nelson and Lawrence Grossberg, eds., *Marxism and the Interpretation of Culture* (Urbana: University of Illinois Press, 1988), 288. Spivak clarifies elsewhere that the subaltern is not just the *other* or the oppressed, but is more complex and nuanced. See Leon De Kock, 'Interview With Gayatri Chakravorty Spivak: New Nation Writers Conference in South Africa', *Aerial A Review of English Literature* 23, no. 3 (1992): 19.
20   Gayatri Chakravorty Spivak, 'Scattered Speculations on the Subaltern and the Popular', *Postcolonial Studies* 8, no. 4 (November 2005): 475–76.
21   Spivak, 'Can the Subaltern Speak?', 280.
22   George Yancy, 'Colonial Gazing: The Production of the Body as "Other"', *Western Journal of Black Studies* 32, no. 1 (2008): 2.

of 'living within limits and contradictions – of views from somewhere'.[23] This position has emerged with particular concern for the ethical implications of art practice engaging with drone warfare through and from ongoing critical evaluation of my practice and the practice of others, seeking to, as Judith Butler states, 'consider the ways in which our lives are implicated in the lives of others'.[24] Situated knowledges or *situated practice*, in this sense, emerges from an ongoing attention to the vulnerability to injury of all bodies.

Underlying this position is the writing of Judith Butler on precariousness as constituting a social condition in which vulnerability means that our lives are dependent on others. It involves, according to Butler, 'exposure both to those we know and to those we do not know; a dependency on people we know, or barely know, or know not at all'.[25] The ontology of the body is the central concern of vulnerability since it is the body that is porous to, and exposes us to the *other:* to their gaze, their touch, their violence.[26] However vulnerability could also expose compassion, openness and hospitality. Vulnerability forms the basis of Butler's ethics of grievability. Yet precariousness is not distributed equally across all bodies. She argues that grievable lives presuppose lives that matter as they have at first been recognised as a life that has been lost. For Butler, the frames of war regulate who is recognised as living and therefore grievable. Framing, according to Butler, restricts what can be 'heard, read, seen, felt and known' and therefore works to conduct a 'dehumanising norm' and prevent any sensate understanding of war, particularly a condition of not seeing.[27] Butler draws on the philosophy of Emmanuel Levinas to argue that it is the face of the *Other* (not necessarily a human face) that demands an ethical response. The Levinasian face, she states, 'communicates what is human, what is precarious, what is injurable'.[28] The capacity to respond and the nature of this response is predicated on 'visual and discursive frames' that regulate bodies encountered as precarious and vulnerable.[29] In my view, these frames contribute to the multiple ways the body is absented from the operative images I am concerned with. They contribute to a non-recognition of and thus a non-encounter with bodies marked as *other* living and dying under drones which I will discuss further in Chapter One, Operative Acts.

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23 Haraway, 'Situated Knowledges', 589, 590.
24 Judith Butler, *Precarious Life: The Power of Mourning and Violence*, Reprint edition (London; New York: Verso Books, 2006), 7.
25 Judith Butler, *Frames of War: When Is Life Grievable?* (London; New York: Verso, 2009), 22.
26 Judith Butler, *Undoing Gender* (New York, NY: Routledge, 2009), 21 quoted in Moya Lloyd, Towards a cultural politics of vulnerability: precarious lives and ungrievable deaths, in Terrell Carver and Samuel Allen Chambers, eds., *Judith Butler's Precarious Politics: Critical Encounters* (London; New York: Routledge, 2008), 94.
27 Butler, *Frames of War*, 100.
28 Butler, *Precarious Life*, xviii.
29 Butler, *Frames of War*, 77.

The injurability of all bodies as a form of material vulnerability has informed the ongoing exploration of this research through my own body, functioning as a material adjustment of what Butler terms an openness to being 'undone and unbounded by the other'.[30] For Butler, injury is something that can happen to vulnerable bodies, but it is not the sole condition of vulnerability, although she states that there are 'no invulnerable bodies'.[31] Material vulnerability is not dependent on the frames of recognition, rather it is understood ontologically. Acknowledging the injurability of bodies in this context attends to calls to situate material bodies and embodiment at the centre of the study of contemporary warfare. According to Elaine Scarry,

> Visible or invisible, omitted, included, altered in its inclusion, described or redescribed, injury is war's product and its cost, it is the goal toward which all activity is directed.[32]

Her theorisation of bodily pain and injury refers primarily to combatant ground conflict rather than contemporary asymmetric warfare. However, contemporary war theorist Kevin McSorely, in his exploration of Scarry's work in the context of drone counter-insurgency practices, suggests that rather than injury being the end point of conflict, it is an ongoing, non-reciprocal embodied experience of vulnerable populations.[33] Despite this, the bodies of the victims of drone warfare are erased from military and cultural discourse through the ideology of these practices as technically precise.

My personal background in medical imaging and the therapeutic delivery of ionizing radiation informs the broader ethical considerations of art practice engaging with drone warfare. It is the very fact that corporeal bodies are materially vulnerable that underlies the potential of this aspect of the methodology not only as a sensitiser to the desensitised operative image as it appears on YouTube, and thus the bodies it targets, but also as an incalculable and unruly material that pushes against the computation of human lives by military algorithmic practices. Embodied artistic production in this context could open momentary disruptions in our perceived reality of bodiless warfare online. The perception of a bodiless war arguably constitutes a non-encounter with bodies of people living and dying under drones, with bodies marked as *other*. This non-encounter or 'eschewal of encounter' as war studies scholar Caroline Holmqvist argues, is a form of non-recognition, in Butlerian terms, denying 'people / populations their ontological status of being'.[34] Disturbingly, there

30 Butler, 28.
31 Butler, 34.
32 Elaine Scarry, 'Injury and the Structure of War', *Representations*, 10 (Spring, 1985): 18.
33 Kevin McSorley, 'Predatory War, Drones and Torture: Remapping the Body in Pain', *Body & Society* 25, no. 3 (September 2019): 73–99.
34 Caroline Holmqvist, 'War, Strategic Communication and the Violence of Non-Recognition', *Cambridge Review of International Affairs* 26, no. 4 (December 2013): 648.

are visual, rhetorical and procedural similarities between the delivery of ionizing radiation in a therapeutic setting and drone warfare, for example how both radiographic and thermal images appear in grey-scale, how they are labelled indicatively and how they are captured through algorithmic processes.Nevertheless, engrained in my artistic research and previous therapeutic practice is a sense of responsibility to vulnerable and injurable bodies. Also present is an awareness that technologies, not only humans, are susceptible to error and, destabilising processes such as bias, glitches and deception, both spontaneous and user-generated.[35] In other words, methodologically my background informs a material and theoretical conceptualisation of technology which, along with bodies, I also consider as vulnerable and injurable.

Applying this feminist conceptualisation to the military techno-scientific presentation of drone warfare through practice-based research has the potential to interrupt and destabilise the perception and understanding of objective and authoritative forms of knowledge. Theoretically, the feminising of the drone assemblage as a military strategy has been explored by media scholar Peter Asaro, for example, particularly the ways killing at a distance changes the hero myth associated with trench warfare and combat pilots.[36] Political science scholar Cara Daggett has also theorised the queering effect of the drone on the logic of killing in contemporary warfare.[37] Conversely, Caroline Holmqvist has written about the techno-fetishising of the drone assemblage and the hypermasculine rhetoric of military robotics. Holmqvist focuses on the human experience of war as a critical lens to understand the ethical and political aspects of drone warfare.[38] My doctoral research is situated within the interstices of intersectional, new materialist, feminist science, technology and posthuman studies and, postcolonial theory, whilst simultaneously operating in the well-established terrain of art practice concerned with drone warfare.

35 According to Chris Cole, the director of Drone Wars, a non-governmental agency campaigning for an international ban on the use of armed drones, 'GPS munitions, for example, are vulnerable to electronic jamming and spoofing through electronic warfare, while laser-guided munitions can be disrupted by weather conditions as well as smoke and dust (often present in areas of bombing due to other explosions). In addition, and very importantly, both rely on the actual information and intelligence about a target being accurate and up-to-date in the first place'. See Chris Cole, 'Are we being misguided about precision strike', *Drone Wars*, last modified December 4, 2016, https://dronewars.net/2015/12/04/are-we-being-misguided-about-precision-strike/.
36 Peter M. Asaro, 'The Labour of Surveillance and Bureaucratised Killing: New Subjectivities of Military Drone Operators', *Social Semiotics* 23, no. 2 (April 2013): 196–224.
37 Cara Daggett, 'Drone Disorientations: How Unmanned Weapons Queer the Experience of Killing in War', *International Feminist Journal of Politics* 17, no. 3 (3 July 2015): 361–79.
38 Caroline Holmqvist, 'Undoing War: War Ontologies and the Materiality of Drone Warfare', *Millennium: Journal of International Studies* 41, no. 3 (June 2013): 535–52.

Throughout the course of my doctoral research, I have engaged with a number of artists and artworks that critically inform my methodology. Where possible I have endeavoured to experience these works in person. They vary across a range of practices of photography, essay film, video installation, sculpture, print media, sound, text, software and mixed media installation, occupying a range of spaces including twitter, websites, conventional galleries and museums, public space and site specific locations. The practices employ investigative, fictional, poetic, observational and interactive methods. Some comprise essay film or infographics, or / and utilise documentary practices of photography, film and sound. Many employ what I term a 'corrective' mode. By corrective, I mean artwork and practices that teach the viewer, for example by revealing covert materials and frameworks, or pointing towards their constructed and perceived invisibility. They often employ representative methods such as photography, filmmaking and data visualisations. This mode also encompasses instructional, evidentiary and demonstrative art practices which are pedagogical in nature. These corrective practices have been instrumental in how I critically understand and contextualise my own methodological position and methods, and the nature of an embodied encounter. In particular, reflecting on specific artworks and installations by Harun Farocki, Hito Steyerl, Trevor Paglen, Thomas Hirschhorn, James Bridle, Jenny Holzer, Walid Raad, Omer Fast and Richard Mosse have been important in how I critically understand my practice-based research. A number of other artworks and practices also relevant for particular reasons are mentioned more briefly in the thesis text. Finally, a number of lesser theoretically and practically relevant works are referred to in the footnotes. What is necessary to stress is that my practice-based research is not intended as a corrective approach, nor as a solution or antidote to these corrective modes, but sits within this constellation of practice. Footnotes are used extensively within this thesis because it spans across many theoretical and practice based-fields. They not only reference sources and draw the reader's attention to artworks but also contextualise some of the theoretical discussion which I feel is necessary to consider, but not within the main body of the thesis. It is therefore important to attend to the content of the footnotes when reading this thesis.

Structure

The generation of this research methodology through studio practice was progressively iterative, and not smooth but frictional. Underpinning these processes is the consideration of all bodies as vulnerable, as outlined above. From what appears in retrospect to be a very basic initial concern with the tactile translation of these images through various practice-based processes, each body of work leaked into the next, assimilating appropriate and useful concerns from the previous one, while others fell away. These decisions were formed through critical reflection enabled by; the possibility to install the work outside of the studio in various project spaces, time, financial and in-kind support from various organisations and institutions, theoretical research and an ongoing dialogue with other curators and artists working in related and unrelated fields. This thesis text embodies this mode of engagement, weaving artistic context, theoretical considerations and the discussion of my own artistic practice into four main chapters, preceded by an initial chapter which analyses the operative images in context.

The first chapter, Operative Acts, provides a genealogy of the operative image, drawing initially on the practice and writing of filmmaker Harun Farocki. I also draw upon media theorists Aud Sissel Hoel and Volker Pantenburg. The multiple ways I understand how bodies are absented from the operative military drone camera images are summarised. The multi-faceted absenting of the body, distributed through official military YouTube channels generates a non-encounter with bodies living and dying under drones. It is my contention that to interrupt this ideology of a technically precise and bodiless war, I must first engage thoroughly with the multiple ways these images operate to absent bodies. This includes both the visual and linguistic signifiers that contribute to this ideology but also the technical and physical ways bodies are absented. I draw upon multiple political, late modern war, media and drone theorists to address these issues. Two video works by Hito Steyerl and Harun Farocki are particularly relevant to my discussion. The multiple perspectives I take traverse the entire network of encounters between bodies and these images, and therefore includes multiple types of connections with the technology that produces and circulates them. The writing of postcolonial theorist Achille Mbembe on necropolitical violence is particularly relevant. Important for Mbembe is philosopher Michel Foucault's theorisation of biopolitics. In chronological terms, this aspect of the research occurred over a prolonged period of time. For the purposes of this written thesis, and the compression of time it produces, I have compiled this information into an opening chapter to aid any reader to gain a more acute sense of my understanding of the ways bodies are absented from these images and therefore the motivations that underpin my practice-based doctoral research.

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The second chapter, Material Translations, outlines the early practice-based experiments with materials. Screen-grabbed operative images are translated in different ways into a range of tactile materials. Drawing on Laura U. Marks' theorisation of haptic visuality, I speculate that these translations could generate a bodily encounter with the images. The translations explore three key early issues in the research; the replication of the visual signifiers of the technical image, the representation of the fleshy wounded body and, the abstraction of visual images into infographic yet linguistically dependent information. The work of artists Trevor Paglen, Thomas Hirschhorn and James Bridle contribute to my reflections on these issues. The translations reveal however, how the unforeseen liveliness of materials emerging on the surface of the work can disrupt the legibility of the operative image. They also reveal that when considering an embodied encounter, any exploration of materiality should engage with the materiality of the technical and the body, rather than an act of surface translation. In order to do so, an encounter that moves beyond the haptic visual towards multi-sensory registers is necessary. Cinema theorist Vivian Sobchack, for whom Maurice Merleau-Ponty's philosophy of phenomenology is fundamental, underpins this theoretical shift towards embodiment. The installation practice of Jenny Holzer provides critical reflection on the role of materiality within these registers. *Material Translations* elicits a shift in both my methods and methodology which begins to question the role of my own body in relation to vulnerable bodies living and dying under drones and the provocative tensions between the agency of materials and multi-sensory registers.

The third chapter, Repetitive Strain, considers how an embodied encounter is mobilised through situated knowledges, drawing on Donna Haraway's feminist theorisation of objective vision. I speculate that a position of partiality rather than totality could interrupt the technical ideology of the operative image. Partial perspectives are explored visually through moving image and linguistically through the practice of fictioning. Fictioning, which draws on artist and art theorist Simon O'Sullivan's writing, along with Haraway, establishes multiple vocal registers to both interrupt the linguistic ideology of the technical and explore the multiplicity of narratives in contemporary war. Moving image captured through a digital microscope and multichannel voice-over explore this partiality. Consideration of Omer Fast's metafictional film about drone strikes contributes to my understanding of how fictioning generates instability of meaning. The body of work produced explores how visual and linguistic signification of technicality can be interrupted through exploring the materiality of the visual, in the pixellation of the image and the linguistic, in the use of the voice. Reflecting on the performative practice of Walid Raad along with queer theorist Jasbir Puar's writing on intersectional assemblages confirms that in order to responsibly consider bodies living and dying under drones, I must reposition my own agency as decentred. This involves the acknowledgment that attention to multiple vulnerable bodies includes the human, the

non-human and the technological. This body of work begins to explore a hybrid installation practice as a way to investigate the provocative tensions between material bodies through multi-perspective, multi-scalar and multi-sensory registers.

The fourth chapter, Fuzzy Logic explores the materiality of the technical processes involved in the generation of the operative image. Using a radiographic phantom, I seek to understand the ways technical imaging decorporealises bodies through algorithmic practices. This body of work demonstrates how the practice begins to establish a multiplicity of bodies through a hybrid and assembled methodological approach. The video work *If/Then* establishes multiple bodies through a destabilised narrator, specifically, the body of the machine, the body of the operator, the body that is operated upon and the machine visualised data-double body. A fictionalised account of undergoing a scanning procedure delivered through voice-over includes references to non-human and digitally generated bodies. The writing of Donna Haraway on assemblages, informed by Bruno Latour's Actor Network Theory, and feminist new materialist theorist Rosi Braidotti on posthumanism are relevant. Visually, sonically and materially, the single channel moving image and series of sculptures explores the machine-generated algorithmic body, the data-double, through multiple perspectives, scales and sensory registers. Through critical reflection on a body of work by Richard Mosse generated with a military thermal camera, I consider the cultural and military implications of thermal imaging, drawing on media theorist Lisa Parks and Achille Mbembe. In particular this work reveals insights into the ways war is framed and spectacularised, and thus how the visual representation of bodies does not necessarily produce the conditions for recognition in a Butlerian sense. I speculate that an embodied encounter with the technical at the level of the technical could be a resource for understanding how the ideology of operative images could be interrupted. Both moving image and sculptural aspects of the work raise the unforeseen appearance of the glitch. My body is also increasingly understood as unstable and porous through this work. The installation of *Fuzzy Logic* establishes the posthuman assemblage as a methodological position which accounts for the multiplicity of bodies acknowledged through my own situated, yet destabilised, decentred and porous body.

The fifth chapter, I Could Feel That My Eyes Were Open…, questions if engaging with the glitching of visual and linguistic registers of technology and bodies can interrupt the ideology of the technical in the operative images uploaded by the military to YouTube. In the multi-channel video installation, *I could feel that my eyes were open…*, I explore the logic of the glitch, both visually as artefacts and bodily, as vocal stutters. The writing of Simon O'Sullivan, who draws upon philosophers Gilles Deleuze and Felix Guatttari's theorisation of a minor language is particularly relevant. In the work, a fictional Skype conversation over

a poor connection generates a mode of intimate attention, rather than representation or interpretation. The juxtaposition of close bodily imagery and the pixellated operative image, along with the sonic registers of the technical and the vocal, generate a multi-scalar, multi-perspective and multi-sensory vibratory encounter with the images. Feminist new materialist theorist Jane Bennett's approach to the agency of matter and physicist and feminist theorist Karen Barad's theorisation of touching, alterity and ontological indeterminacy inform this new materialist position. The practice establishes an insecure notion of material vulnerability as the instability of bodies but also as their unruliness. It materially interrupts the ideology of a bodiless, technically precise war conveyed through the operative image online. Drawing upon the writing of subaltern scholar Gayatri Chakravorty Spivak, the practice considers a relational encounter with bodies living and dying under drones which acknowledges the limits of this encounter. I also speculate that the engagement with the logic of the glitch could elicit a more affirmative and responsible politics of vulnerability, one that does not deny how discursive practices inscribe and mark certain bodies, but also understands bodies as agential, meaning that they are unpredictable, active and incalculable.

The concluding chapter outlines the original knowledge that this thesis claims to contribute. It considers a practice-based research methodology that generates an embodied art practice and non-corrective body of work based on a (new) materially adjusted Butlerian vulnerability, and the limits of this claim. It speculates on the potential implications of this contribution to fields outwith the immediate context of fine art research.

Digital content has been supplied alongside this written thesis in the form of an SD card. On this card are a series of folders, each pertaining to the four main bodies of work discussed in this thesis; *Material Translations*, *Repetitive Strain*, *Fuzzy Logic* and *I could feel that my eyes were open…* Within each folder there is high resolution documentation of the works in the form of digital photographs and/or video. Each folder also contains copies of the moving image files which were installed as projections, on laptop screens and cube monitors, among the other sculptural and sonic elements documented. The moving image files supplied are intended to be viewed using headphones rather than computer or laptop speakers. Throughout this text I will suggest moments when I feel it is useful to engage with specific aspects of this content.

Hybridity

This practice-based research project generates an emergent, situated and interdisciplinary methodology linking across multiple fields of enquiry. This methodology, brings together feminist notions of embodiment, fictioning, posthuman assemblage and new materialism in response to the complexity of art practice concerned with the military techno-scientific practices of drone warfare in the context of institutions of knowledge and cultural production. By 'feminist embodiment', I mean a relational condition in which nature and culture, interior and exterior, mind and body are entangled, contingent and mutable, and productive of each other.[39] Art practice is a site where hybridity and interdisciplinarity can exist and thrive in the production of new forms of understanding contingent upon reasoning that is sometimes speculative and illogical. An embodied perspective is one that considers the notion of bodies as intertwined material, lived, sensing, inscribed, relational and agential entities. The intertwined notion of affective / emotional bodies is part of this embodied perspective. However, my research gives primacy to these other aspects of embodiment, because of the contentious relationship between affect and the media and the mobilisation of support for military warfare, along with the complex issue of multiple and conflicting theoretical positions on affect.

While I acknowledge both the problematic racialised historical roots of the term 'hybridity' and its associations with binary logic, in this thesis 'hybridity' is used in a specific relational way to describe the array of theories, methods, materials, methodologies, practices and bodies and how they are intertwined.[40] My use of the term concerns an attention to where they differ as well as align and explores the provocative and dynamic tensions raised by these relations. Donna Haraway's figure of the Cyborg sets out an argument for partiality and a rejection of dualisms such as nature/culture and human/machine and proposes that we are 'theorised and fabricated hybrids of machine and organism'.[41] She is keen to point out that critically, cyborgs are borne out of 'militarism and patriarchal capitalism, not to mention state socialism', however, 'illegitimate offspring are often exceedingly unfaithful to their origins'. [42] The figure of the cyborg has been criticised for its for reinstating ontological dichotomies through its reliance on 'connection,' as in the joining of two pre-existent parts,

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39 Lisa Blackman, *The Body: The Key Concepts* (Oxford; New York, 2008), 34-35.
40 Rosi Braidotti defines relations as 'the virtual links that a body can form with other bodies' a body as 'an assemblage of forces, […] a multiple phenomenon.' I will return to relationality in Chapter Four. See Rosi Braidotti, *Metamorphoses: Towards a Materialist Theory of Becoming* (Cambridge, UK: Published by Polity Press in association with Blackwell Publishers, 2002), 104.
41 Donna Haraway, *Manifestly Haraway* (Minneapolis: University of Minnesota Press, 2016), 7.
42 Haraway, *Manifestly Haraway*, 9-10.

rather than 'entanglement'.[43] I will address the nature of this entanglement in Chapter Five, I Could Feel That My Eyes Were Open.... Yet in its proposition of an assemblage of hybridised and active material bodies and development of a non-binary and embodied approach to techno-scientific logic, the Cyborg offers hybrid, porous decentred ontologies, rather than practices of differentiation and categorisation. It is a contested space; on the one hand techno-fetishistic and impenetrable and on the other a feminist and permeable hybrid, both of which are considered in this thesis.

Hybridity in practice has the potential to scramble, reconfigure and subvert existing codes of knowledge production. In my practice-based research I explore iteratively what the nature of a hybrid approach might be and how it both disrupts and contributes to meaning-making. As an artist with a background in science and medicine, I am also a hybrid researcher, and I have attempted to embrace the productive confusion of this decentred and distributed approach. In practical terms, my artistic practice expands beyond printmaking and sculpture to a practice of moving image, writing, sound, sculpture and installation during the course of the research. These new modes of making, beyond my own expertise bring new forms of instability, contingency and unpredictability, as I explore and experiment with these methods in an untrained and unfamiliar way. In this sense, not only the methodology but the methods and the practice itself, are embodied, fictive, assembled and agential. The nature of hybridity is unstable, in this case, multiple lines of practice-based explorations intertwine in subjective, experiential, studio and gallery-based experiments, these spaces themselves, and the researcher herself, often unstable. In this sense the specific and unique agency of a hybrid and mutative art practice is that it could operate to disrupt and destabilise other fields and sites of knowledge production, deemed to be; objective, as in the case of techno-science studies; academic, as in the case of doctoral research, or; ideological, as in the case of military propaganda, all of which are relevant to this research project.

Finally, hybridity permeates this thesis text. Potentially this mode of writing – creative, critical and at times technical, could act to perform the very methodological position it gestures towards. In attempting to articulate the porosity of my own body as I write this text, I endeavour to express the vulnerability and instability of the practice-based research, and my situated and entangled position within it. In this sense, the writing is embodied, with multiple registers occupying the situated and partial perspective approach I take to the practice of making. Experimental writing in this way allows me to possibly, as Patricia T. Clough writes, 'render changes in processes of embodiment, that is, employ new writing / methods for

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43   Josef Barla, *The Techno-Apparatus of Bodily Production A New Materialist Theory of Technology and the Body*, (Bielefeld: Transcipt Verlag, 2019), 107.

grasping the materialities and temporalities of bodies', echoing the hybrid outcomes of the practice-based research.[44] The embodied and poetic aspects of the writing in particular, attempt to open and destabilise the more self-contained critical and theoretical aspects of the text, acting as a sensitiser to the practice of writing itself. As I previously stated, the research journey was frictional, demanding constant renegotiations, such is the emergent nature of practice-based research. I have tried to reveal the difficulties I encountered throughout this text in a number of ways; by revealing the less productive studio experiments, my own instabilities and circumstantial diversions in the content of the writing and; the gaps, ruptures and pauses in the structure of the text. Additionally, the methodological use of fictioning in the practice-based research leaks into the written text in anecdotal stories concerning the practice of research and making. Potentially destabilising the research, while simultaneously supplementing it, the aspects of the hybrid mode of writing I have outlined intend to act as temporary interruptions, stuttering the grand narrative of the thesis text.

44 Patricia Ticineto Clough, *The Affective Turn: Theorising the Social* (Durham: Duke University Press, 2007), 4.

Installation

As this research project developed, installation practice became key to the restaging of the operative image. As I have argued, the operative images published on YouTube by the US and the UK militaries are part of a public relations campaign, in which the image is staged. By staged I mean presented, in a mode other than which it was originally created and utilised (to aid in the targeting of weapons), on YouTube to present drone warfare as clean, bodiless and precise. By restaging then, I mean the appropriation of this content from YouTube into artistic practice through iterative studio based processes and their subsequent re-presentation in alternative contexts such as gallery and project spaces. These artistic processes extend beyond sculptural, in the early studio investigations, into moving-image and hybrid installation environments. Thus the encounter with the image on YouTube is restaged to re-present the operative image in a context which could potentially engender a re-consideration of the content; a slower experiential and multi-sensory embodied mode of encountering the images. Restaging the encounter with the image on YouTube is a strategy that not only explores the manipulability of images; it is key to interrupting the ideologies of seamless technological control and a sanitised, bodiless war propagated by the videos online.

Key to the agency of the hybrid mode I have outlined is the practice of installation which emerged during the course of my doctoral research. Installation-based practice, which brings together mixed media designed (but not exclusively) for the specific spaces in which the work is shown, enables a number of practice-based enquiries that would otherwise not have been possible. First, installation, in its assembled nature, enables a multi-sensory, corporeal encounter with the research. In particular, the sonic, haptic and proprioceptive elements of the installation arguably act to potentially disrupt the visuality and apparent representational authority of the screen-based elements. Secondly, installation enables an approach in which the research adapts and responds to the dynamic nature of the space itself. Thus, the site of the research moves between the studio and the installation space, and considers the architectural, sonic and material qualities of the spaces in which it exists. In many cases, spending long periods of time in the space during the installation period reveals unpredicted liveliness in many forms, causing the practice to adapt and mutate in order to live in the space for the duration of the exhibition period. In this sense installation expands and enriches Haraway's notion of situated knowledges. Finally, installation allows for the specific proprioceptive and spatial aspects of the practice to be explored at greater levels of complexity. The multiple experimental ways through which the research is experienced can be orchestrated through practical means of seating and lying arrangements, thus opening the possibilities to again subvert our relationship to the visible via the screen to explore and expand hybrid, multi-perspective, multi-scalar and multi-sensory encounters with and through the practice-based research.

I have installed my work in various non-commercial institutions and spaces throughout my doctoral research. These include Unit 1 Gallery, London; Zona Mista, London; The British School at Rome; The Embassy Gallery, Edinburgh; Lewisham Arthouse, London; Leitrim Sculpture Centre; Zentrum für Kunst und Urbanistik (ZK/U), Berlin and The Bomb Factory Art Foundation, London. As the research practice progressed, it became important to develop the works in-situ considering the qualities of the spaces themselves. At Unit 1 Gallery, in May 2017, I showed some pieces from the earliest body of work, *Material Translations*, in a three-person exhibition entitled Inarticulate Landscapes.[45] Although I had rehearsed the installation of the work previously in the studio, through the change in context I realised that there were discrepancies between how the work was operating and my own intentions. Grappling with ways of resolving this issue, I considered a title that directly alluded to the drone strike or operative image. However, this gesture felt inappropriate in terms of my art practice and in that it simultaneously replicated the linguistic strategies of the military on YouTube. This issue became an important one throughout the research, specifically how language can be treated materially, rather than as a corrective way to articulate a gap between objects and words, matter and meaning and linguistically signify technicality.

From this point onwards, I realised that installing the work outside of the studio space promoted a more experimental and speculative creative mode of production. This became particularly evident in the preparation for and installation of *Repetitive Strain* at Lewisham Arthouse in July 2018.[46] The gallery space, situated within a former Carnegie library, had particular spatial and sonic qualities that demanded in-situ development of the sound and sculptural aspects of the work. Sound leaked and bounced in unexpected ways and air currents moved the ceiling sculpture in unforeseen ways, which I chose to exploit and develop further with a series of small fans. I invigilated the week-long exhibition and realised that showing the work in public, and beyond an academic context, provoked unexpected reactions and feedback, and thus a deeper level of reflection than that of the studio. In September 2018, following a two month residency, *Fuzzy Logic* was installed at Leitrim Sculpture Centre.[47] The gallery space was challenging to work with due to its expansive scale. However, working in a solo context at this scale allowed me to explore both the moving images and aluminium works I made in a more sculptural and material way, harnessing what I had learned previously from *Repetitive Strain*. According to cinema theorist Frances Guerin, installation practice can disrupt the 'regimes of power that are ordinarily put in place by official or mainstream images' and the 'banalisation of political

45   'Inarticulate Landscapes', *Unit 1 Gallery*, London, 26th May - 16th June 2017.
46   'Repetitive Strain', *Lewisham Arthouse*, London, 23rd June - 3rd July 2018.
47   'Fuzzy Logic', *Leitrim Sculpture Centre*, Ireland, 21st September - 10th October 2018.

violence'.[48] *Fuzzy Logic* reinforced installation practice as key to this disruption. In October 2019 I took part in a three person group show in the Bomb Factory Art Foundation in London called Scaffold.[49] I exhibited what I thought was a simplified version of the final body of work, *I could feel that my eyes were open...* Observing viewers interact with this work in particular, confirmed perspectives on solution-orientated practices, corrective artworks and, the ways in which viewers, including myself, are often conditioned to desire explanations. I understand these public disclosures as occupying key moments in the development of the research, providing new and distributed insights, decentred understandings and provoking shifts that reframed theoretical and methodological positions.

48   Frances Guerin, *On Not Looking: The Paradox of Contemporary Visual Culture* (London: Routledge; 2018), 11.
49   'Scaffold', *The Bomb Factory Art Foundation*, London, 24th October – 03rd November 2019.

Closing

For Judith Butler, a responsible ethics is one of grievability and mourning. I, on the other hand, limit this claim to a responsibility, which I base on a shared material vulnerability. We experience vulnerability as a universal, material condition but also in very different ways. In that sense we can acknowledge what we share, bodies that are vulnerable, but that this vulnerability is not the same for everyone; it is specifically differentiated, sometimes through discursive and necropolitical practices. When I discuss an embodied encounter, I mean specifically an encounter that seeks to recognise this sense of vulnerability in this material-discursive way. This for me is what I understand as a responsible practice – one that is not moralising or pedagogical but instead non-corrective and not solution orientated. By non-corrective I mean that it does not instruct or imply how to feel, either emotionally or politically, or attempt to represent or reveal previously unknown information, but recognises this shared, yet differentiated material vulnerability. The research, both writing and practice, considers the encounter between bodies and technicality but avoids replicating the ideology of technicality, a visual and linguistic strategy used by the military in their online uploads to YouTube and evident in much art practice concerned with drone warfare. A non-corrective practice acknowledges that there are things we simply cannot feel, or know, but can gesture towards through being open to, in both asking for and offering recognition. Asking for, in the context of my research means listening for, looking for; it is an embodied encounter in which the senses are engaged in seeking connections with others rather than the request for recognition for my own body. Thinking responsibly about and through universal experiences of vulnerability can have implications for how we think about specific experiences of hostility and oppression in personal encounters in our day to day lives.

Operative Acts

Opening

In his 2004 text, 'Phantom Images', Harun Farocki introduced the term 'operative image' to describe images that have a role in automatic targeting through pattern recognition and pixel matching, such as those utilised in cruise missile strikes.[50] This marked a major change in how aerial images were being used in military operations. In the article he suggested that operative images went beyond representation to be part of an operation, actively targeting, 'doing things in the world'.[51] It is this category of images, generated by the targeting systems of manned and unmanned strike aircraft such as drones, fighter jets and helicopters that were being uploaded to YouTube by the RAF, MoD and US CentCom channels from as early as 2009 up until 2017. The MoD's uploads contain videos on a playlist titled #DefeatingDaesh primarily generated through Operation Shader in Iraq and Syria. The RAF's uploads, (which were available online at the beginning of the research period in September 2016 up until January 2020) contained a range of videos on a playlist titled Operations, generated through strikes in Iraq, Afghanistan and Libya. The US CentCom's uploads contain primarily videos generated through Operation Inherent Resolve in Iraq and Syria. Operation Inherent Resolve is a US military campaign against Islamic State (ISIS) in Iraq and Syria in coalition with the UK, French and Turkish militaries, among others. Operation Shader is the UK military strand of the Operation Inherent Resolve campaign, and according to the Bureau of Investigative Journalism, in October 2019 strikes were ongoing.[52] Videos of these latest strikes are available on the Defence Visual Information Distribution Service (DVIDS) website yet the uploading of operative image videos to YouTube by US CentCom was ceased from 2015 onwards and by the RAF and MoD from 2015 and 2017 respectively.

I took these three YouTube channels as the starting point of my research primarily because the strategic uploading of operative image content marked an interesting shift away from official media outlets and websites, and into the unregulated and apparent independent networked space of YouTube.[53] Never before could I have encountered these heavily censored videos alongside other forms of propaganda, leaked military operative content, soldiers' video diaries, victim testimony, news reports and music videos, makeup tutorials,

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50   Harun Farocki, 'Phantom Images', *Public* 0, no. 29 (January 2004), accessed November 1, 2019, http://public.journals.yorku.ca/index.php/public/article/view/30354.
51   Harun Farocki, 'Phantom Images'.
52   The Bureau of Investigative Journalism, 'Almost 40 strikes every day in Afghanistan last month', accessed January 10, 2020, https://www.thebureauinvestigates.com/stories/2019-10-29/us-strike-figures-further-intensification-of-air-war-afghanistan.
53   It is important to note that YouTube was bought by Google in 2006. Google have had significant input into various US Department of Defence projects in the past, including Project Mavern, a research program involving machine learning and the analysis of footage captured by military drones. See 'Google's AI is being used by US military drone programme', *The Guardian*, last modified 7 March, 2018, https://www.theguardian.com/technology/2018/mar/07/google-ai-us-department-of-defense-military-drone-project-maven-tensorflow.

children's entertainment, home do-it-yourself demonstrations, comedy sketches and all of the other content uploaded to YouTube. Although encountered within the seemingly disembodied realm of the digital, my position aligns with Rosi Braidotti, in that the experience of cyberspace is embodied and embedded.[54] Thus the images had, and have, very real impact on corporeal bodies. My use of the word 'act' refers to both the doing and the being of acting. It considers the intertwined ways operative images on YouTube act ideologically, corporeally and technically.

Donna Haraway argues that a feminist embodied vision is essential to navigate through 'all the visualising tricks and powers of modern sciences and technologies that have transformed the objectivity debates'.[55] Understanding how these visual systems work, she continues, is a way of embodying what she theorises as feminist objectivity. I found it necessary to try to understand the multiple ways the bodies living and dying under drones are removed, redescribed, omitted and relocated from the operative images I was looking at online. Furthermore, I was interested in the ways the images act at a technical and operative level, materially and discursively on other bodies; drone operators, and viewers like myself, for example, and the hidden, 'unbearably human' elements of drone warfare.[56] In the *Eye / Machine* trilogy Harun Farocki alluded to the fact that in publicly released operative images from the 1991 Gulf War no bodies can be seen.[57] He was dubious of the technical functionality and relevance of operative imaging systems in a military context and instead speculated that they nourished the ideology of surgical precision and the mythologies surrounding war and technology. He theorises that 'almost all technical representations which maintain that they only represent the operative principle of a process have a large share of mystification in them'.[58]

54   Rosi Braidotti, 'Posthuman Affirmative Politics', in *Resisting Biopolitics: Philosophical, Political, and Performative Strategies*, eds. S. E Wilmer and Audronė Žukauskaitė (NewYork; Routledge, 2015), 43.
55   Donna Haraway, *Simians, Cyborgs and Women: The Reinvention of Nature*, 2nd edition (London: Free Association Books, 1991), 190.
56   Holmqvist, 'War Ontologies and the Materiality of Drone Warfare', 545. Holmqvist suggests that although drones are deeply embedded within military and colonialist apparatuses, the human elements are often hidden.
57   *Eye / Machine*, directed by Harun Farocki, (Berlin, Harun Farocki Filmproduktion, 2001), double projection video, 25 min. *Eye / Machine II*, directed by Harun Farocki (Berlin, Harun Farocki Filmproduktion, 2002), double projection video, 15 min. *Eye / Machine III*, directed by Harun Farocki (Berlin, Harun Farocki Filmproduktion in coproduction with *Institute of Contemporary Arts*, ICA, London, 2003), double projection video, 25 min.
58   Harun Farocki, 'Phantom Images'.

Image 1: Screen grab from the RAF YouTube channel 'Operations'.

Image 2: Screen grab from the RAF YouTube channel 'Operations'.

Image 3: Screen grab from the US CentCom YouTube channel.

Image 4: Screen grab from the US CentCom YouTube channel.

In an email to Chris Cole, the director of Drone Wars, a non-governmental organisation pushing for increased transparency on the British use of military drones, I queried the possible agenda behind the uploading of this content. He stated that there are four main reasons why these videos are uploaded to YouTube which 'can all be understood broadly as propaganda'. First, 'to show the RAF is being effective in destroying ISIS (and therefore to ensure the RAF/MoD continues to get public/parliamentary support)'; secondly, to show 'that the strikes are accurate (to try to contrast narratives around civilian casualties and "accidents")'; thirdly, to show 'that they are deadly (to deter potential enemies)'; fourthly, to show 'that it is exciting – hence the music soundtrack (to aid with recruitment)'. It became apparent that the RAF, MoD and US CentCom videos I was looking at had been heavily edited and redacted to remove any evidence of human targets or loss of life. Recalling earlier strategies in the management of the visual representation of conflict by western military powers since the 1991 Gulf War, this editing constitutes what visual culture theorist Nicholas Mirzoeff terms a 'neo-visual' strategy of (black boxing) global counter-insurgency.[59] According to media philosopher Vilém Flusser, the photographic camera has always been a black box operated by a photographer. 'Technical images', he theorises, are images generated through the computation of concepts, whereas 'traditional images', such as paintings are generated through the observation of objects.[60] The black box, he states, is a concealed space in which technical images are coded and programmed. The danger, he argues, is that although they appear at the 'same level of reality as their significance', the '"objectivity" of technical images is an illusion'.[61] Bruno Latour expands the black box beyond photographic and televisual processes to encompass how the success of a machine shifts the focus to the inputs and outputs, rather than the complex systems and processes that occur internally.[62]

59 Nicholas Mirzoeff, 'The Right to Look', *Critical Inquiry* 37, no. 3 (March 2011): 495. Counter-insurgency is, according to Tom Holert 'the umbrella term for the new kind of warfare driven by the United States' so-called Revolution in Military Affairs (RMA) doctrine, the post-Cold War turn towards information and network-centred war and the arrival of a new adversary, the "insurgent" (one of the technical terms used in military and policy discourse to replace the denomination "terrorist")'. See Tom Holert, 'Sensorship: the seen and unseen of drone warfare' in *Image Operations*, ed. Jens Eder and Charlotte Klonk, (Manchester, Manchester University Press, 2016), 103.
60 Rather than referring to phenomena, technical images concern concepts rooted in scientific and technological advancement or calculations, for example, photographs, are 'envisioned surfaces, computed from particles' that are 'computations of concepts'. Although both technical and traditional image surfaces appear to blend together, they have separate sites of meaning and as long as we are incapable of decoding technical images, 'we remain at the mercy of a fascination and programmed to engage in a magical-ritual behaviour,' impacting on how technology is both perceived and engaged with. See Vilém Flusser, *Into the Universe of Technical Images*, trans. Nancy Ann Roth (Minneapolis: University of Minnesota Press, 1985), 7 – 22.
61 Vilém Flusser, *Towards a Philosophy of Photography*, trans. Martin Chalmers (London: Reaktion Books, 2000), 15-16.
62 Latour, *Pandora's Hope*, 304.

The operative images I was looking at online implied this seamlessness and technical infallibility through various processes outlined in this chapter. There are several layers of coding operating beyond the technical, as Volker Pantenburg suggests, the operative image 'does not exist in the singular but needs to be unfolded and transformed into an array of different concepts'.[63] He outlines three modes of operationality. First, an image produced by and for machines to perform an operation, such as pattern recognition or localization. These forms of operative images may only be generated into an image for the purposes of human visual understanding. Secondly, a type of operative image that appears as visually interpretable, is maybe generated from data, and is part of a technical operation, be it military or non-military, such as those discussed by Farocki in 'Phantom Images'. Thirdly, Pantenburg expands the scope of the operational in terms of the possibilities of images to initiate some form of performative action. This last iteration, he suggests, is where 'techniques such as montage or voice-over commentary inject a sense of agency that the images themselves would not have'.[64] The operative images I was looking at on YouTube appeared to be a hybrid of both visually interpretative and performative codes, belonging to a complex military arena of what international security scholar James Der Derian calls 'the virtuous war', promoting a vision of bloodless, humanitarian, hygienic warfare.[65]

Media theorist Aud Sissel Hoel's analysis of the operative image is a helpful complexification of Pantenburg's genealogy, particularly the ways operative images act with and on bodies. According to Hoel, Farocki's theorisation of the operative image is non-representational and instrumental, claiming they are made neither for entertainment or informative purposes.[66] However, in 'Phantom Images', Farocki refers to the mystifying capacities of the images, which he also addresses in his film trilogy *Eye / Machine*. Hoel additionally provides a discussion of Lev Manovich's theorisation of the human machine operation as occurring reciprocally. Manovich's refusal to discriminate clearly between humans and computers, their instantiation of effects on each other, and how this blended agency produces meaning, is a useful way to think alongside the more functional aspects of the image outlined by

63 Volker Pantenburg, 'Working Images: Harun Farocki and the Operational Image' in *Image Operations*, ed. Jens Eder and Charlotte Klonk (Manchester: Manchester University Press, 2016), 57.
64 Volker Pantenburg, 'Harun Farocki and the Operational Image', 51.
65 James Der Derian, *Virtuous War: Mapping the Idustrial-Media-Entertainment Network* (Boulder: Westview Press, 2001), xxxi. Der Derian defines the military-industrial-entertainment-network (MIMEN), as a network of agencies and institutions that produce narratives of war to serve their own interests. It is linked to Robin Anderson's term 'militainment', or the 'military entertainment complex' which describes the contemporary relationship between journalism, war and entertainment. See Robin Andersen, *A Century of Media, A Century of War*. (New York: Peter Lang, 2006), xxvi.
66 Aud Sissel Hoel, 'Operative Images. Inroads to a New Paradigm of Media Theory', in *Image – Action – Space*, ed. Luisa Feiersinger, Kathrin Friedrich, and Moritz Queisner (Berlin, Boston: De Gruyter, 2018), 14.

Farocki. Yet in Manovich's conceptualisation, images represent rather than act.[67] Drawing on Actor Network Theory, which I discuss in Chapter Four, Fuzzy Logic, Hoel also considers Charlotte Klonk and Jens Eder's theorisation of the potency of operative images in relation to their circulation and performative agency in the context of the representation of conflict.[68] These three descriptions of the operative image as instrumental, as reciprocal and as performative, are relevant to the operative images I was viewing online, in particular their capacity to act on and with bodies.

In *War at a Distance*, the English version, single-screen film based on the *Eye / Machine* trilogy, Farocki outlines the entangled relationship between the technologies of war and industry throughout the twentieth century.[69] He identifies the central role operative images play in these increasingly automated processes. Referencing the images released during the 1991 Gulf War, he reflects on how war reporting and war tactics often coincide; the female narrator states that 'war in the electronic age presents itself as being an event free of people – it takes no account of people, though they may still be involved'.[70] Yet Farocki's film repeatedly portrays people; specifically, machine operators and image analysts, both visually and through his use of voice-over which begs the question perhaps hinted at in the title of the work. *Eye / Machine* in a sense infers an intertwined relationship between humans and machines, and images as central to this relationship. Farocki's use of soft montage, involving the positioning of two images within one screen, their corners touching or just overlapping enacts another level of operationality of the images through the performance of juxtaposition. Farocki rarely articulates the role humans play in automated processes directly, yet through his inclusion of humans throughout the film (including himself as editor of the film), he refers to the complex ways humans and machines interact in the production of objects and ideas. The drone camera operative images act in multiple intertwined ways on bodies. Originating as functional tools in military pattern recognition and weapons targeting, these images are performing entirely other types of operations in the image and network flows of YouTube. Thus, although they are images that have been technically instrumental and participatory in the destruction of life, they are also encountered as part of a networked agenda that represents and acts to promote the so-called war on terror through

67   Hoel, 'Operative Images. Inroads to a New Paradigm', 18.
68   Hoel, 24.
69   *War at a Distance*, directed by Harun Farocki (Berlin, Inge Classen Production Harun Farocki Filmproduktion in collaboration with ZDF/3sat, 2003), video, 58 min.
70   *War at a Distance*, directed by Harun Farocki (Berlin, Inge Classen Production Harun Farocki Filmproduktion in collaboration with ZDF/3sat, 2003), video, 58 min.

the ideology of a technically precise and bodiless war.[71] In the context of an embodied and materially orientated approach, Hoel's analysis provides a deeper recognition of the active dimension of operative images and media.[72] His analysis pays productive attention to operative images as a network of images, software, hardware and bodies, but also how they act across this network.

71 I use the term 'so-called war on terror' to describe the ongoing global policing strategies
    employed by the US and UK militaries, among others, rather than the 'Overseas Contingency
    Operations', a euphemism devised by the US described by WJT Mitchell as a 'bureaucratic
    obfuscation'. See W. J. Thomas Mitchell, *Cloning Terror: The War of Images, 9/11 to the
    Present* (Chicago; London: The University of Chicago Press, 2011), 23.
72 Hoel, 'Operative Images. Inroads to a New Paradigm', 11.

Absenting

Throughout this thesis, I use the verb 'absent' to describe the multifaceted technical, corporeal, material, linguistic and visual ways operative images act to remove bodies, but also to consider the ways bodies are removed from the operative images online. I began to unpick these complex and often contradictory processes in order to understand the ideology of the technical promoted through these online uploads as a starting point for thinking about embodied practice and the notion of an encounter. By 'ideology of the technical', I mean that the videos promote an ideology of technical precision and infallibility that contribute to the appearance of a bodiless war. I felt that considering these processes could help provide the necessary practice-based provocations to begin to define a methodology. Some of them were transparent from the early stages of the research whilst others revealed themselves over time. First, I examine the videos themselves and how they appear online, as aerial, unmanned, low resolution, screen-based, techno-scientific operative images. Then my discussion shifts to the editing, captioning and circulation of the images online, as they appear networked on YouTube. Finally, I consider the ways these images impact on the corporeal, fleshy bodies of people living and dying under military drones through the threat and deployment of weapons. It is important to recognise that the processes are intertwined rather than distinct and that they occur across the entire network of the operative image.

Aerial imaging technologies produce, according to geographer Peter Adey, 'the view from above as a scientific, rational and calculative space'.[73] In many of the operative videos online, the landscape appears empty of life and abstract, resembling the surface of the moon, the aerial view evoking a transcendent and omniscient viewpoint. They resemble historical aerial images of the battlefield, which according to cultural theorist Paul Virilio, were 'composed of nothing – no more trees or vegetation, no more water or even earth, no hand to hand encounters'.[74] However, in other uploaded operative images, buildings, trees, infrastructure and vehicles appear. This perspective arguably legitimises a colonial encounter in which as Derek Gregory states, 'ground truth vanishes in the ultimate "God-trick", whose terrible vengeance depends on making its objects visible and its subjects invisible'.[75] Furthermore, the physical detachment of the human observer arguably also enables the assumption of an objective and impartial view of the ground.[76] The spatial detachment of

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73   Peter Adey. *From Above: War, Violence and Verticality*. Edited by Mark Whitehead and Alison
     J. Williams. (New York, NY: C Hurst & Co Publishers Ltd, 2013), 4.
74   Paul Virilio, *War and Cinema: The Logistics of Perception*, (London: Verso, 1989), 19.
75   Derek Gregory, *The Colonial Present: Afghanistan, Palestine, and Iraq* (Malden, MA:
     Blackwell Pub, 2004), 54. Gregory uses the term 'colonial' rather than 'imperial' because
     as he argues, the colonial 'retains the active sense of the verb'. In this sense he seeks
     to recognise the ways the present (rather than the past) is infused with colonialist
     thinking. See Gregory, *The Colonial Present*, 4.
76   Caren Kaplan, *Aerial Aftermaths: Wartime from Above*. (Durham London: Duke University Press,
     2018), 14.

the body is accentuated in the case of drone pilots and sensors, operating from remote bases, yet, with moving images, there is a temporal intimacy that is often overlooked theoretically and edited out of the footage online. Although drone pilots spend hours, even days following potential targets, the films themselves are usually less than a minute to four minutes long, fostering the perception of a seamless technical military procedure. In attempting to challenge the transcendent and techno-apocalyptic[77] discourse surrounding military aerial imaging technology, Paula Amad shifts the discussion towards the embodied and material processes involved in aerial image making, rather than that their capacity to dematerialise war.[78] Instead of supporting the theorisation of aerial images as contributing to the derealisation of war by theorists such as Virilio, she argues towards a consideration of Haraway's theory of embodied objectivity, which I have previously discussed in this chapter. This position, she argues can potentially move beyond an understanding of the aerial view as disembodied and omniscient.[79] These embodied processes became relevant to the early stages of my research practice and methodology which I discuss further in Chapter Two, Material Translations.

Although resembling grey-scale photographs, the thermal image is a form of remote sensing that detects infrared radiation emitted from the surfaces of objects and humans with a temperature above absolute zero. Thermal imaging's appearance of technicality is compounded in the notion of the photographic image's 'privileged place within the Cartesian representational schema', the 'truthfulness of which is underwritten by the scientific procedure that created it'.[80] This apparent objectivity black-boxes the militaristic and scientific algorithmic processes that produce the images through converting raw sensed data into visually readable images. In the MoD uploads to YouTube, the bodies of those living and dying under drones have been absented through various procedures, and I do not see thermal bodies. Regardless of these processes, registering images through the thermal view contributes to their technical, disembodied appearance and bodies are arguably redescribed and absented in different ways through the fundamental algorithmic processes which produce thermal images and homogenise bodies. Thermal bodies beneath the cross hairs are perceived as *other* techno-culturally, as Gregory argues; they are mediated through

77 By techno-apocalyptic I mean a fatalistic and pessimistic view of the future in which
    humans can no longer discern reality. Technology deprives the sensory and physical human
    experience of knowing the world resulting in a loss of human subjective agency. See
    Jorge Otero-Pailos, 'Living or Leaving the Techno-Apocalypse: Paul Virilio's Critique of
    Technology and Its Contribution to Architecture', *Journal of Architectural Education* 54,
    no. 2 (2000): 108.
78 Amad, 'From God's-Eye to Camera-Eye', 71.
79 Amad, 86.
80 Daniel Rubinstein and Katrina Sluis, 'The Digital Image in Photographic Culture', in *The
    Photographic Image in Digital Culture*, 2nd edition, ed. Martin Lister (New York; Oxon:
    Routledge, 2013), 26.

and act across a complex group of subjectivities, agendas and institutions.[81] Furthermore, according to drone theorists Tyler Wall and Torin Monaghan, the homogenising visual effects of the images, rendered according to grey-scale values, eradicates, 'variation, difference, and noise [that] may impede action or introduce moral ambiguity', thus depoliticising the images.[82] I discuss the implications of visualising bodies thermally further in relation to Richard Mosse's work in Chapter Four, Fuzzy Logic.

In many MoD uploads, the apparently bodiless operative imagery is silent, introduced only by a still image containing an introductory text relaying information about the date and location of the strike. No operators, pilots or sensors can be heard, creating the appearance of military technology that is entirely unmanned and independent of humans. In some cases, the imagery is sandwiched between the figures of male military pilots and ground control staff accompanied by music. Critical theorist Benjamin Noys suggests that the persistent focus of military media campaigns privileges the drone operator to impart some essence of human presence to drone warfare in the media, albeit intentionally masculinist.[83] When there is a need to demonstrate the target body, it is often the image of an apparently white western body such as a pilot that acts as a substitute, simultaneously obfuscating any reference to the actual bodies living and dying under drones.[84] I have noted this phenomenon on the US CentCom YouTube channel and their media campaigns to support drone operations, and there are also many other videos with interviews and personal stories relating to the lives of the operators on their platform. Communications scholar Roger Stahl argues that this strategy occludes any contemplation of what it is like to live under drones, playing into the ongoing everydayness of war, and removing any potential for discourse around questions of state violence and conflict.[85] The embodied experience of those living and dying under drones occupies a minor role in the cultural discourse surrounding injury and trauma.[86] This concern influenced how I considered my own body in the research practice, and how white western bodies, often the body of the operator or viewer are represented and implicated in art practice concerning drone warfare. Similarly, there is much theoretical and cultural discussion surrounding post-traumatic stress disorder among drone personnel.[87] The military's discourse focuses on these forms of injury to drone

81 Derek Gregory, 'From a View to a Kill: Drones and Late Modern War', *Theory, Culture & Society* 28, no. 7–8 (December 2011): 193.
82 Tyler Wall and Torin Monahan, 'Surveillance and Violence from Afar: The Politics of Drones and Liminal Security Scapes', *Theoretical Criminology* 15 (2011): 239.
83 Benjamin Noys, 'Drone Metaphysics', *Culture Machine*, 16, (2015): 7.
84 Roger Stahl, 'What the Drone Saw: The Cultural Optics of the Unmanned War', *Australian Journal of International Affairs* 67, no. 5 (November 2013): 670.
85 Stahl, 'What the Drone Saw', 670.
86 McSorley, 'Predatory War, Drones and Torture', 89.
87 Derek Gregory, 'Our daily threat', *Geographical Imaginations*, accessed November 1, 2019, https://geographicalimaginations.com/2015/07/27/our-daily-threat/

sensors and operators, rather that the victims of drone strikes and those living under drones. Communications scholar Amit Pinchevski cautions that a shift towards discussions on trauma generated through observation of these screen images may 'obscure the suffering of those targeted'.[88] Not only the invisibility but also the visibility of bodies is carefully controlled in these videos, a strategy that obfuscates any recognition of victims, of bodies living and dying under drones.

In the few videos on YouTube where bodies can be seen, they appear as amorphous dark forms and indistinguishable from each other. However, in the majority of the military videos on YouTube, if bodies are indeed present, they are visually unidentifiable because of the pixellated, low resolution nature of the imagery. The actual optical resolution of military drone cameras remains restricted information, and although the subject of contested debate, the resolution is arguably high.[89] Eyal Weizman discusses this issue at length in his text concerning an investigation by the research group Forensic Architecture (FA) into drone strikes in the region of Pakistan formally known as the Federally Administered Tribal Areas (FATA). Perhaps the closest indication of the resolution of military drone cameras can be identified from the leaked footage Weizman mentions from an Italian military drone operating in Iraq in 2015. FA estimate that the resolution of this footage is between 1 and 2 cm per pixel. Publicly available satellite information is reduced by state agencies to a resolution too low to capture a human body from above 'to remove the human from representation', he argues.[90] Although the quality of the images is weather, sensor, and bandwidth-dependent,[91] drone pilots claim that they are 18 inches from the battlefield, the distance between their eyes and screens of their consoles, and thus intimately familiar with their targets.[92] As discussed, there are reports of drone operators suffering from PTSD from watching the destruction of bodies at high resolution, having seen what happens during the explosion and the aftermath.[93] Arguably, the discrepancy between the resolution on YouTube and that seen by the drone operators and sensors is intentional and similar to, as Weizman argues, the case of satellite imagery, to 'mask[s] the human figure within the square of a single pixel'.[94]

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88 Amit Pinchevski, 'Screen Trauma: Visual Media and Post-Traumatic Stress Disorder', *Theory, Culture & Society* 33, no. 4 (July 2016): 68.
89 Eyal Weizman, *Forensic Architecture: Violence at the Threshold of Detectability*, 1 edition (Brooklyn, NY: Zone Books, 2017), 30 and Derek Gregory, 'The Territory of the Screen', Mediatropes, 6, no.2 (2017), 143.
90 Weizman, *Forensic Architecture*, 28-29.
91 Gregory, 'The Territory of the Screen', 144.
92 Gregory, 'From a View to a Kill', 197.
93 Chris Cole, 'Interview of former RAF Reaper pilot Justin Thompson (a pseudonym)', *Drone Wars*, accessed November 1, 2019, https://dronewars.net/2017/05/30/justin-thompson-interview/ and 'Interview with Defence Expert P.W. Singer: The Soldiers Call It War Porn', Spiegel Online, last modified March 12, 2010, https://www.spiegel.de/international/world/interview-with-defense-expert-p-w-singer-the-soldiers-call-it-war-porn-a-682852.html.
94 Weizman, *Forensic Architecture*, 98.

The presence of the cross hair and the areas of redacted content in the operative images uploaded to YouTube contribute to the visual representation of techno-scientific operations, appearing as official and objective evidence of drone strikes. Communications scholar Chad Harris links this appearance to a 'narrative that assumes that scientifically produced imagery provides the most unobstructed and bias-free window on the "real" world'.[95] The implications of this reading of the images is that drone strikes are enacted without human or technical error, with accuracy and expertise. Thus the drone footage I was viewing on YouTube is not simply a neutral artefact left over from an administrative exercise, it is part of what Judith Butler calls a 'representational regime' contributing to an ideology of drone warfare as a scientific technical procedure.[96] This reading, according to political theorist Elke Schwarz, presents drone strikes as targeted killing, a precise practice in a distant zone beyond ethics. She argues that ethical considerations become distanced, 'turned into a technical matter, neutralising these to the point of occlusion'.[97] These ethics are further complicated biopolitically through the use of biomedical metaphors.

The enactment of what are known as 'surgical strikes', strikes targeted by means of what the military term 'pattern of life' analysis is an exacerbation of the abstraction of bodies into algorithmic calculability. Pattern of life analysis, according to media scholar Joseph Pugliese arrives through the combination of two scientific practices, namely the algorithmic and the biological. Human patterns including movement, conversations and interactions sensed through drone surveillance technology are converted 'algorithmically into a patterned sequence of numerals: the digital code of ones and zeros', redescribing bodies into decorporeal data-doubles. Biologically, pattern of life analysis 'connects the drone's scanning technologies to the discourse of an instrumentalist science'.[98] Both modes produce a 'gaze of objectifying detachment' and the 'production of extreme violence' through targeted strikes on individuals whose identities may not be known.[99] This military practice and the ensuing visual and verbal rhetoric associated with calculability that, in the context of the content uploaded to YouTube, removes the corporeality and the messiness of drone warfare. In this sense, military drones operate within the logics of Foulcauldian biopower, described as that which 'brought life and its mechanisms into the realm of explicit calculation and made knowledge-power an agent of transformation of human life'.[100]

95 Chad Harris, 'The Omniscient Eye: Satellite Imagery, Battlespace Awareness, and the Structures of the Imperial Gaze', *Surveillance & Society* 4, no. 1/2 (September 2002), 117.
96 Judith Butler, *Frames of War*, 29.
97 Elke Schwarz, 'Prescription Drones: On the Techno-Biopolitical Regimes of Contemporary "Ethical Killing"', *Security Dialogue* 47, no. 1 (February 2016): 70.
98 Joseph Pugliese, 'Prosthetics of Law and the Anomic Violence of Drones', *Griffith Law Review* 20, no. 4 (January 2011): 943.
99 Pugliese, 'Prosthetics of Law', 943.
100 Michel Foucault, *The History of Sexuality, Volume 1* (New York: Pantheon Books, 1978), 143.

Biopower functions to destroy bodies, practicing the administration of bodies and the calculated management of life.[101] If biopower seeks to affirm the life of a population, then racism, in Foucault's terms, is a biological split between worthy and unworthy lives, through technologies of power and sovereignty, in 'a juxtaposition of sovereign power and biopower'.[102] Rather than being concerned with the affirmation of life, this strand of biopolitics, splits populations into those lives to be managed and others to be 'subject to the sovereign right of death'.[103] Exemplifying Achille Mbembe's concept of Necropolitics, this particular theorisation of racism establishes 'a biological caesura between the ones and the others' and concerns the control of some lives at the expense of others, who is 'disposable' and who is not. [104] This position is not to disavow critical race theory and the ways racialised modes of inscription are socially and politically constituted. Instead, necropolitics is a means to understand the armed military drone assemblage as a technology that enacts the sovereign management of populations based on racial distinction in which a 'population is known and audited through the gaze of the drone, but for the purpose of death rather than life'.[105] Precision and surgical metaphors contribute to the appearance of military campaigns as therapeutic and curative, eschewing an ethics based on intimacy and relationality and producing an entirely different one based on saving the body politic. Biopolitics and necropolitics are thus intertwined in the context of drone warfare in particular, as the preservation of certain populations is managed through the deaths of other populations.

On YouTube, the operative images are edited into short, impactful clips. Editing structurally also arguably erases and occludes visual content that contains information that may pertain to the presence of targeted bodies on the ground. This happens through the removal of sections of the moving image containing this information, pixellation, as I have previously discussed, and arguably the redaction of content on the screen pertaining to targeting information and timing, for example. Stahl writes that strategic information is redacted as 'handing over raw imagery from spy satellites and the targeting cameras would likely compromise the vision of the clean war'.[106] What remains are images of explosion clouds, landscapes sometimes populated by buildings and infrastructure, most of which are rendered through the thermal gaze. The absence of geospatial markers enhances the ideological presentation of the landscape as uninhabited. If the landscape is populated, it is with buildings, infrastructure

101 Jamie Allinson, 'The Necropolitics of Drones', *International Political Sociology* 9, no. 2 (June 2015): 114.
102 Kim Su Rasmussen, 'Foucault's Genealogy of Racism', *Theory, Culture & Society* 28, no. 5 (September 2011): 40.
103 Allinson, 'Necropolitics of Drones', 114.
104 J.-A. Mbembe, 'Necropolitics', *Public Culture 15*, no. 1 (Winter 2003), 17, 27.
105 Allinson, 'Necropolitics of Drones', 120.
106 Roger Stahl, 'Becoming Bombs: 3-D Animated Satellite Imagery and the Weaponisation of the Civic Eye', *MediaTropes* 2, (2010): 81.

or vehicles rather than bodies. Gregory writes that object ontologies obscure bodies; 'strikes are directed at gun batteries, tanks and buildings, and the people who inhabit them are made to disappear from view'.[107] Some weapons systems have programmed detonation delays meaning that explosions happen a number of seconds after impact, so that blasts occur inside the structure. This means that after the strike the buildings remain and appear relatively intact, unlike the bodies inside.[108] Most of the videos the military upload to YouTube are no more than a couple of minutes long, presenting the process as fast, efficient and technologically sophisticated, aligning with accelerative and techno-fetishistic discourse. As Wall and Monaghan point out, the actual process is often slow and banal, involving data entry and checklists; but additionally the 'step-by-step process of entering "data" into a computer system nonetheless propagates a dehumanising abstraction in which living human beings are rendered into mere spatial or tactical coordinates'.[109] Furthermore, almost all of the videos the military upload to YouTube are edited to follow a similar pattern, ending just after the explosion cloud; the consequences of the strike are erased from view, apart from the visual assurance of an on-target strike.

A noticeable characteristic of the military uploads to YouTube is the specific way their captions focus on objects and events rather than bodies.[110] In the titles and captions, attention is drawn to objects in the landscape, for example 'bridges', 'strongholds', 'bunkers', 'compounds', 'tunnels', 'fighting positions', 'vehicles', 'trucks', 'armoured tanks'. If the presence of humans is alluded to it is as 'targets', 'fighters', 'ISIL', 'DAESH'. Elaine Scarry writes that the 'language of killing and injuring ceases to be a morally resonant one' in a number of conditions which seem evident here.[111] First, when the rhetoric shifts away from bodies to results, secondly, when the military itself becomes a body, wounded in war, and thirdly, when bodies themselves are transformed into the objects they inhabit, such as bases and houses. Scarry stresses the point that injury to the body is the 'content of war' and that this is often the issue that is most concealed.[112] In many cases, the content is described in such a way that the military's 'only

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107 Derek Gregory, 'Seeing Red: Baghdad and the Event-Ful City', *Political Geography* 29, 5 (2010): 278.
108 Weizman, *Forensic Architecture*, 34. Forensic Architecture, in collaboration with the Bureau of Investigative Journalism support this theory through their research on drone strikes in Pakistan and the area formally known as FATA. Their study showed that almost two thirds of drone strikes in these areas were directed at domestic buildings, and often at night when families were most likely to be at home.
109 Wall and Monaghan, 'Surveillance and Violence from Afar', 247.
110 For example, 'RAF strike on ISIL vehicle in Iraq July 9. On Thursday 9 July, an RAF Reaper observed ISIL terrorists carrying out welding on an armoured pick-up truck at a derelict industrial site, most likely converting it for use as a large car-bomb. Despite the target being parked in a roofed bay, the Reaper's crew were able to score a direct hit with a Hellfire missile which destroyed the vehicle'. See Ministry of Defence, 'RAF strike on ISIL vehicle in Iraq July 9', #DefeatingDaesh Playlist, uploaded on July 21, 2015, YouTube Video, 0:48. https://www.youtube.com/watch?v=e9jSEzB2GuA&list=PLMt8dNv5bsl-nIkOvPaLIp_ouaBwDfjxF&index=33.
111 Scarry, 'Injury and the Structure of War', 4.
112 Scarry, 1.

target, or only intended target, or only immediate target, appears to be another weapon: that their effect is to "disarm" rather than to injure' making the injuring and injurability of bodies invisible.[113] Indeed, on YouTube, attention is drawn to bomb factories, car bombs and weapons storage bunkers. The technical words used by the military conform to the scientific logic of objective reality, contributing to the illusion of control and rationality.[114] Words such as 'neutralised' and 'eliminated' are used to describe destruction of 'targets'. The language also conforms at times to the bombast of military propaganda, employing phrases such as 'scoring a direct hit', for example. Both uses of language, technical and sensational, obscure the lives captured by the operative images.

The gap between the functional language of the image, both linguistic and technical, and the represented information in the images themselves was one of the reasons I was drawn to the them, bearing in mind how passive and distracted encounters with the images mean that often 'we look at and we see as we are told to'.[115] The language of the captioning is clear and direct, playing a pivotal role in the way narratives are selected to serve the interests of powerful institutions.[116] The captioning is both an extension of how language inscribes bodies as enemies and targets, and how language mobilises lethal force in the preservation of certain bodies at the expense of others.[117] Drawing on Virilio, Stahl claims that these images and arguably their captions have a role in 'linking, mobilising and galvanising societies for conflict' and thus contribute to 'visual participation in and authorisation of killing by the civic sphere, which must continually supply political assent'.[118] As discussed, the captions contribute to an ideology of technicality beyond their technical function, relating to power, vision and control. This excess is arguably embedded in theory such as Lisa Park's usage of the term 'hunter-killer' and drone theorist Gregoire Chamayou's references to humans as 'prey', for example, and the wealth of sensational literature around military drone technology. These linguistic metaphors, as Benjamin Noys states, 'can ascribe agency and activity that flatters the drone as object and elides the intricate meshing with human labour that makes drone operations possible'.[119] They arguably contribute to an obfuscation of bodies on both sides of the screen.

113 Elaine Scarry, *The Body in Pain: The Making and Unmaking of the World* (New York: Oxford University Press, 1985), 68, 80.
114 Hito Steyerl, 'Documentary Uncertainty', *Revisions*, 1, accessed November 1, 2019, http://re-visiones.net/anteriores/spip.php%3Farticle37.html.
115 Guerin, *On Not Looking*, 9.
116 Stahl, 'What the Drone Saw', 672.
117 In a paradoxical reversal of the object orientated language, this strategy is carried through with names of the drones, Predator and Reaper, referring to a bird of prey, and a worldly figure of death. See Benjamin Noys, 'Drone Metaphysics', Culture Machine, 16, (2015): 4.
118 Stahl, 'What the Drone Saw', 661.
119 Noys, 'Drone Metaphysics'.

In many of the MoD and US CentCom uploads of operative images to YouTube, language associated with 'precision' and 'accuracy' abounds. Within the captions, the use of these terms by the military exploits the gap between the technical and commonplace definition of the words.[120] Yet accuracy and precision are not interchangeable.[121] Specifically, Maja Zehfuss provides a detailed analysis of the ways in which the development of precision guided weapons and the language of precision produces an ethics of warfare, in which she challenges the assumption that 'more precision is better', particularly with reference to bombing densely populated areas and civilian deaths.[122] 'Precision' implies a seamless relationship between humans and technology that overlooks the point that Zehfuss makes that 'however precise the weapon may be, non-combatant protection will only ever be at best as good as the information used by those operating it'.[123] The rhetoric of surgical precision is borne out of techno-racial visual practices that conflate precision with a humane form of killing.

The proliferation of operative military drone images online feeds into a larger discourse surrounding the mediatisation of conflict, in which governments, militaries, terrorists and activists utilise images in the public sphere, often in the context of other semiotic forms such as text, speech or music.[124] The videos made available online are highly selective; as I have discussed, although they are sometimes obliquely referred to in the caption, bodies remain absent or hidden in the footage. Humans are the targets of the majority of these strikes; even in the case where the primary target is a building (inside which there are target individuals), the military is known to exert what is termed a 'double tap', a second strike on those who emerge alive and those who arrive to rescue the injured.[125] Yet this is not the visuality constructed in the images encountered on YouTube. Like printed aerial images, they

120 For example the caption of the video titled 'RAF Reaper neutralises Taliban bomb factory' on YouTube. See Ministry of Defence, 'RAF Reaper neutralises Taliban bomb factory', #DefeatingDaesh Playlist, uploaded on November 25th 2010, YouTube Video, 1:20, accessed November 2, 2019, https://www.youtube.com/watch?v=m63c3W8I-Rw.
121 Cole makes the point that 'precision' actually refers to global positioning systems (GPS) and laser targeting systems, a development of the 'smart' bomb. In this sense precision is not equal to accuracy and overlooks the blast impact of strikes. He discusses the adaption of the design of 'precision guided' Hellfire missiles by the US military in order to blast razor sharp shrapnel to a radius of up to 50 feet. See Chris Cole, 'Are we being misguided about precision strike?', *Drone Wars*, last modified December 4, 2015, https://dronewars.net/2015/12/04/are-we-being-misguided-about-precision-strike/. Accuracy, Gregory states, is the 'deviation from the aiming point'. Thus accuracy and precision are not interchangeable. See Derek Gregory, 'Theory of the drone 12: Killing well?', *Geographical Imaginations*, accessed November 1, 2019.
122 Maja Zehfuss, 'Targeting: Precision and the Production of Ethics', *European Journal of International Relations* 17, no. 3 (2011): 551.
123 Zehfuss, 'Precision and the Production of Ethics', 556-557.
124 Jens Eder and Charlotte Klonk, introduction to *Image Operations*, ed. Jens Eder and Charlotte Klonk (Manchester, Manchester University Press, 2016): 6.
125 James Cavallaro, Stephan Sonnenberg, and Sarah Knuckey, *Living Under Drones: Death, Injury and Trauma to Civilians from US Drone Practices in Pakistan*, (Stanford: International Human Rights and Conflict Resolution Clinic, Stanford Law School; New York: NYU School of Law, Global Justice Clinic, 2012), x.

are heavily dependent on their captions in order to be decoded and read. However, unlike printed images, images online also act; they have the potential to talk back. Audiences can reuse, share and edit the images before re-sharing again across various online platforms.[126] Their circulation and low-resolution fits into the wider context of what Hito Steyerl calls 'poor images', described as,

> a ghost of an image, a preview, a thumbnail, an errant idea, an itinerant image distributed for free, squeezed through slow digital connections, compressed, reproduced, ripped, remixed, as well as copied and pasted into other channels of distribution.[127]

Uploaded official military operative content enters an attention economy, competing for views, comments, likes and shares, with alternative and unofficial coexisting content such as propaganda, videos captured by civilians and witnesses on the ground and videos uploaded by military troops, arguably aiming to reconfigure viewers' encounters with political conflict. Media and communications scholar Christian Christensen, in his analysis of the US military's (both official and unofficial) uploading of video content to YouTube during the war in Iraq confirms that US troops rather than targeted bodies are shown in the content. This, he argues, maintains 'an air of "victimlessness", with the human casualties of war not shown'.[128] Unlike previous modes of propaganda dissemination, such as television, official military agencies cannot control the flow of images on YouTube, even from their own troops, and users' interactions with this networked flow. Through the proliferation of poor images there is a normalising effect, which is arguably part of the military's agenda, 'thriving on compressed attention spans, on impression rather than contemplation, on previews rather than screenings'.[129] The operative content I was viewing online exists within this flow of content. War and media theorist Susan Carruthers has in fact argued that users do not engage with the wealth of images of the Iraq war online, and it is a recognised strategy of the military to flood YouTube with mundane images of warfare.[130]

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126 Eder and Klonk, *Image Operations*, 6, 11.
127 Hito Steyerl, 'In Defence of the Poor Image', *Eflux* 10 (2009), accessed October 2, 2017, http://www.e-flux.com/journal/10/61362/in-defense-of-the-poor-image/.
128 Christian Christensen, 'Uploading Dissonance: *YouTube* and the US Occupation of Iraq', *Media, War & Conflict* 1, no. 2 (August 2008): 165.
129 Steyerl, 'In Defence of the Poor Image'.
130 Susan L. Carruthers, 'No One's Looking: The Disappearing Audience for War', *Media, War & Conflict* 1, no. 1 (April 2008): 74.

Fundamentally the operational origins of the images means that they are borne out of the active targeting and intended destruction of bodies with weapons such as Hellfire and Paveway missiles. According to a report by the International Human Rights and Conflict Resolution Clinic of Stanford Law School and the Global Justice Clinic at New York University School of Law,

> the missiles fired from drones kill or injure in several ways, including through incineration, shrapnel, and the release of powerful blast waves capable of crushing internal organs. Those who do survive drone strikes often suffer disfiguring burns and shrapnel wounds, limb amputations, as well as vision and hearing loss.[131]

The report draws attention to the ongoing destruction of the lives of those living under drones, through physical injury and death. It also documents the impact of what Peter Adey describes as the use of the military drone as a 'psychological tool'.[132] The results of which are mental illness, insomnia, anxiety and post-traumatic stress disorder; the sound of the drone acts as a marker of an anticipated attack and threat of violence.[133] The Iraq Body Count, a London based organisation, records the thousands of violent civilian deaths that have resulted from the US Coalition intervention in Iraq from 2003 onwards in a public database available online.[134] It is difficult to ascertain the number of civilian deaths resulting from British military strikes alone, as the Iraq Inquiry testifies.[135] In fact, in May 2018, Drone Wars reported that the MoD had admitted a civilian casualty due to their interventions in Iraq and Syria for the first time in March of the same year.[136]

Not only are the images uploaded online by the MoD and US CentCom occluding civilian and non-civilian deaths; through the very nature of referring to strikes in Iraq, Syria, Libya, and Afghanistan, they are occluding the US Central Intelligence Agency's (CIA) extra-judicial strikes in Pakistan, Somalia, Yemen and the region formally known as FATA. The Bureau of Investigative Journalism has estimated that since 2004, 8,459 - 12,105 people have been killed in a minimum of 6,786 US led airstrikes in Pakistan, Afghanistan, Yemen and Somalia,

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131 Cavallaro, Sonnenberg and Knuckey, 'Living Under Drones', 56.
132 Peter Adey, *Aerial Life: Spaces, Mobilities, Affects* (Chichester; Malden, MA: Wiley-Blackwell, 2010), 171-172.
133 Adey, *Aerial Life*, 177.
134 Iraq Body Count, Documented Civilian Deaths from US led coalition, no Iraqi state forces, Database, accessed November 1, 2019, https://www.iraqbodycount.org/database/.
135 The Report on the Iraq Inquiry, 'Civilian Causalities', Report, 2016, accessed November 01, 2019, http://www.iraqinquiry.org.uk/media/246676/the-report-of-the-iraq-inquiry_section-170.pdf.
136 Chris Cole, 'UK drone strike kills civilian in Syria admits MoD', *Drone Wars*, last modified May 02, 2018, https://dronewars.net/2018/05/02/uk-drone-strike-kills-civilian-in-syria-admits-mod/#more-8973.

769 - 1,725 of whom were civilians and 253 - 397 were children.[137] The CIA additionally engage in 'double tap' strikes, discussed earlier, intended on destroying any bodily evidence of the initial strikes, while simultaneously targeting the bodies of the rescuers.[138] The absence of military uploads of these extra-judicial strikes arguably obfuscates those living under drones in these areas in yet another way.

137 'Drone Warfare', The Bureau of Investigative Journalism, accessed November 1, 2019, https://www.thebureauinvestigates.com/projects/drone-war. Ronald Shaw and Majed Achter provide an in-depth genealogy of the US military and CIA involvement in FATA, theorised, in their words, as 'opaque' and 'exceptional territories'. See Ian Graham Ronald Shaw and Majed Akhter, 'The Unbearable Humanness of Drone Warfare in FATA, Pakistan', *Antipode* 44, no. 4 (September 2012): 1490–1509.
138 Glenn Greenwald, 'Burning Victims to Death: Still a Common Practice', *The Intercept*, last modified February 4, 2015, https://theintercept.com/2015/02/04/burning-victims-death-still-common-practice/.

Closing

The passive, distributed and mobile interaction with the digital that marks the interaction with online content can be understood as a form of 'droning' itself, according to Mark Andrejevic, in which the digital occupies a continuous but passive background presence.[139] What is reflected in the operative content uploaded to YouTube is not only a multifaceted propaganda campaign but also centralised strategy reflecting a long-established attempt to control heterogenous networks of people through the eschewal of any sustained, embodied encounter.[140] I agree that these videos in particular, are predicated upon passive yet pervasive modes of sanitising drone warfare, in which there is no mutual recognition with bodies living and dying under drones. Watching the videos online, my overall sense is one of detachment. I feel distant and separate from the activities they represent. The screen arguably intensifies this feeling of emotional, social, cultural, moral and mechanical distance from both the events on the ground and the human practices involved in generating the images.[141] Encountered in a domestic setting, the screen redoubles the aerial view, according to Judith Butler, and secures the idea of infallibility and protection 'from a reverse-strike through the guarantee of electronic distance'.[142] However, I do not feel relieved or complicit; I feel numb. The images and the screen though which I watch them generate a disembodied encounter, anaesthetising any bodily capability to sense bodies living and dying under drones. The glossy, reflective and vitreous high definition surface of my screen supplements the ways the images act to eschew any encounter based on 'mutual recognition and recognisability'.[143]

Unpacking the mechanisms that underpin the operative content online is a starting point to considering an embodied encounter with the images – one that seeks to recognise bodies living and dying under drones and interrupt the visual and linguistic production of an ideology of the technical. In other words, how I could work with the images in practice to generate a more embodied encounter than that of my experience with YouTube and how this practice could interrupt their techno-scientific framing were issues to contend with. Materiality, sensory intimacy and corporeality were the starting points of ways of making that challenge the production of readings of warfare that are distant and precise, and the ways the images and screens act on bodies. Of course, it can be argued that the foregrounding of sensory modes act as a form of censorship of the images themselves and

139 Mark Andrejevic, 'Theorising Drones and Droning Theory', in *Drones and Unmanned Aerial Systems Legal and Social Implications for Security and Surveillance*, ed. Aleš Završnik (Switzerland: Springer, 2018), 21-25.
140 Holmqvist, 'War Ontologies and the Materiality of Drone Warfare', 543.
141 Gregory, 'From a View to a Kill', 198.
142 Judith Butler and Joan Wallach Scott, ed. *Feminists Theorise the Political* (New York: Routledge, 1992), 11.
143 Holmqvist, 'War Ontologies and the Materiality of Drone Warfare', 543.

what can be seen, what Frances Guerin calls 'a physical distraction of the look'.[144] However, as I have articulated earlier, these images are already censored; there is nothing of the body to be sensed, they are desensitised. The challenge of the research practice is the generation of an encounter, whilst acknowledging that the suffering of victims cannot be represented mimetically without violating their integrity as corporeal and individual human beings.[145]

144 Guerin, *On Not Looking*, 6.
145 Guerin, 3.

Material
Translations

Opening

My motivation at the beginning of the research period was to generate a haptic visual encounter with the operative images I was viewing online through studio practice, and to explore the translation of the images into corporeal and bodily surfaces and materials. Haptic perception is defined by Laura U. Marks as the way the body experiences touch, through tactile, kinaesthetic and proprioceptive functions, and haptic visuality then as a sensory experience in which 'the eyes themselves function like organs of touch'.[146] Photographic researchers Elizabeth Edwards and Janice Hart argue that the material characteristics of images have an impact on how they are read and that 'material forms create very different embodied experiences of images and very different affective tones or theatres of consumption'.[147] Drawing from this claim, my starting point was to explore the translation of these operative drone camera images into reliefs. Specifically, I wished to experiment with how materiality could productively complicate the representative power of the images.[148] Marks suggests that haptic visuality 'enables an embodied perception: the viewer responding to the video as to another body, and to the screen as another skin'.[149] My early investigations considered the ways in which the body is absented through the pixellation of the video and was very much in dialogue with, and reactive to, how the screen acts; bearing in mind as Marks says, that 'haptic looking tends to rest on the surface of its object rather than to plunge into depth, not to distinguish form so much as to discern texture'.[150]

The experience of flatness described by media theorist Rachel Plotnick as the result of interactions with multiple slippery and smooth digital surfaces, informed my initial experiments. Plotnick argues that the loss of the sense of depth hinders users' ability to locate themselves in the real world, 'where the user finds herself lost in a sea of surfaces

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146 Marks, *Touch*, 2. Much of Marks' discussion relates to cinema theory, however her analysis reveals that the origins of the haptic emerge from the work of art historian and textile curator Alois Riegl on tapestries. For a more detailed explanation of the haptic see Laura U. Marks, 'Video Haptics and Erotics', *Screen* 39, no. 4 (December 1998): 331–348.

147 Elizabeth Edwards and Janice Hart, eds., *Photographs Objects Histories: On the Materiality of Images*, Material Cultures (London: Routledge, 2004), 5. Importantly, for Edwards and Hart is Roland Barthes' theorisation of image and referent, 'laminated together' to produce inseparable sites of meaning. See Roland Barthes, *Camera Lucida: Reflections on Photography* (London: Vintage, 2000), 6.

148 In my making practice, my understanding of materiality has shifted through this practice-based research, from one which considers materials as static, inert properties of ontologically integral things, towards an agentive conceptualisation of materiality experienced through and with sensory registers. My work is iterative in that it continually adapted and developed throughout the research period, and this iterativity was partially constituted by the agency of materials and my engagement with them. This agentive consideration of materiality is discussed further in Chapter Five, drawing on Karen Barad, Tim Ingold and Gilles Deleuze and Félix Guattari.

149 Marks, 'Video Haptics and Erotics', 333.

150 Marks, *Touch*, 8.

that all feel the same and thus produce little to no haptic or emotional feeling'.[151] I considered materiality specifically in terms of how the surface of the image could be treated to produce tactile and haptic visual registers. Taking cues from Hito Steyerl's text concerning the material and object qualities of digital images, I began questioning through material translations if 'the truth is neither in the represented nor in the representation' and 'what if the truth is in its material configuration'?[152] Moving away from any realist paradigm, Steyerl proposes a more participatory relationship with the materiality of images, rather than engaging solely with its signifying potency. This coincided with a decreasing concern for representation as an outcome orientated lens through which I analyzed my practice, without disavowing the referential (that which it represents) aspect of the operative images on YouTube. As Barthes says, 'the referent adheres'.[153] The images and the network in which they are published represent drone warfare as clean and precise, signified visually through the cross hairs and the aerial view, interrelated with linguistic signifiers; words and tags such as 'target' and 'insurgent'. Both contribute to an ideology of warfare that is bodiless. My practice-based research began to move away from these paradigms towards a materialist practice.[154]

My question then, was if the translation of operative images into textural materials and haptic surfaces could generate more embodied readings of the images themselves, calling attention to their object qualities, rather than representation. Specifically, the making of the work discussed critically here was foundational in eliciting key methodological shifts in future practice-based research, particularly concerning the relationship between materiality and representation. The three bodies of work in *Material Translations* raised issues around embodiment, affect, the replication of the drones' eye view, the black-boxing of technology, representation and the role of text in the research, reflection on which impacted on further research methods and methodologies.[155] As of yet they remain without titles, analysed

151 Rachel Plotnick, 'Force, Flatness and Touch without Feeling: Thinking Historically about Haptics and Buttons', *New Media & Society* 19, no. 10 (October 2017): 1638.
152 Hito Steyerl, 'A Thing Like You and Me', *Eflux* no. 15 (April 2010), last modified November 25th, 2018, https://www.e-flux.com/journal/15/61298/a-thing-like-you-and-me/.
153 Barthes, *Camera Lucida*, 6.
154 Although I acknowledge the relevance to this research of non-representational theory especially its focus on materiality, practice and embodiment, arguably, my research concerns feminist practices of embodiment. Furthermore, the pre-personal theorisation of affect that some aspects of non-representational theory conceptualise is not complementary to my understanding of the body and mind, emotions and affect as intertwined. Sensing in the lived body's experience of the world is unstable. It moves between mind and body rather than being located in one or the other. Embodiment implies this experience of the lived body as relational and indeterminate. I will return to this point later in this chapter.
155 In the context of operative images, Jens Eder uses the terms 'emotion' and 'affect' interchangeably to 'include any phenomenon that shows such a coordination of concern-based stimulus appraisals, bodily arousal, subjective feelings, motivational and behavioural tendencies'. See Jens Eder, 'Affective Image Operations' in *Image Operations: Visual Media and Political Conflict*, ed. Jens Eder and Charlotte Klonk, (Oxford University Press, 2016), 64. I will return to a discussion of affect later in this chapter.

instead as experiments with materials, images and surfaces, however, in this text, they are described collectively as *Material Translations*. Discussed individually, they raise different methodological concerns, yet these concerns transverse all three bodies of work. In this chapter, 'Travelling' recounts my initial research into historical aerial imaging practices at a military intelligence archive. 'Scrolling' explores the contemporary experience of accessing operative drone camera videos on YouTube. Both consider the archive's relationship to documentary practice. 'Engraving', 'Submerging' and 'Removing' describe the processes through which *Material Translations* were developed in plaster, latex and ceramic faux marble tile. 'Doing' outlines the relationship between embodiment and affect in my doctoral research and through considering the work of Jenny Holzer, I begin to reconfigure the relationship between text, materiality and visual representation in my practice-based research.

Please look at the contents of the folder titled Material Translations on the accompanying SD Card.

Travelling

In winter 2016, I travelled to Royal Airforce (RAF) Chicksands to visit their Military Intelligence Museum and meet with an aerial image analyst to research the broader historical context of the images I was looking at online. The museum houses the archive of RAF Medmenham, which was the primary site of aerial reconnaissance analysis during World War II. I acknowledge, with media theorists Nina Franz and Moritz Queisner, that the complexities of operative drone camera images in terms of 'planning, surveillance, reconnaissance and intervention' amounts to a 'structurally different image practice' to traditional military reconnaissance.[156] Despite the disparity between the proximity of the aerial photographer and the drone operator from the terrain being imaged, I wished to understand the embodied, technical processes involved in capturing and interpreting aerial images for military intelligence purposes. My intention was to additionally question, drawing on feminist cultural theorist Caren Kaplan, the perception that the aerial view, through distance between subject and object promises 'objectivity and impartiality' and the assumption that the abstract nature of the aerial image can be overcome by technical analysis to reveal 'a deeper truth, one that lies beneath the surface'.[157] RAF Chicksands is an active military intelligence base (officially known as the Joint Intelligence Training Group) and with my passport temporarily confiscated at the point of entry, I was accompanied at all times by the museum custodian, also a retired military aerial analyst. I was not permitted to take photographs on the base, but inside the museum photography was permitted. Presented as a museological display of hundreds, possibly thousands of visual documents: aerial images, photographic film, 3-D models and infographics, the exhibition encompassed the technical production and analytical interpretation of aerial views, primarily dating from World War I to the 1990s. My chaperone was happy to answer any questions I had but was hesitant to discuss any current military activities on the site, beyond the confines of the museum and historicity. He was knowledgeable and helpful, but I quickly learned that going off-script was not an option.

As a result of the fusion of aesthetics and highly functional military information, aerial images can be read in very specific ways, depending on the context in which they are presented.[158] In the case of the aerial images I viewed at Chicksands, the narrative was that of technical expertise in reconnaissance and military interventions. Reconnaissance aerial images captured during World War II were subsequently analysed in bases such as Medmenham by teams of artists, photographers, and technicians. My concern was not motivated by any potential

156 Franz and Queisner, 'The Actors Are Leaving the Control Station', 126.
157 Kaplan, *Aerial Aftermaths*, 14.
158 Bernd Hüppauf, 'Experiences of Modern Warfare and the Crisis of Representation', in *Fields of Vision: Essays in Film Studies, Visual Anthropology, and Photography*, ed. Leslie Devereaux and Roger Hillman, (California, University of California Press, 1995), 107.

revelation of hidden, latent information in operative images through forensic methods, but rather to research the material qualities of aerial images. I also wished to understand the embodied processes involved in their capture, modification and analysis in comparison to drone warfare. Examples of these processes include stereoscopy, the construction of photo-mosaics and terrain modelling. I learned about the ways vertical surfaces were painted and draped with fabrics to blend into the surrounding landscape when viewed from above. Analysing in three-dimensions using stereoscopic magnification techniques aided in the detection of this mode of camouflage. Later, in the Aerial Image Archive at the British School at Rome, I learned that sensitive parts of aerial images were cut out by hand and removed from the image as a form of censorship, reminding me of the material manipulation of the drone camera images I had been looking at online, in the form of pixellation, redactions and excisions. In the archive I discovered a method used to generate terrain models involving the use of an aerial image to carve a surface in plaster using a pantograph and then the draping of an image skin (a soft and pliable aerial photograph) over the top.[159] The models were subsequently illuminated and photographed, the perspectives of these new aerial images thus tailored to the spatial and physical requirements of the user.

Caren Kaplan argues, in critique of Michel de Certeau, towards a consideration of the presence of the 'unseen or unsensed' within aerial images but warns that this is 'not to resort to identification or to construct a romanticised alterity but to let go of the desire for totalised vision that requires a singular world, always already legible, along with its oppositional counterpart'.[160] My experience at Chicksands and other aerial imaging archives revealed that any consideration of the objectivity and legibility of aerial images is destabilised through their susceptibility to camouflage, censorship, and perspectival manipulation both perceptually and materially. Kaplan does not mention Donna Haraway's feminist approach to objective vision, yet her argument appears in line with the notion of situated knowledges and partial perspectives that Haraway theorises and which I discuss further in Chapter Three, Repetitive Strain.[161] Left alone towards the end of my visit to the museum, I touched the surfaces of models, looked through stereoscopic and 3-D glasses, scanned the many maps and infographics.

159 A pantograph is a mechanical tool used to replicate and image altering its scale while retaining its proportions. In this case the copied image routed vertically into a surface rather than horizontally.
160 Kaplan, *Aerial Aftermaths*, 3. De Certeau, in his short essay entitled 'Walking in the City' specifies two distinct perspectives, one from above (in his case, the top of the World Trade Centre) and one from below (on the city streets). He uses this distinction to seperate forms of knowledge that can be inferred from the aerial perspective (images, plans, maps) and knowledge that can be apprehended from the experience at ground level. See Michel de Certeau, *The Practice of Everyday Life* (Berkeley: University of California Press, 2011), 91-111.
161 Donna Haraway, 'Situated Knowledges', 575-599.

The ideology of technical precision enacted in both the military aerial imaging archive and on the militaries' channels on YouTube is comparable, as is the susceptibility of the aerial image, whether analogue or digital, still or moving, to editing. What was most revealing to me however, was that my visit to Chicksands, like many archives, felt surveilled. Archives often feel like sites where specific narratives are played out, where materials and access are controlled, a sense that was amplified at Chicksands. Conversely, on YouTube there is a sense of flexibility, that I can immediately access anything, and that all material is at the tips of my fingers. YouTube has the appearance of an uninstitutional, user-generated archive, a deregulated space where users can freely upload and access audio-visual material. Yet YouTube censors both promote and conceal content through algorithms and user-generated operations. The very nature of selecting and watching clips contributes to the number of viewings and overall most viewed numbers, categories and search result rankings. Furthermore, YouTube actively enables users to like and share content across the web. Differing from traditional archival user experiences, this reciprocal relationship is described by media scholars Frank Kessler and Mirko Tobias Schäfer as a 'hybrid interaction' in which humans and machines are inextricably linked.[162] The possibility that the content of YouTube can be removed at any time, with little or no warning, along with managing principles that are disorganised and incoherent, makes YouTube an active and destabilised repository for audio-visual material.[163]

162 Frank Kessler and Mirko Tobias Schäfer, 'Navigating YouTube: Constituting a Hybrid Information Management System', in *The YouTube Reader*, eds. Pelle Snickars and Patrick Vonderau (Stockholm: National Library of Sweden, 2009), 279.
163 Kessler and Schäfer, 'Navigating YouTube', 283. For a detailed discussion on YouTube as 'a repository for audio-visual material that is simultaneously stable and unstable' rather than an archive, library or database, see Kessler and Schäfer, 'Navigating YouTube', 275-291.

Scrolling

On YouTube, I was looking at low resolution aerial images of landscapes, buildings, vehicles and vegetation, along with cross hairs and rectangular areas of redacted content. I was looking at pixels, at the materiality of the poor image, according to Hito Steyerl, 'fossilised diagrams of political and physical violence – poor images of the conditions that brought them into being'.[164] Steyerl continues,

> Their poverty is not a lack but an additional layer of information, which is not about content but form. This form shows how the image is treated, how it is seen, passed on or ignored, censored, and obliterated.[165]

At first glance they look like 'cold' technical images, 'functioning independently of affective responses'.[166] I look again. It becomes clear that these images, mediated and networked on YouTube, share some features with 'hot' images, particularly in the ways they are captioned and framed with slogans such as 'protecting our people' and accompanied by energetic and powerful electro-rock music.[167] Hot images are defined, according to Eder, as aiming to 'trigger intense affective responses as motors of action in the general public, political factions or powerful individuals'.[168] These public relations strategies regulate affective reactions to gain support for military drone warfare. These are images of violence and trauma, yet there is something banal about them also; the grey-scale aesthetic and the repetition of clips within videos conveys the everydayness of conflict, framing war as a global policing exercise happening in the background of day to day life. Their circulation on YouTube exploits what Laura U. Marks calls 'the contemporary attention economy', bypassing 'the perceptual in the attempt to directly produce affective responses'.[169]

I keep looking.

Command + Shift + 4

I press pause on the video and take a screen grab of the frame and open it in the image editing software Adobe Photoshop. With the magnifier tool I zoom in and back out,

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164 Hito Steyerl, 'Missing People', in *The Human Snapshot*, ed. Thomas Keenan, Tirdad Zolghadr, and Fondation LUMA (New York: Sternberg Press, 2013), 190.
165 Steyerl, 'Missing People', 190.
166 Eder, 'Affective Image Operations', 63.
167 For example see 'RAF destroys Daesh HQ in Syria - 18 March 2017', YouTube, accessed January 8, 2020, https://www.youtube.com/watch?v=QYbxEXn9Vt4, and 'Extreme Action', Bensound, accessed January 8, 2020. https://www.bensound.com/extreme-action.
168 Eder, 'Affective Image Operations', 63.
169 Laura U. Marks, Dominique Chateau, and José Moure, 'The Skin and the Screen – A Dialogue', in *Screens*, ed. Dominique Chateau and José Moure (Amsterdam: Amsterdam University Press, 2016), 261.

travelling over the surface of the image. Yet investigating the image in this way reveals nothing but grey pixels. In *How Not to be Seen: A Fucking Didactic Educational .MOV File*, Steyerl addresses the ways in which the resolution of aerial images is mediated and the circumstances under which invisibility is enacted through resolution.[170] The computer generated voice-over makes distinct reference to how 'resolution determines visibility' and 'whatever is not captured by resolution is invisible'. The video takes the form of an instructional film on how to evade surveillance in the digital age through a series of lessons, which also impart the history of the development of photographic calibration. Steyerl is visually present in the video, demonstrating the many ways bodies (and her body) can be intentionally made to disappear, examples of which are ensuring one is physically smaller than a pixel and wearing camouflage outfits. As the video progresses, bodies become increasingly absent. They are eventually replaced by low resolution pixels, in the form of people with grey boxes on their heads, their faces hidden from view, inferring perhaps the disavowal of an encounter with bodies that have been erased through resolution. The film culminates in a dissolving of the film studio into the image itself. The process of editing becomes perceptible both through the multiple frames and captions in the work as Steyerl exposes the process of (post) production. In the film, bodies willingly and unwillingly enter the interstitial spaces between pixels, disappearing and emerging again as cloaked data-doubles. Viewers are directly confronted with Steyerl's body as she gesturally educates and informs, sometimes satirically. Through the voice-over and the visual narrative there is a sense that the artist is pointing to the structures which enable in/visibility, be they official or arbitrary, intended or unintended.[171]

In her text 'Documentary Uncertainty' Steyerl discusses the relationship between representation, documents and truth in the field of contemporary art, referring to how the scientific procedures that create images infer a relationship to truth. She asserts that 'by situating visual representation within a framework of empirical knowledge […] photography has been framed as an offshoot of objectivity and empiricism'.[172] Indeed, the operative images I was looking at online resembled black and white photographs at first glance. Whether understood in this way or as thermal images, they arguably read as technical; the cross hair also supplements this ideology. Undoubtedly, the operative images and the military channels and playlists in which they are found are intended to be read as

170 *How Not To Be Seen. A Fucking Didactic Educational .MOV File*, directed by Hito Steyerl, (2013) single screen HD video file, 14 min.
171 I am reminded of Forensic Architecture's various investigations on drone strikes discussed previously, which also points to the circumstances, both material and institutional, that render the effects of drone strikes on bodies, and the bodies themselves invisible.
172 Hito Steyerl, 'Documenting Uncertainty', *Revisions*,1, (2011), accessed November 10, 2017, http://www.re-visiones.net/spip.php%3Farticle37.html.

documentary evidence of technically precise and a bodiless form of war. Any attempt to counter the absenting of bodies with forensic, empirical documentary evidence however, could run the risk of being, as Steyerl writes, associated with how modes of reportage of the truth about remote populations are linked to their domination. She claims that 'not only mainstream documentary truth procedures, but even the features of the photographic technology, based as they are on military technology, testify to this historical link'.[173]

It is important to bear in mind, then, particularly in the context of YouTube that, as photographic theorist Daniel Rubenstein and curator Katerina Sluis argue, images receive meaning from the network of relations which surround them.[174] They therefore question the value in the effectiveness of the photographic image in documenting, archiving and in witnessing and assert instead that its ability is 'to capture the modes of production, the organisation and the structure of the network'.[175] By taking screen grabs, my intention was to slow down the accelerated and condensed experience of looking at the images online, although this simultaneously decontextualised them from the linguistic captioning that supplements their ideology, which I explore further in Chapter Five, I Could Feel That My Eyes Were Open.... In the studio I sought to confront this mode of passive seeing propagated by the presentation of the videos on YouTube by the military, especially the 'sensory practices […] shaping how we understand the world, and controlling our affective responses to certain images'.[176] I considered the implications of an embodied encounter with the images as they appear online, in and through studio-based practice rather than attempting to reveal the bodies absented from the operative images through field work, investigative practice or documentary modes.

Using my mouse, I scroll
down
the list of military uploads.

Autoplay is on and the videos keep

loading.

173 Steyerl, 'Documenting Uncertainty'.
174 Rubinstein and Sluis, 'Digital Image in Photographic Culture', 36.
175 Rubinstein and Sluis, 18.
176 Butler, *Frames of War*, 52.

Engraving

In my studio, I began to explore the possibility of generating surfaces in plaster from still, screen-captured (also termed as screen-grabbed) images from the operative drone camera footage I was looking at. Screen captures are comparable to stills, capturing a slice of an ongoing process, a moment or as new media theorist Joanna Zylinska terms, a 'temporary stabilisation' in the 'flow of duration'.[177] Screen capture records my interaction with these operative images, the 'camera' always parallel to the plane of the screen. Whether as a screen grab – a still, or as screen recording – a more durational, time-based capture, they take possession of these moments as new windows stored as new files and thus become disassociated from their original network. My exploration of the haptic surfaces of operative images was therefore also an exploration of pausing the transmissive networks to which they are tethered. I screen-grabbed samples of a variety of YouTube playlists and opened them in Adobe Photoshop. I captured stills from moments before, during and after the strikes. My relationship to them became one based on visual intimacy and the sound of my mouse wheel rolling. I carefully examined the images, in particular how the grey-scale of the pixel matrix functioned. Becoming acutely aware of the grid that appears when the zoom function nears its maximum, the closer I looked, the more the technology revealed itself and disrupted my view. Initially I attempted to generate 3-D datasets composed of points in space generated from the captured stills, otherwise known as point clouds, to generate volumes and explore the kinds of 3-D surfaces they might produce. Later I learned that the point clouds had been randomly generated because of the unsuitability of the data I supplied to the software program. The 3-D models were entirely fictitious renderings of the data I supplied. I also generated 3-D surfaces from the grey-scale values, rendering digital terrain models from the stills. Although the results were at times exciting, mostly, they were predictable, based on commands I input into the 3-D modelling program I was using called Blender. I was re-presenting the digital image in another digital form. Working digitally left me unsatisfied as I desired to handle and sense the tactility of materials in the process of making.

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177 Joanna Zylinska, 'The Creative Power of Nonhuman Photography', in *Photographic Powers*, ed. Mika Elo and Marko Karo, (Helsinki, Aalto University Publication Series, 2015), 73. Zylinska's discussion focuses on the digital photograph, yet this particular aspect arguably applies to the screen capture. Drawing on Henri Bergson she argues that the photograph is not simply a frozen image of the past, but rather an interruption in the flow of life's images that allows us to comprehend processes and practices that are durational. See Zylinska, 'Nonhuman Photography', 147.
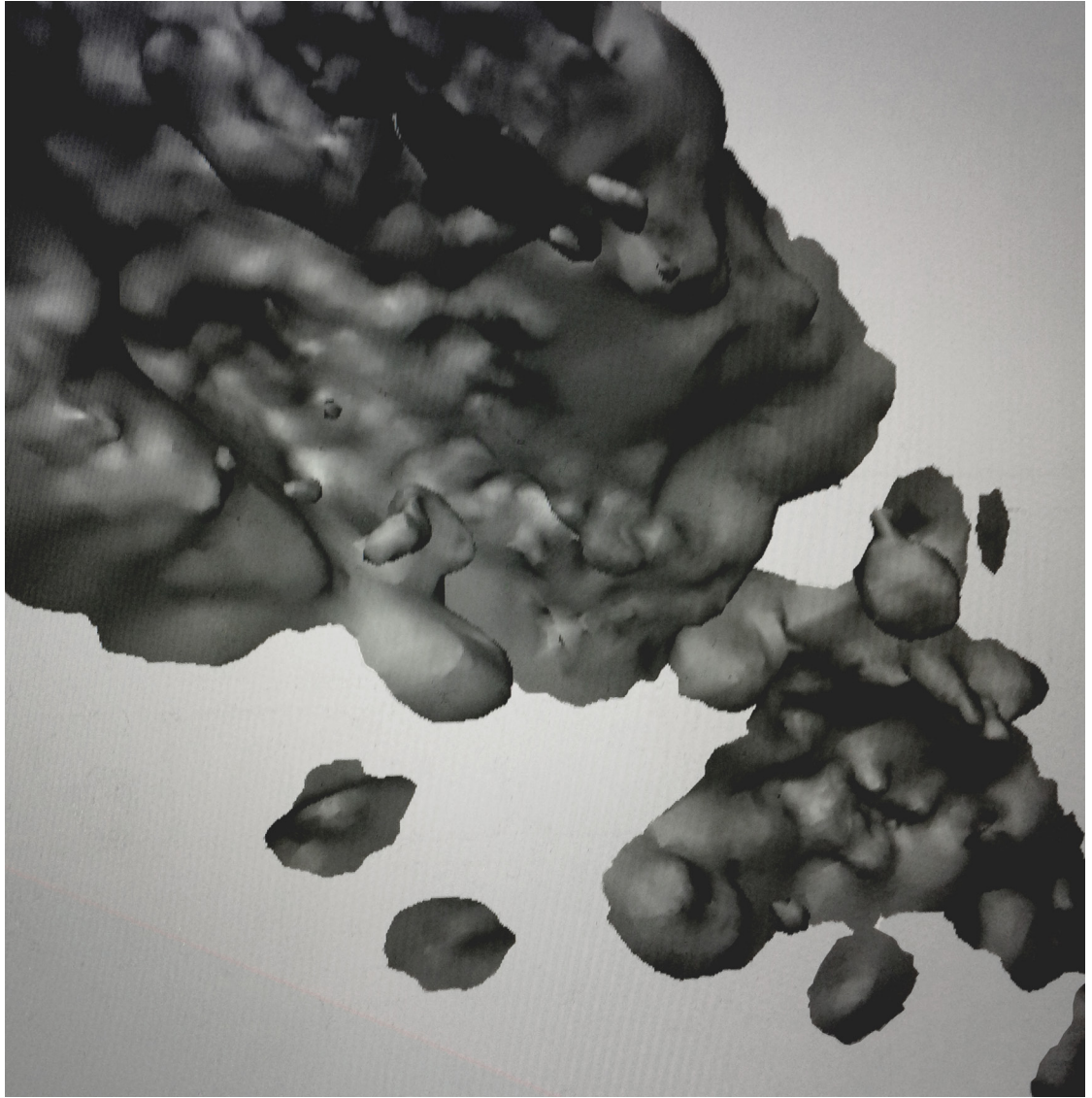
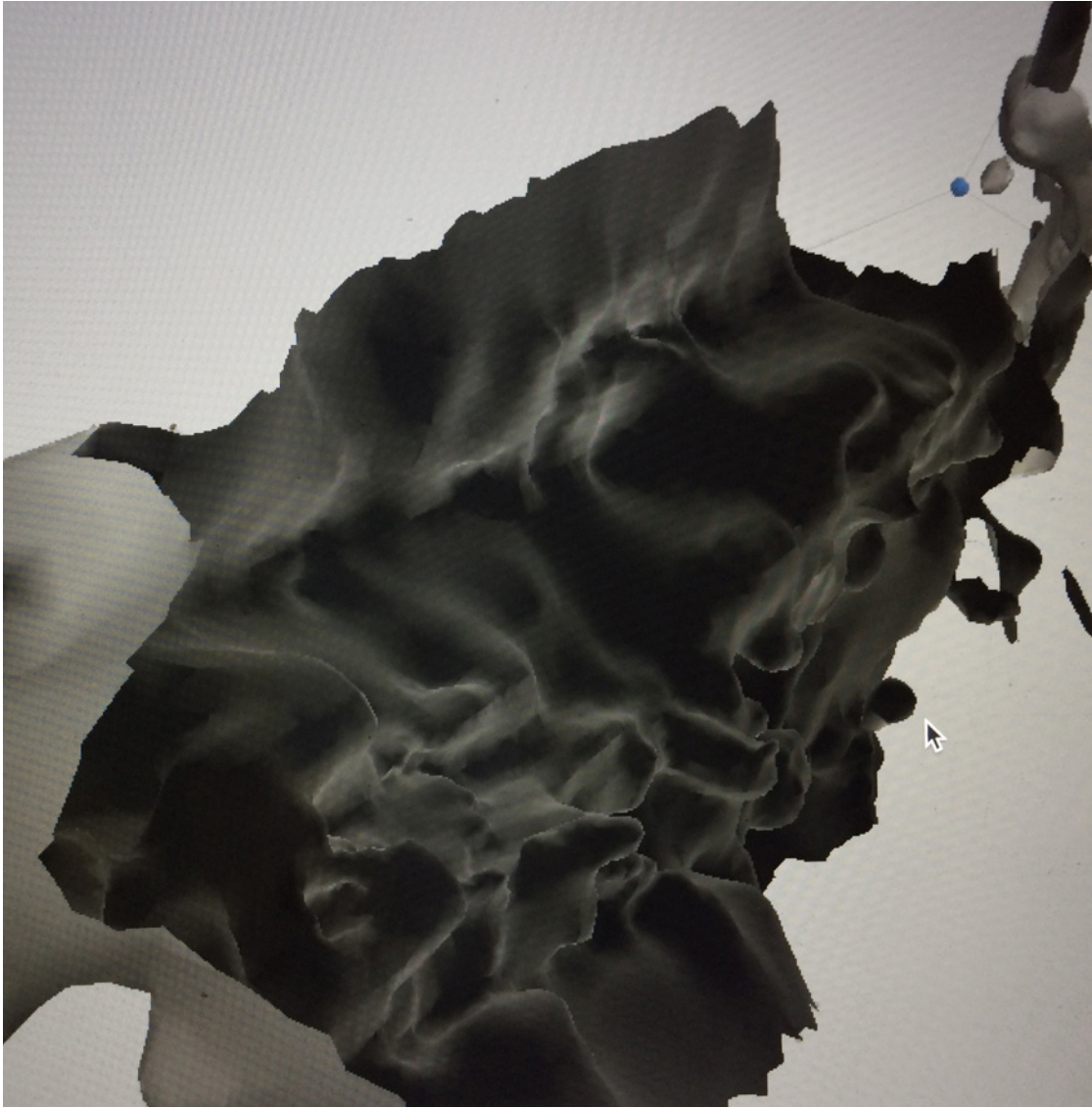Image 5: Screen grab of point cloud model.

Image 6: Screen grab of point cloud model.

Drawing on my experience with printmaking, I began to explore the possibility of digitally engraving surfaces in plaster based on the stills, bearing in mind the terrain models I had seen at Chicksands. Handling plaster was complicated and required patience and time to get to know the material and its behaviours. I used sheets of plasterboard and stripped them of their facing paper covers and sanded the surface to a smooth chalky white. Plasterboard, I realised, contains tiny invisible fiberglass particles which made their way into the skin on my hands, temporarily producing a red reaction. Tiny holes began to appear on the surface, defects produced from air bubbles in the casting process which gave the sheets an osseous and organic quality. The sheets were tactile and fragile. Working with a laser engraver, over time I began to know its potentialities and limitations. A combination of the fragility of the plaster, stripped of its paper support and the inability of the machine to process a grey-scale image, meant that many of the first tests crumbled. I developed a technique of creating bitmaps from the still images. This process converted them into visual maps of a black and white binary code of 0s and 1s that allowed the laser engraver to understand the image file. The appearance of the engraved image, then, was dependent on two levels of depth, and nothing in between. The first tests were proportioned exactly to my laptop screen, but later I began carving the forms by hand to create more organic and bodily shapes, working with the grain of the material. The still images I used contained not only the moments after the strike, explosion clouds of smoke and dust, but also information relating to the technical aspects of the image such as the cross hair and areas of redacted information, blacked-out on screen. The process of engraving was rife with technical complications; the machine head repeatedly lost its centre and became disorientated on the bed. The indentations caused by air bubbles looked like tiny pock-marks on the surface of the plaster. This change in depth meant that the deeper surfaces further away from the laser were engraved out of focus. Their visual presence registered as both organic and violent, resembling skin scarred by acne or the osseous and vesicular qualities of pumice rock.

These holes were a

glitch

81

in my system.

Tiny pits confounded the laser, shifting its focus. They disrupted communication between

sender   and

                    receiver.

They interrupted the image, generating multiple levels of immeasurable depth in the surface of the plaster instead of the two that we had programmed. I had seen this phenomenon in my work as a radiographer. Interruptions from inside and outside the body, or the body moving during the procedure, leave their mark as artefacts in the digital image, disrupting the analyses and visual reading of the scan. I once saw a patient's lungs scattered with shrapnel, appearing as multiple bright white circles on the x-ray. In image scanning technology, certain types of mis-recognition of colours could be described as glitches, the lost information not evident but absent from the visual scan. On occasion the engraver would miscalculate the file and drop into the plaster, routing out deep channels in the surface.
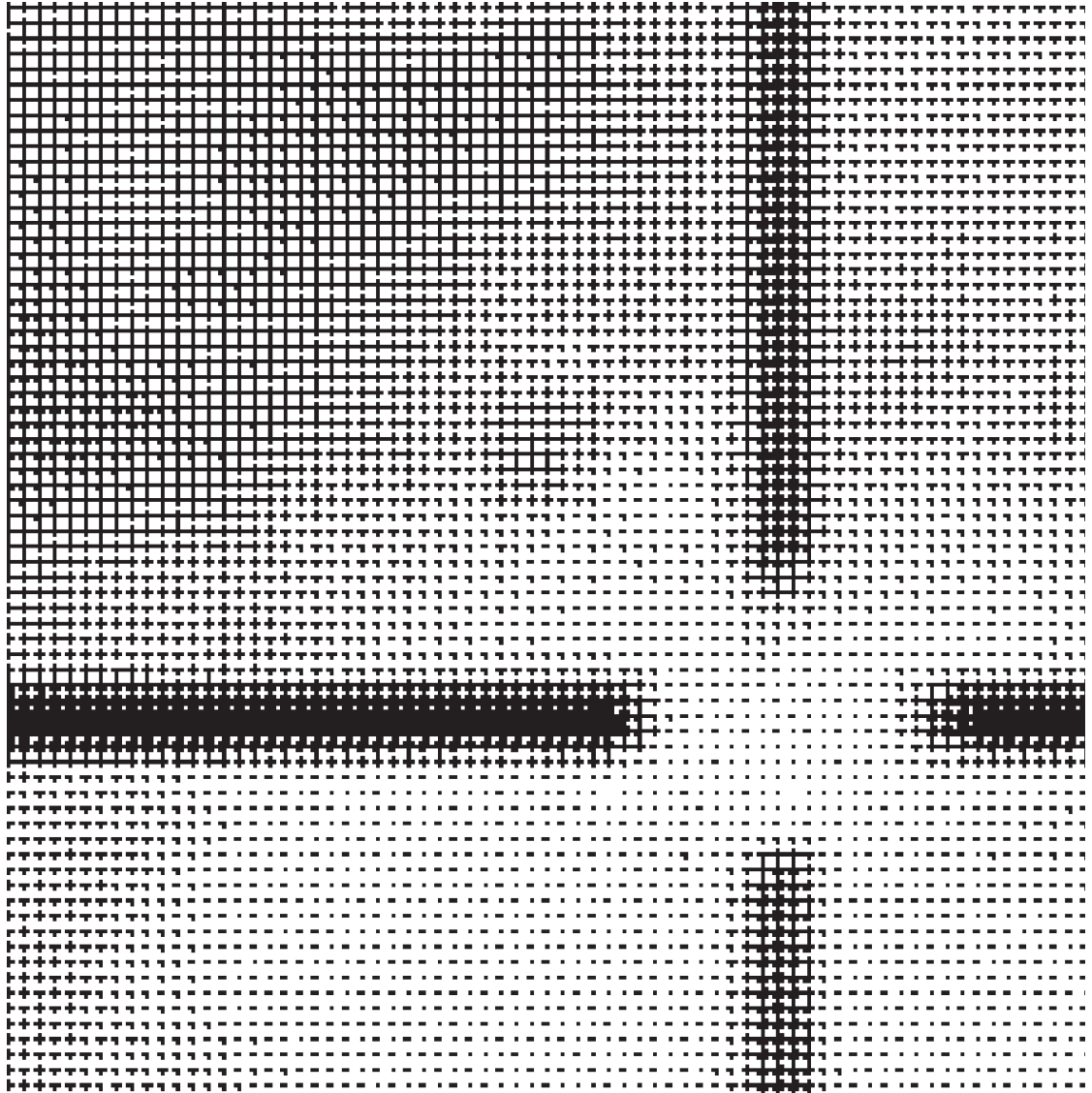
Image 7: Screen grab of section of bitmap file for laser engraving.
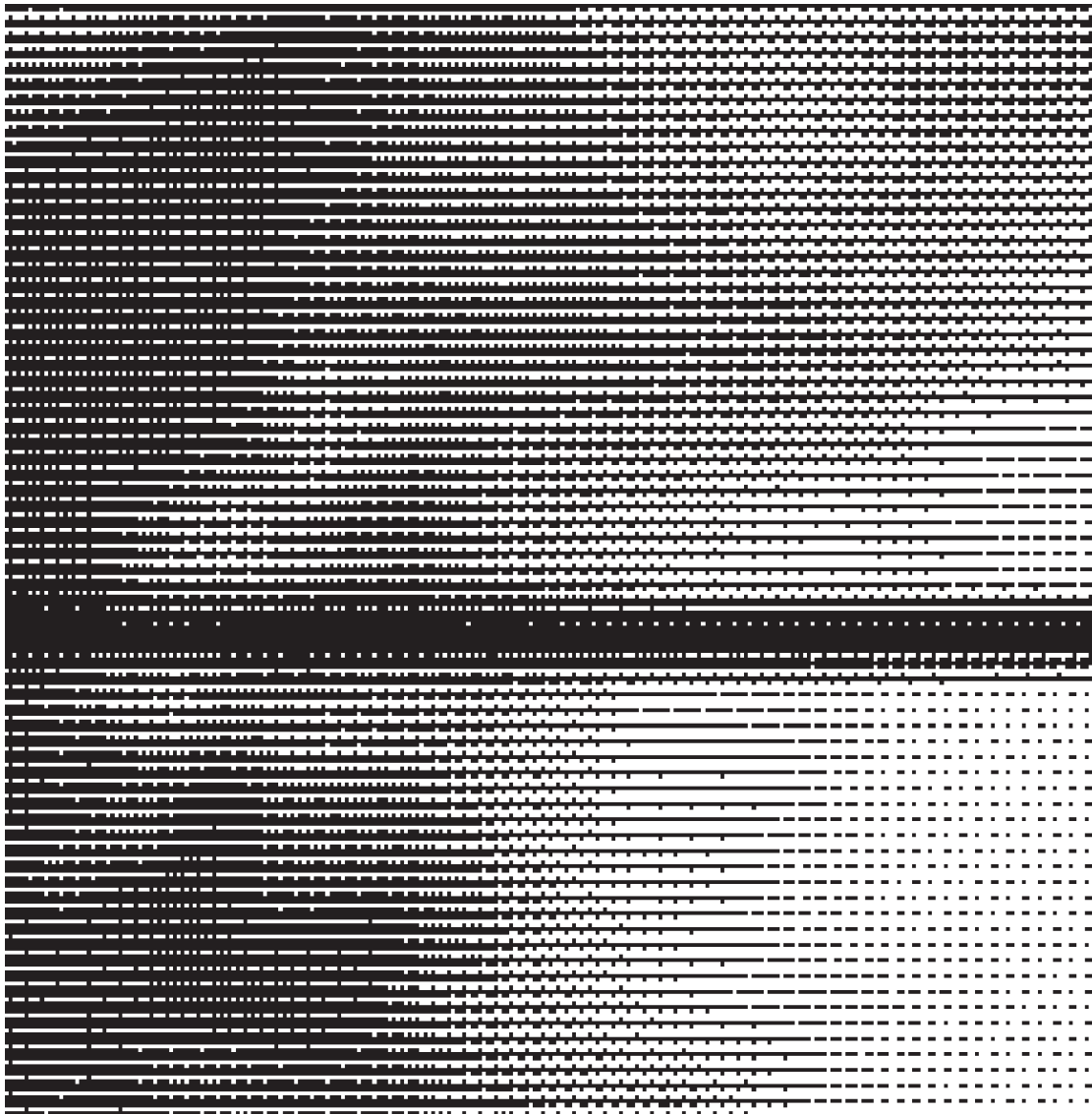
Image 8: Screen grab of section of bitmap file for laser engraving.

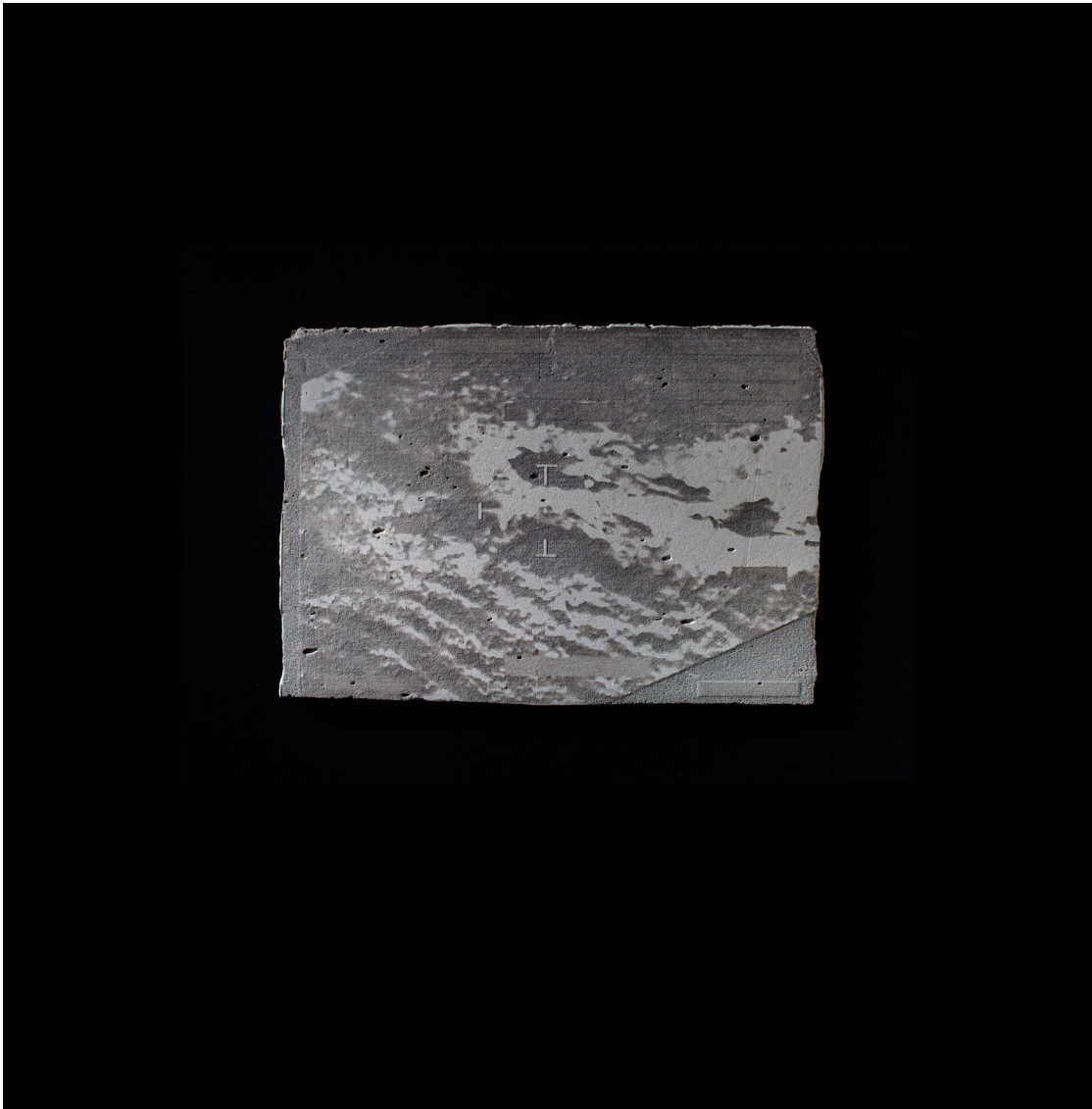Image 9: Digital photograph of test of laser engraving on plasterboard.

Image 10: Digital photograph of test of laser engraving on plasterboard.
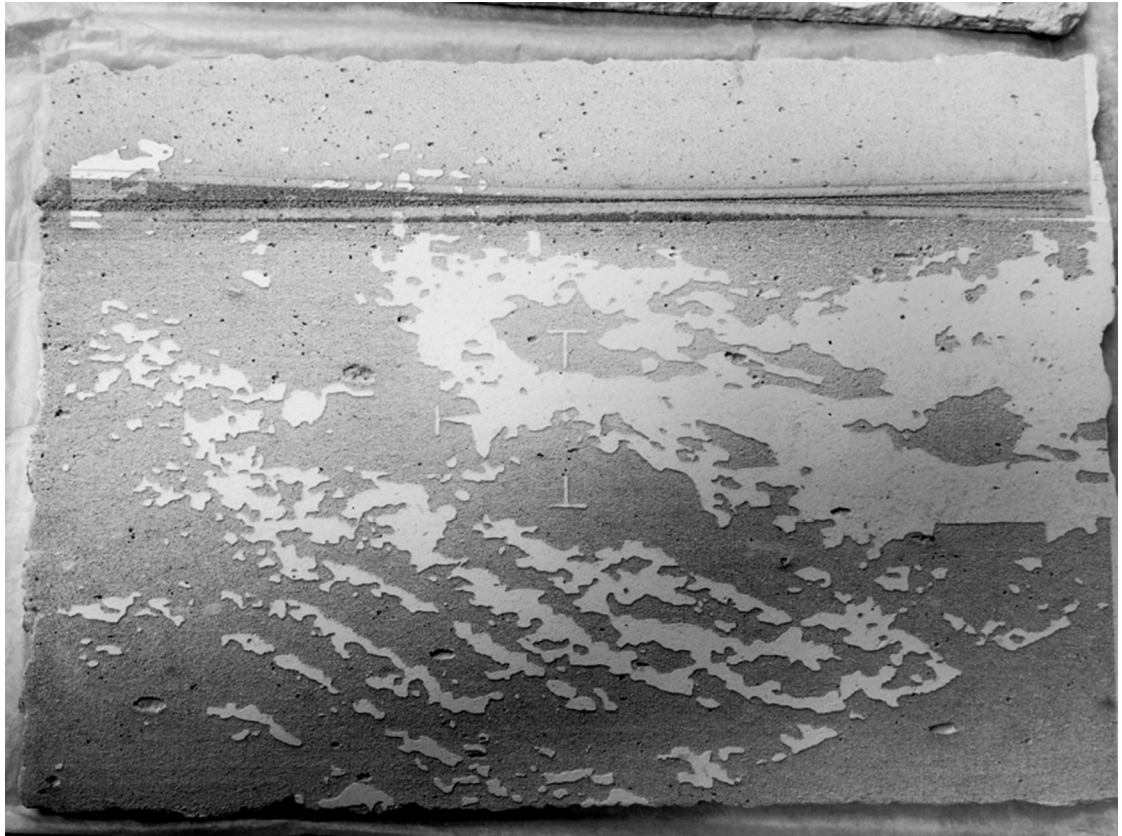
Image 11: Digital photograph of laser engraving test on plasterboard with marks from machine head.

Image 12: Digital photograph of laser engraving on plasterboard.

Image 13: Digital photograph of laser engraving on plasterboard installed at Unit 1 Gallery, 2017.

I wanted to work with the unpredictability of the material in a more reciprocal way, pushing against the calculated nature of the initial forms and their methods of production. They became irregular in shape and fragmentary partially because of this, and partially because I was attempting to move away from the proportions of the screen and the visual language of technicality and transcendence, towards more bodily and unconventional forms. I experimented with texture and proportions, towards more organic and tactile forms. Displayed collectively, they resembled clouds or fragments of the surface of the moon. In many of the plaster forms and latex sheets that I will discuss later, I had included the cross hair in the image, to make direct reference to the weaponised view. Yet I was concerned regarding the replication of this weaponised and scientific gaze, a mode of visualising also evident in Trevor Paglen's *Drone Vision*.[178] This moving image work presents the viewer with a silent, projected video feed from a military drone, not dissimilar to those I have observed online. As intercepted or hacked footage, the images remain unredacted; geolocation and other targeting information are visible along with the cross hairs. Here I see with the drone, as the military does, to reveal otherwise hidden information to the viewer, a strategy Paglen employs in many of his works.[179] While hacking disrupts the notion of military technical infallibility, *Drone Vision* conceals the embodied processes involved in its original production and its production as an artwork; Paglen's website states that the video is edited.[180] The work reveals the drones' eye view, but from the position of an objective observer, rather than an embodied drone operator, hacker or artist. Conversely, Romeo Alaeff's works on paper series *Air Strikes* are gestural and expressive charcoal drawings of the drones' eye view that I am familiar with from YouTube, with areas of redacted content.[181] The translation of the images into loose drawings of explosion clouds complete with targeting and tracking symbols raise relevant questions, specifically concerning the production of artworks or art objects, especially in terms of the ethics of reproducing the drones' eye, techno-scientific, weaponised view and therefore the ideology of technicality. I recognised that the engravings on plaster were illustrating an idea, rather than embodying an exploration of the question. They did not consider how the techniques employed and the materials used are woven through the nature of the investigation. Furthermore, both Paglen's and Alaeff's artworks posed an even larger question around the production of artwork and the derealisation of warfare in the context of my doctoral research.

178 *Drone Vision*, directed by Trevor Paglen (2010), looped DVD video, 5 min.
179 Or, to point to the notion of invisibility itself. See 'Untitled Drones', accessed November 18, 2019, https://paglen.com/?l=work&s=drones. For further discussion on invisibility and the revelation of information in this series see 'Art Documents: The Politics of Visibility in Contemporary Photography', *InVisible Culture: An Electronic Journal for Visual Culture* 22, accessed October 02, 2019, http://ivc.lib.rochester.edu/art-documents-the-politics-of-visibility-in-contemporary-photography/.
180 Trevor Paglen, 'Untitled Drones', accessed November 18, 2019, https://www.paglen.com/?l=work&s=drones&i=10.
181 Romeo Alaeff, *Airstrikes*, 2016, series of charcoal on paper drawings, 42cm x 59.4cm.

Submerging

While working with the engravings on plaster, I began experimenting with casting latex. Latex is most familiar to me as a medical material in the form of surgical gloves but is also used as synthetic skin in the make-up and film industries. It was this membranous and bodily quality that I was interested in exploring in practice. I deliberately selected particular stills to work with, primarily based on colour. Although the US and UK military upload airstrikes primarily as grey-scale thermal images, a number of strikes are also published in colour. The stills were printed on fine silk and working with a specialist latex producer, were submerged into medical grade liquid latex to produce fine sheets. Translated both in scale and materiality, the images took on the characteristics of faux tissue and evoked sensual and bodily qualities in pinks, reds and oranges. Latex can be polished using specifically formulated silicon liquid. I buffed the liquid into the surfaces. Once polished, the surface tension and inner structure of the fabric caused the latex to ripple in unpredictable ways, disrupting the legibility of the image. This became interesting to me; rather than the surface delivering the representational qualities of the images, it began to interrupt their legibility. The high gloss shine bouncing across the rippled surface also disrupted an immediate reading of the image. These qualities enabled a form of looking that searched and travelled over the visceral, almost fluid surface, pushing as Marks suggests, 'the viewer's look back to the surface of the image'.[182] Drawing on Vivian Sobchack, she argues that in this form of looking, the movement between distance and proximity means that rather than viewer and image being separate, the viewer has to work to constitute the image. The consequence of this relationship is a destabilisation of the representational capabilities of the image and the enabling of an embodied perception in which other sensory modes are intertwined with the intellect.[183] I spent a lot of time with the latex in the studio considering the relationship between the flatness of image on screen and the rippled, ruptured and glossy version that I had translated into latex. I considered their synesthetic qualities; tactile and visual registers are interwoven in the material surface.[184]

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182 Marks, *Touch*, 4.
183 Marks, 13.
184 Marks describes synaesthesia as the translation of qualities from one sensory register to another. The senses do not translate information but express in their own form the quality of a given perception. See Marks, *Touch*, 217. Vivian Sobchack extends the theorisation of synaesthesia beyond the 'involuntary' to a more common and 'volitional' usage of the term in which synaesthesia is employed metaphorically to sensually describe linguistically one sensory experience by means of another. See Vivian Sobchack, *Carnal Thoughts: Embodiment and Moving Image Culture* (Berkeley, Calif.: Univ. of California Press, 2004), 68.

Image 14: Digital photograph of latex tests.

Image 15: Digital photograph of latex tests.

Because the still images I was using were heavily desensitised and redacted, in my choice of stills I had in fact created a series of graphic, albeit abstracted and visceral skin-like objects. In the context of works that could be read as graphic in nature, the reliance on a haptic visual encounter could potentially be problematic as graphic imagery provides according to media scholar Sue Tait 'no knowledge of the social, cultural or psychological conditions that may produce it'.[185] This is also arguably the case in the visceral, fleshy and disordered representation of deceased and dismembered bodies in Thomas Hirschhorn's *The Incommensurable Banner*.[186] Incommensurable means incomparable, immeasurable, and arguably, unjudgeable.[187] As a banner consisting of images of war-torn bodies, and a response to the exclusion of images of the injured and maimed bodies of victims of military action in Iraq and Afghanistan from the mainstream media, the *Incommensurable Banner* references the inability to find a common and shared measure or meaning. The banner confronts the viewer with graphic images of the body in ways I am not accustomed to encountering, appearing vulnerable, leaking fluid and material, yet the work arguably says little of the political frameworks and power structures that actually make the bodies invisible. His film *Touching Reality* is also concerned with these themes along with the hapticity of the screen.[188] Although I have not experienced either works in an installation context, they no doubt elicit an affective, emotional response.

This encounter with the destruction of the body, social theorist Leila Dawney argues, 'despite its openness to alternative meanings, operates prior to and alongside the mode of relating to the politics of the image that follow'.[189] Without addressing the power structures that make the body invisible or outside the frame, the spectacle of the wounded body can 'do powerful political work', in the service of propagandist strategies that produce frames of representation that 'conscript publics and elicit from them political–affective responses'.[190] The dead, maimed bodies are represented as lifeless flesh, appearing, as Vivian Sobchack states 'always as other than we are and as an object'.[191] She continues that 'the horror of the corpse is precisely that it is not perceived as a subject'.[192] Both of these works could be understood to directly counter the types of operative images I am

185 Sue Tait, 'Pornographies of Violence? Internet Spectatorship on Body Horror', *Critical Studies in Media Communication* 25, no. 1 (March 2008): 104.
186 Thomas Hirschhorn, *The Incommensurable Banner*, 2008, collaged paper, 4m x 18m.
187 Etymologically *incommensurable* emerges from the Latin *incommensurabilis*, from *in;* 'not, opposite of, without', *com;* 'together' and *mensurabilis*; from *mensurare* 'to measure'. See 'Incommensurable', Online Etymology Dictionary, accessed Janruary 3, 2020, https://www. etymonline.com/search?q=incommensurable.
188 *Touching Reality*, directed by Thomas Hirschhorn (2012), video on iPad, 4min. 45s.
189 Leila Dawney, 'Affective War: Wounded Bodies as Political Technologies', *Body & Society* 25, no. 3 (September 2019): 54.
190 Dawney, 'Affective War', 67.
191 Sobchack, *Carnal Thoughts*, 236.
192 Sobchack, 236.

concerned with. Hirschhorn's instrumentalisation of maimed bodies as a form of truth that is not reported in the media is spectacularising death and destruction, the wounded body 'working to deflect attention away from rather than call attention to what almost certainly lies […] behind the surface of that image, a terrifying number of bodies with actually severed arteries'.[193] I will discuss this spectacularisation further in Chapter Three, Repetitive Strain. Materially rendered as low quality prints on paper and images on screen, their production is confined to the language of the proliferation and consumption of poor images, remaining predominantly within the realm of the visual, albeit haptic visual.

Both *The Incommensurable Banner* and *Touching Reality* represent the maimed body, making it visible in print and film, yet its meaning is unstable. Without any title or textual reference, a materially orientated, haptic visual encounter with the latex images I had made could be problematic; in both Hirschhorn's and my own work, the appearance of visceral, injured flesh becomes an unstable site through which power and political authority can operate.[194] Tait, drawing on Susan Sontag states, 'only that which narrates can make us understand'.[195] Yet Hirschhorn's title, *The Incommensurable Banner* indicates, to me at least, that there are realities that I, as a viewer of the work, cannot understand. I do not have either the facilities nor experience to do so. In this sense, Hirschhorn uses the title text, not to make us understand but to potentially allude to what we cannot understand. With the representative aspects of the operative content of the latex works I had created disrupted by the flow of surface ripples, I questioned the role of text in meaning-making. It was my desire to explore bodily and corporeal registers through materials, yet not to spectacularise bodies of those living and dying under drones. This complex relationship between materiality and representation could be mediated through text. Yet, considering 'incommensurability', I was hesitant to adopt this strategy.

Haptic visuality considers the relationship between the viewer and the image through the entanglement of touch and vision and arguably interrupts the representational aspects of operative images as clean, bodiless and precise. Drifting from maker to viewer and back again, the latex works are unsettling and uncomfortable to look at, reminding me of bruised, burnt and wounded skin, yet my encounter with them reveals nothing of the bodies absented from the images beyond problematic registers of disgust and discomfort. Film scholar Jenny Chamarette suggests that haptic visuality is both a strategy in which the image is apprehended but also in which the viewer apprehends their spatial presence with

193 Scarry, 'Injury and the Structure of War', 9.
194 Dawney, 'Affective War', 58.
195 Susan Sontag, *On Photography* (New York: Farrar, Straus and Giroux, 1977), 23.

the image beyond representation, arguably drawing attention to proprioceptive registers.[196]
Similarly Marks also expands her theorisation of haptic visuality as multi-sensory 'intimate
and embodied perception', acknowledging that the haptic implies touch in relation to
other senses such as the visual (or, in the case of haptic aurality, the sonic).[197] Embracing
these slippery theorisations of haptic perception, I questioned if a multi-sensory embodied
perception of operative images could generate a more relational and situated experience
with the images. Haptic visuality is understood then to be part of but not constitutive of
an embodied perception involving the multi-sensory registers in which the senses are
entangled.

Drawing on Maurice Merleau-Ponty, Sobchack argues that the lived body, a 'conscious
subject and material object' is one in which the senses readily interact, intercommunicate
and translate across each other. The body is thus 'sensible-sentient', meaning it is both
consciously and unconsciously able to register sensory experience.[198] Sobchack describes
embodiment as a condition that concerns a complex assemblage of 'the body and
consciousness, objectivity and subjectivity' which is not evenly distributed or valued, the
agency of which is not always even fully disclosed to each other.[199] How we are constituted
and how we make sense of ourselves and the world depends as much on our conscious
thought as it does our corporeality, 'sometimes body and sometimes consciousness
preoccupy us, and – as in the reversible but differently weighted senses of our existence
as "objective subjects" and "subjective objects" – one may hold sway over the other', she
argues.[200] It is this articulation which I found more relevant to my research, one in which
multi-sensory experience is registered consciously and unconsciously in and through the
body with and as materiality. It is this tension between multi-sensory and material registers
that I explore further in the next chapters of this thesis, considering the body not as separate
from the mind, and intertwined in the relational experience with the world.

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196 Jenny Chamarette, *Phenomenology and the Future of Film* (London: Palgrave Macmillan UK,
    2012), 234.
197 Marks, *Touch*, 133.
198 Sobchack, *Carnal Thoughts*, 69-70.
199 Sobchack, 4.
200 Sobchack, 4.

Image 16: Digital photograph of faux marble tile.

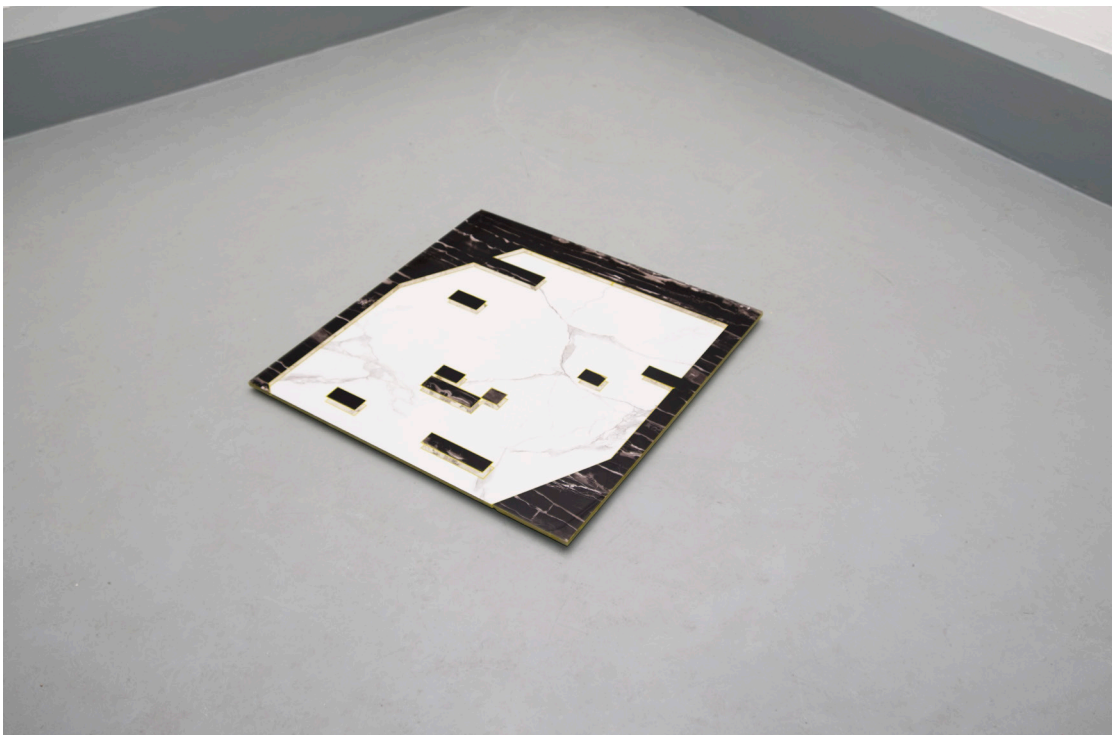Image 17: Digital photograph of faux marble tile.

Image 18: Digital photograph of faux marble tile.

Removing

Working with the screen grabs in Adobe Photoshop, I removed the image itself and left only the traces of the remaining redactions. I had identified that the replication of the drones' eye view was problematic, and I wished to experiment with destabilising the aerial perspective within the images and to consider their structural frames. Thinking about synthetic surfaces and again tactile and haptic contact, I explored the production of floor-based work. My desire was to consider for the first time in the research, the physical position of myself and the viewer – the proprioceptive implications of looking down upon and touching the work physically. Removing the image leaves only the frame of the drone camera and the marks left by the redacted content. In doing so I made what resembled a scaled up version of the bitmaps I created for the works on plaster. Appearing as a computational or algorithmic image, relating visually to binary codes, 0s and 1s, patterns began to emerge. Seeing faces in these images, I was recognising patterns where there were none. Pattern recognition plays a role in drone warfare, reducing humans to data calculable code, yet another way of positioning bodies outside the operative and representative frames of war, as discussed in Chapter One, Operative Acts. In this process, algorithmic modes of observation and tracking are applied for the identification of military targets. Thus, the drones' eye view is also presenting an aerial view that is no longer confined to optical media alone and it is this aspect of technicality that I began to explore through these experiments.

What then does it mean to reduce these images to abstract patterns of data? I was referencing deletion and redaction while simultaneously referencing the calculability of bodies. I began the process of fabricating a piece of flooring. I generated a vector file and used faux marble tiles consisting of a ceramic base overprinted with marble effect imagery. The inlay was fabricated using a waterjet, which, following the signals from the vector file creates cuts in the material.

0 or 1,   off or on,

black or white.

I chose three faux marble tiles in black, white and grey. The grey shadow created an optically 3-D reading of the image. It soon emerged that I had employed a method of production constrained by the limitations of the machine's abilities. I had to work with the

demands of the machine, rather than my own or the material's. In my studio I grouted the tiles in bright yellow in an effort disrupt the cool, glossy and inaccessible surface of the faux tile. Cracks also appeared in some of the weaker areas of the tile, unpredicted fractures also to be filled in yellow – irregular diversions in an otherwise predictable and logical visual route. There was something about the everydayness of the tiles, flooring being a material that we live with, that we come into daily contact with, often not even noticing its presence, that alluded to the everydayness of war, seemingly without beginning or end.[201] As with the previous works, the technique demanded intimate contact with the image on screen, and a period of time working closely with the surface of the object. Crouching down at ground level, closely working with the tiles, I noticed the tiny printing dot pattern of the marble surface, a miniscule trace of the synthetic surface. The printed surface acted to conceal the interiority of the plain ceramic body of the tile, obscuring it from outward view. Media theorist Brendan Hookway suggests that the surface provides an available readable aspect of the body of the thing, yet to know the thing the surface must be permeated.[202] Haptic looking potentially enables a bodily relationship between the viewer and the material surface of the image, yet I realised there were many more bodies within the scope of my doctoral research. The limitations of my approach became especially obvious in this body of work; although it draws attention to the optical frames through which drone warfare visualises bodies and redacts data, the removal of the content resulted in a disembodied, graph-like and technical image.

The question of a title or accompanying text could have potentially addressed this issue. Like the inlay I had made, James Bridle's film entitled *Everyday Redaction* is almost inaccessible without its text-based introduction.[203] The film is an animation of the black redaction marks from documents he obtained of the Senate Intelligence Committee Report on CIA torture. Sitting in front of the video consisting of abstract black and white shapes moving, I am not really sure what I am looking at. A text at the beginning of the film reads: 'US Senate Intelligence Committee Study of the Central Intelligence Agency's Detention and Interrogation Program: Every Redaction'. What I am concerned with is what it means to produce abstract data visualisations as a form of critique of power structures and additionally, what it means to accompany this data visualisation with a text that ensures that the work is read in a specific way by the viewer. Thinking about Bridle's work allowed me to recognise key problematic

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201 This everyday quality of war is addressed by Cheryl Pagurek's two channel video work entitled *Growing Pains (Part One and Two)* and accompanying series of photographic prints *High Value Targets* which use montage to juxtapose military operational imagery with scenes from the artist's garden. The artist is concerned with the intimate domestication of the on-going so-called war on terror and the visuality of digging and gardening serve as a provocative juxtaposition with aerial military footage, generating the sense of the everydayness of war in suburban American life. See 'Growing Pains and High Value Targets', Cheryl Pagurek, accessed November 13, 2018, https://cherylpagurek.com/works/growing-pains-and-high-value-targets-2009/.
202 Branden Hookway, *Interface* (Massachusetts: The MIT Press, 2014), 9.
203 *Everyday Redaction*, directed by James Bridle (2015), animated video, 1 min.

aspects of my own work. Faux marble, though interesting to think of in terms of its deceptive surface quality neither expresses registers of human nor technological materiality, at least in the way I had employed it. I didn't explore the materiality of the tile itself, and its unpredictability, bodily and generative potential. Hito Steyerl queries the kinds of pattern recognition processes involved in pattern of life analysis and targeting of drone strikes when she asks, 'which faces appear on which screens, and why? Or to put it differently: who is "signal", and who disposable "noise"?'[204] She questions 'who is recognised on a political level and as what? As a subject? As a person? As a legitimate category of the population?'[205] Pattern recognition in random data can have disastrous consequences in a military context. These programs, according to Nina Franz, often draw inaccurate conclusions from the data and from the judgments of humans, 'which is inextricably inscribed in these highly complex assemblages of humans and machines'.[206] Seeing a face visually in the work allowed me to think through these very material issues, and the relationship between haptic surfaces and embodiment. Yet the question of whose face, and the consideration of an encounter still remained.

Critically, this work raised unforeseen potentialities around the body and perspective and how I can manipulate proprioceptive registers. The work was firmly grounded; as viewers we were required to look down upon it to comprehend it. Rather than supplementing the abstract nature of the work with text indicating how this abstraction could and arguably should be read, an alternative could be to insert the work into an assemblage of artworks in an installation that provides some context. In *Astro Noise*, Laura Poitras employed such a strategy, along with using text to attribute meaning to images and media.[207] The multimedia installation contained a number of inkjet prints mounted on aluminium of various data visualisations, the origins of which were relayed to the viewer in titles such as *ANARCHIST: Israeli Drone Feed (Intercepted February 24, 2009).*[208] Their titling and appearance in the context of *Astro Noise*, (which also featured a number of film installations covering topics such as mass surveillance, the so called war on terror, and the U.S. drone program) allows access to context that would otherwise be unimaginable. In that sense, perhaps the abstracted visual content relayed a kind of inaccessibility – a trauma that Poitras (and the viewer) could never access. However, I grappled with the artist's presentation of data

204 Hito Steyerl, 'A Sea of Data: Apophenia and Pattern (Mis-)Recognition', *Eflux*, no. 72 (April 2016), accessed April 20, 2017, http://www.e-flux.com/journal/72/60480/a-sea-of-data-apophenia-and-pattern-mis-recognition/.
205 Steyerl, 'A Sea of Data'.
206 Nina Franz, 'Targeted Killing and Pattern-of-Life Analysis: Weaponised Media,' *Media, Culture & Society* 39, no. 1 (2017): 116.
207 Laura Poitras, *Astronoise* (New York, Whitney Museum of American Art, 2016), multimedia installation.
208 Laura Poitras, *ANARCHIST: Israeli Drone Feed (Intercepted February 24, 2009)*, (2016), pigmented inkjet print on aluminum, 114.3 × 164.5cm.

visualisations, infographics and cartographic diagrams that generate disembodied and arguably corrective artwork, especially when this data pertains to the enactment of military warfare and techno-scientific practices on bodies.[209]

The tile shifted the focus away from the absented body towards concerns regarding military redaction in the removal of data relating to dates and geographical positions. The tile denied access to the content I was grappling with; focusing on mechanisms was itself a form of black-boxing. I believe it is important to engage with these techno-scientific mechanisms and materially embodied processes, because of the ways a sole focus on corporeality can erase the structures drone warfare employs to make bodies invisible, as I discussed earlier in relation to Hirschhorn's work. Nevertheless, focusing solely on the mechanisms and structures that absent, redescribe and disappear bodies can serve to paradoxically erase them, as discussed in relation to Bridle's work. Engaging with embodied processes rather than technical and structural mechanisms may also divert away from the occlusion of human agency and responsibility in the destruction of life by drone warfare and the obscuring of bodies living and dying under drones. Understanding the intertwined ways in which these specific mechanisms function could reveal broader claims around the instability of truth within techno-scientific military discourse and that the notion of truth is context dependent. Foucault talks about truth in relation to 'domains'.[210] In this way the practice-based aspect of my research, with its focus on materiality, also destabilises this notion of scientific truth. This particular position, albeit interdisciplinary, calling upon my background in science and art practice is 'specific' in Foucault's terms, addressing complexity rather than making authoritative and universal claims within academic research.[211]

209 This corrective mode is also evident in James Bridle's project *Dronestagram* in which, using satellite imagery, he posted images of the locations of drone strikes on Instagram. His project *Drone Shadow* also utilises this cartographic mode. See 'Dronestagram', James Bridle, accessed October 10, 2018, http://jamesbridle.com/works/dronestagram and 'Drone Shadow', accessed October 10, 2018, http://jamesbridle.com/works/drone-shadow-009.
210 Michel Foucault, 'Truth and Power', in *Power/Knowledge: Selected Interviews and Other Writings, 1972-1977*, ed. Colin Gordon (New York: Pantheon Books, 1980), 129.
211 Foucault, 'Truth and Power', 126-127.

Doing

Hito Steyerl describes the digital image as an object, a thing, 'a fetish made of crystals and electricity, [...] a perfect embodiment of its own conditions of existence', arguing that it doesn't represent reality but is a thing, 'a fragment of the real world'.[212] Thus, 'to participate in an image […] would mean participating in the material of the image as well as in the desires and forces it accumulates', including its rips, pixels, tears and bruises. [213] However, engaging completely with the material and computational processes and codes could potentially ignore their representational capacity. Extracting the screen-grabbed still images from their network and attending to materiality could provoke a more contemplative encounter, perhaps encouraging us as Laura U. Marks states, to 'contemplate the image itself instead of being pulled into narrative'.[214] Yet all three bodies of work in *Material Translations* fail to consider both the network and interfaces across which we as users make sense of and interact with the Internet and specifically YouTube's tagging and captioning.[215] Words, in many forms are central to Jenny Holzer's practice, carved in marble seating, painted in large canvases, moving on light emitting diode (LED) panels, embroidered into fabric and engraved into aluminium plaques, for example. Some of these texts recount the testimony of Syrian refugees woven through poetic references to life in and resistance to World War II. Other texts directly address the viewer, the author and other bodies using the language of trauma, through physical, psychological and personal narratives and statements.

Holzer's installation in the Artists Rooms at the Tate Modern in 2018 generated, in my view, an embodied encounter in which sensory registers merge with matter.[216] The exhibition incorporated sculpture, painting, sound, light and text works. This attention to the interconnectedness of representation and materiality, the brain and the body, and a sense of partiality, are produced through language, painting and sculpture. Holzer used the visual language of commercial and public signage to display her texts, but the content was not didactic or instructional. The tactile qualities of the materials she utilised often interrupted the reading of the texts. 'I hope the text and the visuals are inseparable [now]. It shouldn't be either / or', writes Holzer, and indeed language, visuals and materiality are inseparable in her work.[217] Where the text moved across LED panels, the time-based aspect of the work implied the speaking voice. Looking up, I read the text in time with its movement. The sensory experience of the text based elements was one in which the embodied mind encountered the technical through language and the materiality of the display.

212 Steyerl, 'A Thing Like You and Me'.
213 Steyerl, 'A Thing Like You and Me'.
214 Marks, *Touch*, 17.
215 Susanna Paasonen, *Carnal Resonance: Affect and Online Pornography* (Cambridge, Mass.; London: MIT Press, 2011), 10.
216 'Jenny Holzer Artist Rooms', *Tate Modern*, 23 July 2018 – 7 July 2019.
217 Michael Auping and Jenny Holzer, *Jenny Holzer* (New York: Universe, 1992), 95.

Vivian Sobchack argues that embodied encounters and experiences are mediated by technologies of perception, expression, historical and cultural systems, acknowledging the limits of what we can feel and the constraints of our perception.[218] The regulation of affect and emotions is closely linked with political policy and the mobilising of citizen subjects in terms of pre-emptive military warfare and global policing. Visual communication and specifically media images are central to this relationship producing politically-affective action through emotions such as fear and anxiety.[219] Judith Butler argues that affect depends not just on moral or philosophical beliefs but recognition of a life, because 'if certain lives are not perceivable as lives, and this includes sentient beings who are not human, then the moral prohibition against violence will be only selectively applied'.[220] Affective responses, she argues are only mobilised if we perceive there was a life to begin with, and is thus problematic when considering the operative frameworks of media and war. Butler calls not for a 'full deregulation of affect', but to

> query the conditions of responsiveness by offering interpretive matrices for the understanding of war that question and oppose the dominant interpretations-interpretations that not only act upon affect but take form and become effective as affect itself.[221]

By reflecting on the work of Jenny Holzer, I considered how my research practice engages with the political affect and attention economy, an economy that bypasses 'the perceptual in the attempt to directly produce affective responses'.[222] These responses could be fear and hate, or passive indifference (particularly as a response to the proliferation of images).[223] The way war regulates affective responses, along with the contested relationship to pre-cognitive and pre-linguistic experiences that affect theory comprises, led me to a more materially embodied position where corporeality and sensory perception are in continuity with each other.

I found this hybrid approach to meaning-making evident in Holzer's Tate Artist Rooms presentation. Her painting *Protect Protect*, from a series of redaction paintings, illustrates declassified US military maps relating to counter-insurgency interventions and strategies, painted in oils on a large canvas, complete with areas of redacted information.[224] These redaction paintings undoubtedly draw attention to the structures and frameworks of power that absent bodies, a practice I have previously been critical of, yet their installation among

218 Sobchack, *Carnal Thoughts*, 4.
219 Eder, 'Affective Image Operations', 66.
220 Butler, *Frames of War,* 51.
221 Butler, 52.
222 Marks, Chateau, and Moure, 'The Skin and the Screen', 261.
223 Eder and Klonk, *Image Operations*, 66.
224 Jenny Holzer, *Protect Protect* (2007), oil paint on canvas, 2011 × 2600 × 40mm.

a number of other sculptural elements is thought provoking. These sculptural elements included a sleeping bag embroidered with the first-person testimony of a British Army nurse, the form and placement of which conveys the sense of an absent body, and a series of bronze cast plates with short texts. Spatially I looked up and down at these texts and connect with them proprioceptively as well as visually. People sat quietly together on the engraved marble seats. Affect, in these embodied terms could be defined as Rosi Braidotti does as 'the body's capacity to enter relations- to be affected', where relations are the 'virtual links a body can form with other bodies'.[225] Similarly, Sobchack writes that 'our experience is not only always mediated by the lived bodies that we are, but our lived bodies (and our experience of them) is always also mediated and qualified by our engagements with other bodies and things'.[226] In this sense embodiment is understood as a continuity between corporeality and sensory experience of bodies and things. Holzer's exhibition generated an embodied encounter with bodies, in my view, bodies with whom we are relationally entangled but physically distanced from. At times, the LED text work appeared to be glitching, moving so fast that it was blinding and impossible to read. Its presence was hypnotising, operating in a constant loop. Overall the installation of these and other elements create a sense of multiple temporalities, narratives, bodies, sensory experiences and materials rubbing up against each other in a contemplative personal and collective encounter. Holzer draws on a rich variety of sources and texts are used sculpturally, linguistically, and conceptually to convey a sense of temporality, multiplicity and instability.

225 Braidotti, *Metamorphoses*, 104.
226 Sobchack, *Carnal Thoughts*, 4.

105

Closing

Producing this body of work revealed many unanticipated issues which shaped the methodology of my doctoral research. It also revealed the instability of my integrity as artist-researcher and therefore my methodological position. I, along with the methods and media I was using were also insecure and unstable, a condition I would go on to address further in subsequent bodies of work. Each of the bodies of work that constitute *Material Translations* raised an important issue. First, the works on plaster revealed that translating the image onto and into a tactile, haptic material does not interrupt its visual signification towards an ideology of a technical and bodiless war and arguably perpetuates it. Secondly, translating the image onto and into a bodily material such as latex raises problematic issues regarding the representation of vulnerable, fleshy, wounded bodies. Representing bodies that have been absented from mainstream media and military reports of warfare in this way objectifies and marks them as *other*. Thirdly, erasing the problematic aspects of the image that generate a technical and bodiless ideology, shifts the image into graph-like abstraction. The use of language to compensate for and explain this abstraction still signifies towards the ideology of technicality and operates to correct the abstract appearance of the work. Reflecting on *Material Translations* raised the question of how and if I can replicate these images in my research practice, and how I can account for my position as a white artist, editor, producer, researcher, looking at these images through my laptop screen. Additionally, I considered how text could be used without operating correctively to articulate gaps in meaning. Haptic visuality can potentially connect the viewer's body with the work and create a bodily image through its surface qualities. However, making the works revealed that I needed to consider the many bodies implicated; the hybridity of voices, narratives and racially inscribed bodies and what the potential of this may be in my research. I questioned how I might encounter these bodies in non-colonialist and non-racially inscriptive ways through practice. The agency of materiality in my practice generated questions around how certain materials not only mimic other materials, including bodily materials, but behave in unpredictable ways that disrupt computation and algorithmic calculation. Finally, I questioned if my own body could be used as a material in this way.

Reducing the already temporally compressed moving images to stills problematically intensified their ideology; converting a time-based video into a still image arguably reduced the images further from short clips of longer events. Thus, this gesture was complicit with the militaries' reductive compression of drone warfare into bite sized ideologically constrained readily consumable content. Reconfiguring the viewing experience would necessitate attention to these time-based concerns in the practice-based research along with sensory registers. Changing the context in which the images are encountered would require more imaginative modes of creation. Rather than haptic visuality, multi-sensory

materially embodied encounters could hold the potential to reconfigure the habitual encounter with operative images online and the possibility for an encounter that is too slow to engage the 'preindividual affective capacities that a capitalist political economy already maps and mines'.[227] It became evident to me that working with the time-based qualities of the operative images in an expanded sense, perhaps through moving image and installation-based practice could generate a slower, more contemplative encounter with the images.

The ideology of military warfare produced through the content I was watching online demanded a deeper and more complex level of engagement with the notion of an encounter than I had explored in *Material Translations*. In Butler's account of vulnerability, she argues that all bodies are vulnerable to injury and this underpins a rethinking of precariousness and responsibility through the ontology of the body beyond its beingness because 'in its surface and its depth, the body is a social phenomenon: it is exposed to *others*, vulnerable by definition'.[228] However, this vulnerability is not homogenously distributed. She is careful to point out that the body's vulnerability is not reducible solely to its injurability, neither does it suggest that we are all victims, which could potentially mobilise a problematic binary.[229] Butler argues that the face of a human in Levinasian terms, 'always a figure for something that is not literally a face', can be represented only by representing the impossibility of representation; any attempt to represent the *other* would result in its objectification, 'efacing' what is human about the face.[230] However, I questioned if and how materiality could intervene in representation, rather than relying on representation as the model through which its failure could be understood. It may not be possible to generate a Levinison ethical encounter with the bodies marked as *other* but I questioned how an encounter could attempt to avoid effacement through representation, or the failure of representation. *Material Translations* revealed that any consideration of materiality should be explored through and with the materiality of the operative images encountered online.

227 Clough, *The Affective Turn*, 28.
228 Butler, *Frames of War*, 33.
229 Butler, *Precarious Life*, 4.
230 Butler, xviii.

The screen is tinted tangerine orange. 'It's a perceptual processing problem', she explained, 'you see patterns in texts which make them difficult to read'.

So, I am writing through a tangerine filter,

overlaid
on my screen.

I can't
touch type.
My muscles can't remember.
Instead I am in a state of perpetual grasping, always looking for the next key. 'Poor spatial awareness', she continued.

Like my reading,

it's slow.

A pixel is dead, burnt out of my screen.

Repetitive Strain

Opening

In response to the questions raised by *Material Translations*, particularly how embodied sensory registers might be investigated in my doctoral research, my thoughts turned to more imaginative modes of practice. The operative images I was looking at are part of a complex networked operation including language, hardware and software and it became clear to me that I could not continue to deny this, nor my own privileged and subjective role in the research process. A writing practice that incorporates a more fictional approach to materials and bodies, I speculated, could provide the opportunity to work with questions of positioning, the multiplicity of bodies and disruptive, rather than corrective narratives in creative ways. Jasbir Puar articulates the problematic aspects of intersectional feminism's corrective 'resecuring [of] the centrality of the subject positioning of white women'.[231] Specifically, she argues that many of the categories of intersectionality are derived and employed through 'modernist colonial agendas and regimes of epistemic violence […] through which the notion of a discrete identity has emerged'.[232] In particular, employing the more subversive and destabilising qualities of fictioning could decentre my voice and position while attending to multiple narratives rather than the one generated ideologically in the operative images online. I also began to think in much more specific terms about the constellation of bodies relevant to the research and the material agency of these multiple bodies, extending beyond the viewers'. I questioned the role of materials in practice, past haptic surfaces or those which mimic other material forms, and if bodies and materials could be understood through practice as agential rather than objectified. I considered how through practice I could provoke more complex questions about vulnerability, materiality, bodies and sensations.

In September 2017 I went on residency to the British School at Rome. As is often the case with residencies, the days felt longer, brighter and clearer.

I had time to

slow

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231 Jasbir K. Puar, 'I would rather be a cyborg than a goddess: Becoming-Intersectional in
    Assemblage Theory', *philoSOPHIA*, 2, no. 1 (2012): 52.
232 Puar, 'Becoming-Intersectional in Assemblage Theory', 54.

everything down

and reflect on the previous body of work I had made.

The studios at the British School at Rome consist of a double height space overlooked by a loft sleeping area. Each evening I began laying out the images, materials and work I had brought on residency on the studio floor so that each morning I would wake up and look down on them from above for a couple of moments before descending the stairs to the ground level. In a city where antiquity lies on almost every corner, I realised how static the plaster works I had previously made were, reminiscent of museological archaeological specimens.[233] I had very few 3-D making facilities at the British School at Rome as there was no workshop or tools. In a purely open ended and speculative gesture, I began to note down my responses to and reflections on the operative videos online. I paid particular attention both to my own observations and physical feelings in front of my laptop, but also how I imagined the images, both from the perspective of looking down and looking up. My intention was not to inhabit this point of view, but to be sensitive to this perspective and my inability to wholly access it. The writing became infused with my own memories, thoughts and ideas to form the basis of a fictional narrative.

Through writing I was searching not to demonstrate a provocative juxtaposition, but to embrace fiction's imaginative, destabilising and ambiguous qualities. The 'I' in my writing became indeterminate and mutable, a position Donna Haraway advocates for in a feminist reclamation of vision not as transcendent and disembodied, but instead as occupying an objectivity composed of partial perspectives and situated knowledge. This position she says, 'allows us to become answerable for what we learn how to see'.[234] Reflecting on the practice-based research I had previously made, and my concerns regarding the replication of the aerial and technical view, Haraway's theory resonated. Simultaneously, she sets out a criticism of appropriating the vision of the subjugated, asserting that there 'lies a serious danger of romanticising and / or appropriating the vision of the less powerful'.[235] Her theory

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233 Harja Waheed's series entitled *The Cyphers 1-18*, part of a larger body of work *Drone Studies* utilises this form of presentation. *The Cyphers* consists of a series of metal fragments reminiscent of fuselage and shrapnel, presented on a platform with accompanying drawings and collages taking the form of a technical catalogue and field notes. Rather than following official narratives, she documents an ambiguous, speculative and personal archive that attempts to subvert broader themes relating to mass surveillance and state secrecy. See 'Drone Studies', Harja Waheed, accessed December 14, 2019, http://hajrawaheed.com/ works/drone-studies/.
234 Haraway, 'Situated Knowledges', 583.
235 Haraway, 584.

raised questions around how my practice handled images of aerial drones' eye views, but also my own responsibility and position within the research methodologically. She writes that,

> one cannot relocate in any possible vantage point without being accountable the violence implicit in our visualising practices. With whose blood were my eyes crafted?[236]

As a response, she argues for a 'split and contradictory self' that is 'partial in all its guises, never finished, never whole […] able to join with another, to see together without claiming to be another'. [237] Researching accounts of living under drones, subjective accounts of being in close proximity to explosions and experiencing other traumas, through writing I began to imagine how I might embody different multiple perspectives.

I ruminated on the implications of inserting these short and troubling insights into the unsettling anecdotes, stories and confusing narratives I was writing. Teju Cole, in his series of tweets *Seven Short Stories about Drones*, inserts the reality of military warfare directly into the context of literature.[238] Each tweet consists of a line from a popular work of fiction, followed by fragmentary reports of the effects of drone strikes. For example, Ralph Ellison's 1952 novel *Invisible Man.*

> I am an invisible man. My name is unknown. My loves are a mystery. But an unmanned aerial vehicle from a secret location has come for me.[239]

The result of this juxtaposition is a disruption of familiar lines from literature but also a subversion the military's narrative of drone warfare. This tweet is particularly profound in my view because of the reference to the invisibility of marginal lives subject to racialised practices. Cole's use of the twitter platform enables his tweets to circulate, not just among an art or literary audience, embedding themselves and arguably interrupting other kinds of networks such as news reports, official military content and critical commentaries. Haraway alludes to this destabilising potential of a mode of fiction which is insecure and emergent, 'in process and still at stake, not finished, still prone to showing something we do not know yet to be true but will know'.[240] This destabilised perspective aligning with her critical writing on vision could decentre my subject position. She writes that 'like facts, fiction refers to action, but fiction is about the act of fashioning, forming, inventing, as well as feigning

236 Haraway, 585.
237 Haraway, 586.
238 Teju Cole, *Seven Short Stories about Drones* (2013), series of twitter posts.
239 Teju Cole (@tejucole), 'Seven Short Stories about Drones', no. 4, Twitter, January 14, 2013, https://twitter.com/tejucole/status/290868849077796864.
240 Donna Haraway, 'The Companion Species Manifesto' in *Manifestly Haraway* (University of Minnesota Press, 2016), 111.

or feinting'.[241] Through writing in this way, I began to experiment with the decentring and destabilising capacities of language. In this chapter 'Looking' considers how I initially navigated the complexities of evidentiary and documentary practices, representation and the spectatorship of violence online in my research practice. 'Fictioning' outlines how the practice of writing developed into a series of three short moving image works. I also reflect upon the work of Walid Raad, among others. Guided by Haraway's theorisation of fiction as emergent, my intentions were to explore fictioning as a speculative mode of making in this body of work to potentially create gaps in my practice-based research rather than filling them in.

Please look at the contents of the folder titled Repetitive Strain on the accompanying SD Card.

241 Haraway, 'Companion Species Manifesto', 111.

Looking

In December 2017 I visited the Harun Farocki Institute in Berlin. I met with the co-ordinator in a tiny office and underground archive space in Wedding. The institute is young and underfunded but contains a vast archive of Farocki's film work, publications and personal writings. Towards the end of the meeting, I asked the co-ordinator if she would like to see the Institute develop into a bigger foundation and her response surprised me. She said that it would go against Farocki's belief system in challenging institutional power structures and that the trustees preferred their peripheral status, unstable as it was. Another show opened in Berlin at that time which was relevant to my research and I had the opportunity to attend the curator's talk. Evidentiary Realism featured artists such as James Bridle, Harun Farocki, Hans Haacke, Jenny Holzer, Thomas Keenan and Eyal Weizman.[242] It aimed to 'articulate a particular form of realism in art that portrays and reveals evidence from complex social systems'.[243] I was familiar with many of the artworks in the exhibition, yet I left with an overwhelming feeling that evidentiary realism was not relevant to my research practice. It could be argued that when dealing the concerns of post-truth and propaganda that one would attempt to generate evidence as an accurate reflection of reality through researching and writing about operative images. This evidence could be understood as a form of public truth, such as reports made by the Bureau of Investigative Journalism, documentary film and photography practice and, the projects conducted by Forensic Architecture. Yet for reasons I have expressed previously, referring to Hito Steyerl's critique of documentary practices, it was not my intention to engage with documentary and evidentiary modes. If there was any evidence to articulate in the research it would be the evidence of my interaction with the screen itself, the hardware through which I encounter the videos online and the evidence of editing in my practice; the collapsing of time and space as a mode of fictioning made possible by the video editing software Adobe Premier Pro.

Using screen capture, I began recording clips of the process of analysing stills from the footage on Adobe Photoshop, zooming in to the pixels and engaging intimately with the structure of the image on screen. I imported these time-based captures into Adobe Premier Pro to edit them. The writing began to develop into semi-fictional accounts of events, memories, reactions to watching the videos online, responses to reports of living under drones and my dislocated experience of watching war in front of a laptop.[244] Researching through

242 'Evidentiary Realism', *Nome Gallery*, Berlin, December 2nd – February 17th 2017.
243 Paolo Cirio, 'Evidentiary Realism', Nome Gallery, accessed November 25th 2018, https://nomegallery.com/exhibitions/evidentiary-realism-berlin/.
244 See for example Cavallaro, Sonnenberg and Knuckey, 'Living Under Drones' and Spencer Akerman, 'Victim of Obama's first drone strike: I am the living example of what drones are', *The Guardian*, accessed October 10, 2017, https://www.theguardian.com/world/2016/jan/23/drone-strike-victim-barack-obama.

practice from this position reflects the experience of watching contemporary warfare online, simplified and mediated by military agencies to absent bodies and promote an ideology of technical and seamless efficiency. However, there are many people who have experienced the trauma of war first hand, and thus their experience of these images and contemporary warfare would arguably be different to my own. Furthermore, on YouTube the operative images I was looking at exist in a multitude of clips, partial accounts, perspectives and narratives each claiming their own veracity. Using screen capture, I recorded the movement of the text as I typed and the movement of the mouse pointer over the image in Adobe Photoshop. I became acutely aware of the ways my body interacted with the technology and other bodies; a tiny mite crawled among the k   e   y   s.

I began working on a single screen video exploring what I thought might be a decentred and partial approach. With a contact microphone, I recorded the internal sounds of my laptop, and my interaction with it, while editing the video, understanding the sound of the mouse clicks and shift key to be small temporal disruptions to visual unfolding of the moving image.[245] The video contained two moving images. On the left I placed a recording of a female face, illuminated only by sporadic lights coming from a television or laptop screen. On the right, I experimented with a screen capture of my zoomed-in examination of a screen grab from one of the operative videos from YouTube and alternatively with a screen capture of the text I had written being typed in Microsoft Word. I rotated the videos at an angle, so they were partially facing each other, partially facing the laptop screen (and myself, the viewer and editor). I was considering how these images of trauma are habitually encountered online and the relationship between our technology and the act of looking at images of violence. The notion of looking askance, as proposed by Geoffrey Batchen was a helpful way to work through this concept, raising important questions in how we contemplate the trauma of war, particularly when one has not themselves been an eyewitness. Looking askance means to look obliquely or out of the corner of one's eye, but with an underlying distrust. Batchen suggests that to represent traumatic events in documentary practice is to block access to the trauma of the event and therefore to forget the trauma. He suggests that looking askance attends to the refusal of the image to tell us what we might or can know.[246] Looking askance pays attention to the edges and peripheries of narratives and representation, rather than documentary evidence. It generates questions of how to look – a vast difference from the evidentiary realism I had encountered in Berlin. Yet arguably, looking askance in visual practice

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245 My understanding of 'moving image' aligns with that of Jihoon Kim in relation to hybridity in that it 'refers to a category of images in motion broader than the images that have traditionally been discussed in a discourse grounded in a sharp distinction between one art form and another'. See Jihoon Kim, *Between Film, Video, and the Digital: Hybrid Moving Images in the Post-Media Age*, International Texts in Critical Media Aesthetics 10 (New York: Bloomsbury Academic, 2016), 4.
246 Geoffrey Batchen, 'Looking Askance', in *Picturing Atrocity: Photography in Crisis* ed. Geoffrey Batchen et al. (London: Reaktion Books, 2012), 231.

produces a mode of representation concerning the failure of representation as a means of attending to that which cannot be represented. I have previously been critical of this practice in the context of my research. Bearing this in mind, I began to question if fictioning could generate a practice other than representation or gesturing towards the failure of representation.

Through illustrating and staging the act of looking I was exploring the relationship between the spectatorship of operative images and the banalisation of military violence on screens. Philosopher Jacques Rancière argues that viewers have not become desensitised to images of violence through overexposure because the circulation of these images has been carefully controlled by the media.[247] I agree that certain images have undoubtedly been controlled by the media such as the operational content I was viewing online, but this is not entirely the case; as I have stated previously, the images exist within a network of other images. Arguably the intention behind the work of Thomas Hirschhorn, discussed in Chapter Two, Material Translations, and Richard Mosse, discussed in Chapter Four, Fuzzy Logic, is based on this premise of banalisation and arguably intends to generate a political response through shocking imagery. The spectatorship of violence on screen is specifically addressed by Hirschhorn's film *Touching Reality* which attends to the ethics of watching traumatic events unfold online.[248] The video documents a manicured hand swiping through graphic images on a hand-held tablet. The artwork calls into question relevant issues in the research relating to witnessing violence by placing a filmed (and fictional) viewer's hand in front of the screen showing images of war torn bodies. *Touching Reality* is both performative and illustrative in nature and certainly calls attention to the sensory experiences, (or lack of) in watching traumatic events online. I began to understand that the work I had been experimenting with attempted to explore the politics of witnessing and spectatorship. Hirschhorn's work uses a body to demonstrate and stage the act of looking. Viewers see the hand swiping the images, foregrounding the viewers' experience, yet the politics of race are also attended to; the film portrays a white manicured hand swiping images on screen of maimed brown bodies. However, reflecting on this work, it became clear that rather than the remediation of images of violence by means of the demonstration of the act of looking, my desire was to address the role of materiality in disrupting representative modes. Additionally, I questioned how I might attend responsibly to the bodies of those living and dying under drones considering my position as a white artist-researcher.

247 Jacques Rancière, *The Emancipated Spectator* (London: Verso, 2009), 186.
248 *Touching Reality*, directed by Thomas Hirschhorn (2012), video on iPad, 4min. 45s.

Fictioning

What was becoming evident to me was that much of the art practice concerning military warfare and violence has a corrective approach. In other words, besides more traditional forms of documentary film and photography practice, they seek to uncover, make visible, demonstrate and reveal information, even if what is revealed is the frameworks of invisibility or invisibility itself, or the politics of looking and spectatorship. There are however, a number of exceptions and diversions from this mode including Omer Fast's film discussed later in this chapter.[249] Reflecting upon the previous experiments with moving image, in the studio I began developing a series of episodic single channel video works with multi-channel sound. The title, *Repetitive Strain*, refers to the bodily implications of prolonged interaction with technology, but also the persistent presence of drones in certain areas, impacting on bodies sonically, physically and psychologically. The work consists of recordings made of my laptop screen with a hand held digital microscope connected to the laptop itself. I recorded the surface of the screen at different microscopic focal lengths, while watching the operative drone footage.

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249 Additionally, George Barber's three screen installation *The Freestone Drone* embodies this exception. Barber humanises the drone; it is reflective and non-passive, yet the conflicting storyline and volatile personality of the drone is unsettling, along with his juxtaposition of operational drone footage with found footage and aerial views of New York. As a highly subjective take on military drone warfare the work functions as a deviation from military narratives. Although I have not experienced the installation in person, the work is arguably non-corrective; I am confounded by the weaving of disparate visuals and narratives creating a confusing visual experience. Yet the complete anthropomorphising and humanising of the drone presents a complex relationship to autonomy, agency and responsibility. See 'Freestone Drone', George Barber, accessed December 14, 2019, http://www.georgebarber.net/video_pages/freestone.html.

Image 19: Screen grab from *Repetitive Strain* (episode one), 2:56/4:21.
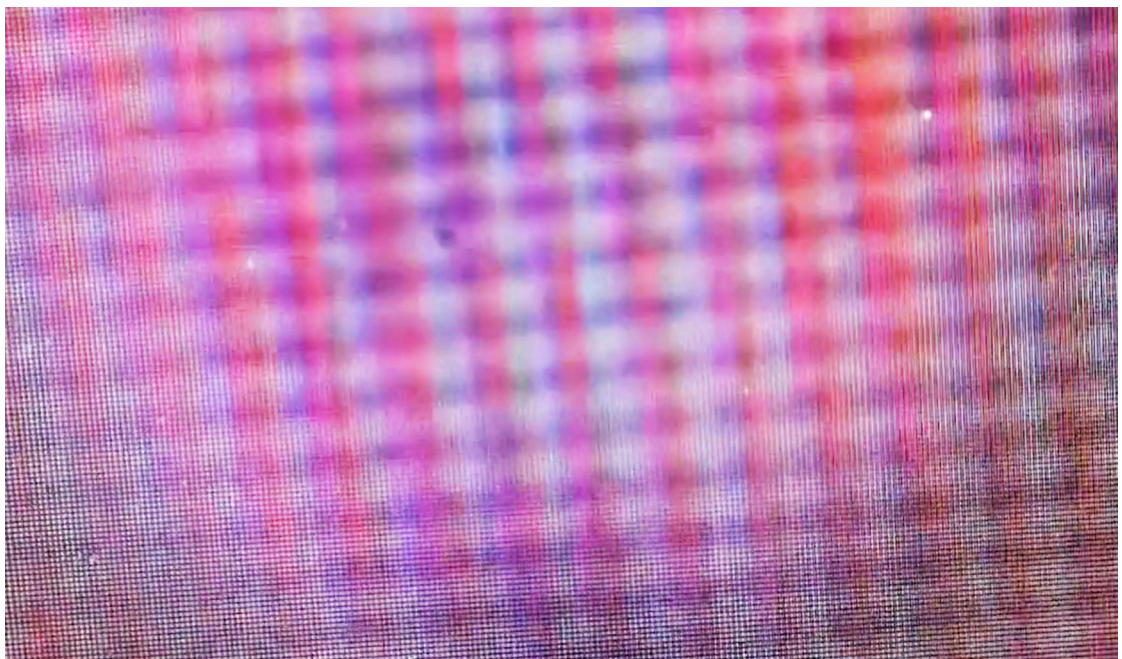

Image 20: Screen grab from *Repetitive Strain* (episode two), 2:26/4:28.

Image 21: Screen grab from *Repetitive Strain* (episode three), 2:46/5:36.

Changing the focal lengths means that at some points the video captured the materiality of the screen itself, focusing on the level of the pixels, sometimes on the video playing on screen, sometimes on the dirt, hair, dust and finger prints on the surface of the screen and other times on the reflection of my hands in the high resolution display. Zooming in to the very fundamental material constituents of the image, the pixel, obfuscates the represented imagery, attending not to the difficulty of images in representing traumatic events, but the beginning of an exploration of, as Alan Gilbert says, 'the refusal of the real to inscribe itself as a legible image'.[250] Gilbert describes Walid Raad's long-term project *The Atlas Group* as concerned with this premise; rather than the inability of representation to capture traumatic events, the project concerns the accumulation of the inscription of trauma as an excess that cannot be coherently articulated.[251] *The Atlas Group* does something different than representing the failure of representation to capture traumatic events; it is a nuanced accumulation of the incommensurability of trauma, violence and warfare.

The Atlas Group takes the form of an invented archive, which includes factual and fictional documents, films, photographs and images, along with Raad's own work, concerning the cultural history of the Lebanon, in particular, the Lebanese Civil War. Art historian TJ Demos, in his discussion of Raad's work suggests that a deeper understanding of reality comes from 'an engagement with the fictional and conflictual aspects of images'.[252] This, I argue is most notably enacted through Raad's use of language, both text based and/or performed. Raad often announces that the group produced and found a number of documents. He makes use of invented first-person narratives through hand written notes and captions to convey a sense of authenticity to his imaginary characters and the impression that images can be easily manipulated to support certain narratives. Images are used to open up a state of oscillation and instability, embodying an inarticulateness and incoherence. In one performance he claimed to his audience that a set of blue monochromatic slides were in fact portraits of missing people whose bodies were disposed of in the Mediterranean sea.[253] The series, titled *Secrets in the Open Sea* consist of a range of blue prints, each with a small black and white photograph of a group portrait, along with two catalogue numbers.[254] In the performance, Raad used language not to explain the work, but to reveal a complex relationship between language and images in which they are both performing a fictioning together. His hybrid practice goes beyond notions of doubt and the failure of representation,

250 Alan Gilbert, 'Walid Raad's Spectral Archive, Part II: Testimony of Ghosts', *Eflux* no. 71 (March 2016), accessed January 08, 2020, https://www.e-flux.com/journal/71/60536/walid-raad-s-spectral-archive-part-ii-testimony-of-ghosts/.
251 Walid Raad, *The Atlas Group*, 1989-2004, multimedia archival documents.
252 TJ Demos, *The Migrant Image*, (Durham, NC: Duke University Press, 2013), xxi.
253 Kamran Rastegar, *Surviving Images: Cinema, War, and Cultural Memory in the Middle East* (New York, NY: Oxford University Press, 2015), 167.
254 Walid Raad, *Secrets in the Open Sea*, 1994, colour photographs, 111 x 173cm.

towards more nuanced articulations of imaging and imagining political violence and trauma. Through fictioning I could begin to think through the complexity of how I might engage with bodies living and dying under drones, to interrupt the visual and linguistic ideology of technicality conveyed by the operative images online and open speculative and imaginary modes of making that begin to decentre my position as artist-researcher.

I recorded the internal mechanics of my laptop, sounds of me typing and the mouse clicking while editing the visual work. I was interested in these sounds in a material and lively sense, rather than as a captured record of a process or as having a relationship to the material evidence of the process of filmmaking. I also experimented with open-source recordings of other sounds relating to human interaction with technology, for example the tapping and clicking of fingernails on screens. This sound, and others such as whispering and crackling are widely understood as the YouTube phenomenon of autonomous sensory meridian response (ASMR) sounds, eliciting heightened sensory awareness and immediate physiological responses from some listeners. Knocking and tapping on the screen also implies tactile access to material knowledge, in the same way I tap on a piece of glass to tell if it is indeed glass or plexiglass. All three texts are in the first person and focussed on the points at which vision is occluded and overwhelmed by other forms of sensory experiences and memories. They are drawn from real accounts of living under drones, including experiences of explosions, insomnia, injury and post-trauma. They are interspersed with other accounts of the psychological and sensory impact of physical and mental trauma, drawn from online forums, news reports, blogs and personal experiences and real and imagined memories. In previous versions, the moving image is juxtaposed next to an animated text (a screen capture from Microsoft Word) however, in subsequent versions, I read the text as multiple voice-overs, overlaid on each other with delays and reverberations. The voice-overs recount multiple versions of the written texts. They are meditative and repetitive.

I applied filters to my voice in postproduction to create the effect of speaking on the phone; I wanted to convey the sense of both physical intimacy and distance within the sound. The 'grain of the voice', the materiality of the speaking body, according to Roland Barthes invokes a relationality and an intimacy with the performer's body (in Barthes' case, a classical singer).[255] In this sense the grain of the voice generates haptic registers which may not be discernible through written text, registers which have the potential to interrupt the legibility of meaning delivered through the texts. Here the materiality of the voice implies

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255 Roland Barthes, *Image, Music, Text* (London: Fontana Press An Imprint of Harper Collins
   Publishers, 1977), 188.

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the bodily presence in the spoken words, rather than the intelligibility of language, altering the significance of what is said, from the intelligible to the expressive.[256] Mediated through vocal filters, the voice-over also contained the material grain of technology; the voice-over thus registering sonically as both intimate and distant, bodily and technological. The other sounds I found and generated also embodied these registers of human, non-human and technical encounters. The intermittent high pitched buzz of mosquitos quietly attended to non-human entities. People living under drones also describe the repetitive strain of looking up every time they hear the sound of the drone which they describe colloquially as like a mosquito. Working with sound in particular also revealed non-human resonances with the material and spatial qualities of the gallery space.

Zooming into the laptop screen implied an examination, an attempt to access the materiality of an image on screen, and the unstable oscillation between abstraction and legibility. In a sense I was exploring a technically mediated, intimate visual perception of the images. Looking deeply and repetitively, I was capturing the systems and processes that constitute the digital materiality of the images. However, this forensic mode of looking was not, as Eyal Weizman terms 'critical forensic practice', involving the production of evidence or querying of evidence-making.[257] Instead one can never truly read the image, as the microscopic camera never wholly zooms out; only partial glimpses are revealed. A tiny piece of dust had gotten inside the lens of the microscope, creating a grey floating shadow in the screen captures. I had disassembled the microscope and sawn off its protective case in an effort to use it as a handheld, mobile recording devise, rather than using it conventionally static and on a stand. This allowed me to alter the proximity and therefore the focus of the microscope camera while I was capturing the images. Perhaps it was during this process of adaption that the dust entered the lens. Technology, in the practice of digital editing enables the production of a level of artifice especially, as Simon O'Sullivan says, 'when it is no longer clear where the fiction itself ends and so-called reality begins (or where reality ends and the fiction begins)'.[258] Editing software, he suggests, through altering the speed and sequence of images for example, generates a collapsing of spatiality and temporality in the experience of the world. Crucial to this practice, he argues is the introduction of something random; a rupture or point of collapse is necessary in art practice 'or else it risks just presenting more-

256 Barthes, *Image, Music, Text,* 182.
257 Weizman uses the term 'critical' here to imply not just the uncovering or making visible of structures of 'power camouflaged as benevolence' but a sense of necessity and decisiveness. Forensic Architecture (Project) et al., *Forensis: The Architecture of Public Truth* (Berlin: Sternberg Press, 2014), 12.
258 Simon O'Sullivan, 'Art Practice as Fictioning (or, myth-science)', *Diakron* no. 1 (June 2014), accessed 01 November 2017, https://diakron.dk/Issues/Effects/Art-Practice-As-Fictioning-Or-Myth-Science.

of-the-same'.[259] Art practice as fictioning he argues, can also be a practice that produces a myth to hold together these ruptures, and present them to an audience. In my view *The Atlas Group*, presents this myth. Through the layering of stories, conflicting image-text relationships and historical references, Raad builds a sense of the chaos of traumatic memory and the malleability and multiplicity of narratives, questioning what can be known or understood in the context of war. As an archive and a performance focusing on tangential narratives rather than official accounts, it privileges partial perspectives in 'contestation, deconstruction, passionate construction, [and] webbed connections'.[260]

In *Repetitive Strain*, using voice-over I attempted to set up a sense of partiality and provisionality with the visual moving images which captured predominantly the materiality of the images and the screen itself. They embodied a sense of grasping, evidence of an attempt to access the material inner workings of the image and the body of the laptop itself, a kind of tapping at the surface, yet it revealed that no matter how close we look, it is difficult to surpass the apparatus of looking. Even without the microscope, or my glasses for that matter, my visual experience of the world is mediated and partial, interrupted by blinking, the limits of my peripheral vision and tiny floaters, like dark specks of dust in my biological lens. In the juxtaposition of multiple voice-overs I attempted to performatively decentre narratives. Omer Fast, in his short film *5000 Feet is the Best* uses this performative method to subvert narrative power.[261] The film interweaves dramatisation and documentary modes of filmmaking where in my view, storytelling acts to interrupt the documentary progression of the film. Three storylines slip into each other; the dramatised narrative of an interview with a drone pilot, predominantly located in a dorm or hotel room, the stories he tells in order to distract from answering the interviewer's questions which are also dramatised visually and, the actual testimony of a drone pilot, accompanied by aerial imagery or footage of his blurred-out face. Characters in the stories seem to shape-shift; their dubious behaviour involves appearing not as themselves. The film also contains meta-fictions, including repetition and references to filmic illusions which are employed structurally. 'But you're not a real pilot', the actor playing Fast declares, 'So what?' the actor playing the pilot replies, 'You're not a real journalist'. I was using the practice of fictioning to attempt to disrupt belief in the image and the dogmatic narrative of war that the military are producing. This particular form of fictioning differentiates itself from practices of deception in that the lie (or fiction) is revealed explicitly or implicitly in the text, in my case, through metafictional slips. I was beginning to reveal myself as the author of the text. Reflecting back on the first text I wrote, I can sense an attempt to create instability in the

259 O'Sullivan, 'Art Practice as Fictioning'.
260 Haraway, 'Situated Knowledges', 585.
261 *5000 Feet is the Best*, directed by Omer Fast (2011), digital video, 30 min.

narrative form, the materials gathered from online sources of multiple partial accounts and experiences related the disruption of vision, both at the moment of an explosion but also other visual experiences and phenomena concerned with looking at screens and reflections, including my own. Fast's film ends abruptly offering no resolution, referencing the instability of memory, subjectivity, visual representation and temporality; dislocations in and of the narratives of war. It is a powerful subversion of personal, military and political narratives. My issue with the work however, is the focus on the drone pilot, as is often the case with filmic works, both dramas and documentary modes. As I have previously argued, the military also employ this arguably deceptive strategy to humanise the inhumanity of war. Deceptive practices, according to Theo Reeves-Evison, may subsequently be revealed to be false, for example propaganda, whereas fictive practices come with a disclaimer that 'relinquishes their truth claims'.[262] He provides a definition of fiction in this context, suggestion that it can be understood as a lie, which reveals itself as a lie, adding that this revelation might only take effect in particular contexts. 'Both fiction and deception peddle untruths, but fiction scuppers its own ability to deceive'.[263] This revelation can be disclosed in subtle ways. Fiction itself is not understood in the texts I was writing as in opposition to fact or truth but instead to a more complex relationship to what is revealed, and operating outside of the logic of true or false.[264]

I presented *Repetitive Strain* as a work in progress at a peer to peer critique at Lewisham Arthouse called We Need to Talk. I showed the work as a projection and on a Lenovo ThinkPad laptop installed flat on the gallery wall. We discussed at length the possibilities of installing the work on ThinkPads and the intimacy of a one-to-one experience with the laptop versus a projection. Despite a sonic decentring of the voice, and the incoherence of the narrative, we discussed how subjectivity, speaking entirely in the first person, impacts both on the viewer but also the conceptual reading of the work, particularly notions of authenticity. In Raad's performances, he generates a multi-layered, subjective experience of the work, its complexity confounding any knowledge generated through the content. In the specific context of the museum and university, this is a subversive and disruptive act from within the site and language of the institution. Presenting *The Atlas Group* performatively in the gallery space, he inhabits the role of a representative from the foundation and runs exhibition

262 Theo Reeves-Evison, 'Surface Fictions', in Simon O'Sullivan, Ayesha Hameed, and Henriette Gunkel, eds. *Futures & Fictions* (London: Repeater Books, 2017), 297.
263 Reeves-Evison, 'Surface Fictions', 298.
264 Truth, according to artist and writer Trinh T. Minh-ha is 'nothing more than *a* meaning'. See Trinh T. Minh-Ha, *When the Moon Waxes Red: Representation, Gender, and Cultural Politics* (London: Routledge, 1992), 30.

tours and lectures, exploiting our need to 'believe in official narratives'.[265] Raad often plants questions in the audience of his talks, some of which take the form of a 'walk through' in the gallery space. He presents the audience with multi-layered narratives, in which fictional and non-fictional accounts emerge, often extending his subversion of authority to the artist; no longer is he the spokesperson, instead appearing as a conflicted and unstable, a split and contradictory version of himself. His referencing of his own inability to objectively represent both visually and linguistically, the trauma of war is thought provoking in the context of the first person narrative.

I edited the videos to continuously loop as a series of three, separated by a short buffer screen, familiar to those who stream content through YouTube or other websites. Buffering is a digital process in which the communication speeds between sender and receiver are unequal, resulting in a loading delay of the content. Buffering is a type of glitch in digital processes where the program reading content from the buffer must pause until the 'buffer refills'.[266] The etymology of the word glitch is related to slipperiness.[267] In digital processes, a glitch refers to errors and miscommunications between sender and receiver, as I stated in Chapter Two, Material Translations. In Chapter Five, I Could Feel That My Eyes Were Open..., I discuss the material implications of programmed and random glitches further. In *5000 Feet is the Best*, Fast provokes these slippages between narratives; at some points the sounds from one leak into another, at some points the visual diverges from the voice-over, and, towards the end of the film, the footage begins to jump and visually glitch. The buffer screen appears as a circle of light grey on a black screen, looping until the content resumes. In a sense buffering is the processing of data yet to come, images yet to be looked at and the buffer screen both hides and reveals these digital processes. The videos demonstrate a self-reflexivity, in that they are an investigation into the materiality of the digital, echoing earlier structural film, constituting what Jihoon Kim calls 'mixed media abstraction' in which the materiality of the film interacts with its potential for to represent something.[268] These types of works, he suggests, 'present noises and glitches – in the forms of aberrant pixels, ghostly distorted figures, and degraded lines' that reveal 'the "constantly mutating materiality" of the digital as a medium'.[269] Thus glitches reveal the liveliness of the materials of technology, intervening in our perception of digital content but arguably also actively interrupting any notion of smooth interaction between humans and machines.

265 Eva Respini, 'Slippery Delays and optical Mysteries: The Work of Walid Raad', in Eva Respini et al., *Walid Raad: [Exhibition, The Museum of Modern Art, New York, Oct. 12, 2015-Jan. 31, 2016, the Institute of Contemporary Art, Boston, Feb. 24-May 30, 2016, and the Museo Jumex, Mexico City, Oct. 13, 2016-Jan. 14, 2017* (New York: Museum of Modern Art, 2015), 29.
266 Rebecca Jackson, 'The Glitch Aesthetic', (Masters diss., Georgia State University, 2011), 30.
267 Online Etymology Dictionary, accessed December 06, 2020, https://www.etymonline.com/word/glitch.
268 Kim, *Between Film, Video, and the Digital*, 126.
269 Lucas Hilderbrand, 'Experiments in Documentary: Contradiction, Uncertainty, Change', *Millennium Film Journal*, no. 51 (Spring/ Summer 2009), 7 quoted in Kim, *Between Film, Video, and the Digital*, 126.

Image 22: Digital photograph of *Repetitive Strain* installed at the Embassy Gallery, 2018.

Image 23: Digital photograph of *Repetitive Strain* installed at the Embassy Gallery, 2018.

Image 24: Digital photograph of *Repetitive Strain* installed at Lewisham Arthouse, 2018.

Image 25: Digital photograph of *Repetitive Strain* installed at Lewisham Arthouse, 2018.

Installing

Repetitive Strain was shown in a three-person exhibition at Embassy Gallery in Edinburgh called *Between Us And...* in June 2018.[270] I installed the work on three Lenovo ThinkPads with stereo sound played through headphones. I had spent a lot of time with the ThinkPads in my studio in London playing with their potential as modes of displaying the work, looking down at them on the studio floor, looking face to face with the screen installed on the wall and looking up from underneath. Their screens are low resolution, matte and non-reflective, in contrast to high definition liquid crystal displays, the images they carry appear less back-lit and translucent. In their opacity, there is sense that no matter how close one looks, it is impossible to see past a certain depth, past the pixels of the screen. In order to experience the work, the viewer had to lie underneath on a black daybed and look up at the screen. Many reported a feeling of uncertainty, having never encountered a laptop screen in this way. The proprioceptive experience of the work was thoroughly grounded, and multi-sensory registers of the sonic and visual aspects of the work were arguably experienced through bodily and tactile registers also. Proprioception is the perception and awareness of the body's position in space, generated through balance, musculoskeletal and gravitational awareness, but is also intertwined with visual, sonic and tactile feedback. Positioning the viewers lying down underneath the ThinkPads provoked a more embodied encounter with the work, and destabilised the aerial perspective. In this sense the installation acted to subvert and interrupt the habitual encounter with the laptop and the conventional relationship to the screen through entangled and hybrid sensory registers, rather than representative modes.

I had become interested in thermal foil as material associated with humanitarian and emergency situations, but more so as a potential thermal imaging-proof material. A trial in my studio also revealed sonic and material qualities of the blankets which I had not expected; they rustled and crackled with the air currents in the room. Over the course of a weekend, I created one huge thermal foil blanket to suspend from the ceiling of the gallery at Lewisham Arthouse. Thermal imaging is used by military drones to detect heat signatures. It is an operational form of remote sensing, in that data is detected and converted into images that renders bodies 'white hot' or 'black hot' depending on the visualisation settings. This form of visualisation inscribes and decorporealises bodies in particular algorithmic and cultural ways, which I discuss further in Chapter Four, Fuzzy Logic. The thermal ceiling was an attempt to subvert this visual regime; thermal blankets are used, with varying degrees of success, to hide from thermal imaging technology,

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270 'Between Us And…', *Embassy Gallery*, Edinburgh, 15th June, - 1st July 2018.

exploiting a vulnerability in the camera's sensor.[271] *Repetitive Strain* was installed in July 2018 in Lewisham Arthouse as a single channel projection with four channel sound under the kinetic ceiling sculpture. The three episodes of *Repetitive Strain* were projected directly onto the gallery wall, looped, with sound being delivered through five speakers in the space, the rustling of the ceiling which was enhanced by six fans installed above it, and four speakers also hidden above the ceiling. A ThinkPad installed flat on the gallery wall played a moving image screen capture of scrolling through YouTube videos of content related to drone strikes. The four additional speakers, hidden above the ceiling played the subtle sound of a mosquito intermittently. Three giant beanbags encouraged the viewer to sit or lie in the space. I didn't read the elements in the gallery as separate isolated works, but instead as interwoven within the installation.

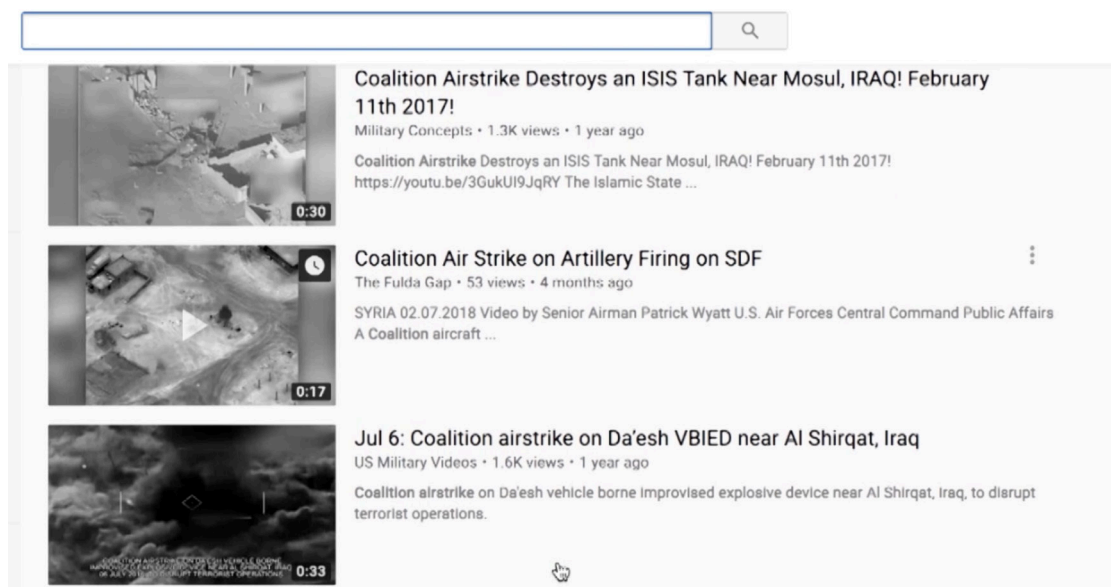271 See the 'Drone Survival Guide', accessed January 08, 2020, http://www.dronesurvivalguide. org/.

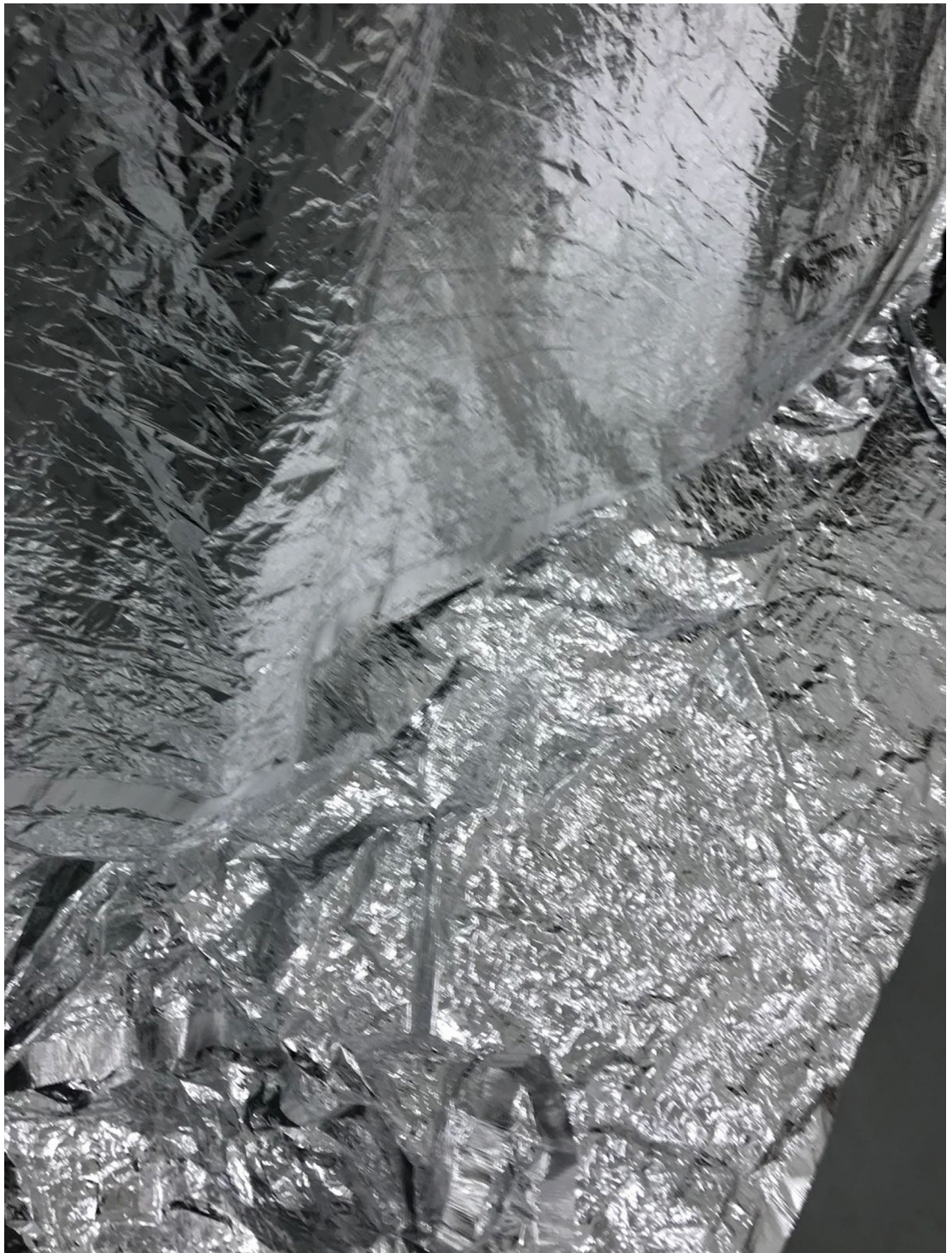Image 26: Screen grab from *Repetitive Strain* (scrolling YouTube video), 0:35/14:23.

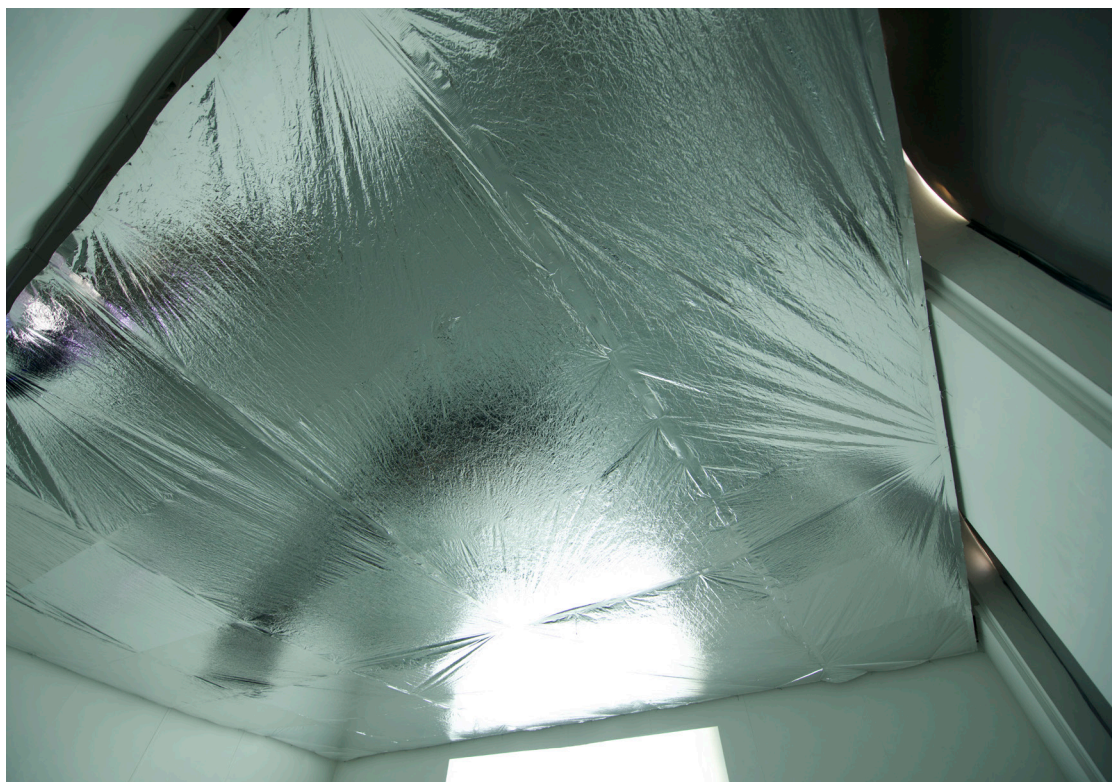Image 27: Digital photograph of thermal foil.

Image 28: Digital photograph of thermal foil kinetic ceiling sculpture installed at Lewisham Arthouse, 2018.

The installation process produced many issues which I had not predicted. First, I hadn't predicted that digital sound and images (and the technology that plays them) have complex lives of their own which had to be worked with in a generational and almost collaborative way within the space. Sound bounces around materials and spaces in ways that cannot be foreseen before the actual installation. Similarly, the projector, not made for gallery installations, overheated occasionally and spontaneously shut down. Secondly, I had not predicted that the thermal ceiling would reflect the projected image in the way that it did. My prediction was that the material would disperse the light from the projection widely across the ceiling but instead it acted almost as a mirror, reflecting the projected image in a much more focused way than I had envisaged. Thirdly, it was a surprise to me how strongly the light from the projection impacted on the lighting conditions in the gallery space, creating long periods of darkness, coloured light and intense flashes in the room. The projection and beanbags were positioned so that the viewers had their backs to the door, and many reported how unsettling it felt to be in the space in those dark moments and how conscious they became of the potential presence of someone behind them. The gallery wasn't busy and I had the opportunity to spend a lot of time alone with the work,

my eyes moving

from the projection on the wall

to the ceiling

and back again.

I listened to the multiple versions of the confusing narrative, thinking about the multiple times I had recorded it in different vocal tones, on different microphones. I listened to the sound of the ceiling, the internal sounds of my laptop, my interaction with it externally, the sound of other fingers tapping on other keys and screens and the traffic passing by outside. The endless looping of the video and the sounds leaking and reverberating into each other

compressed and confused spatial and temporal zones, a form of fictioning, that collapses the 'so-called real and the fictional', according to O'Sullivan.[272] Working with moving image rather than stills, enabled this temporal scrambling.

The practice generated a multi-sensory encounter which enveloped viewers, an immersive aspect of the installation which I will discuss further in Chapter Five, I Could Feel That My Eyes Were Open.... The texts themselves delivered vague and imprecise narratives, rejecting consistency and coherence and any impulse to make logical and chronological sense. This complex relationship between text and image is explored in Jo Namy's audio visual work *Purple Bodies in Translation*. The installation, as I encountered it, comprised a single, reflective purple screen. The voice-over was composed of a professional translator recounting the difficulties in translating culturally specific elements of dialogue from Arabic to English, particularly relating to war and violence. The film is entirely text based, with subtitles appearing on a purple background. Another voice appears, of a woman recounting testimony and personal experiences of war. In a sense, the work simply recounts in different ways, how meaning is lost in translation, between languages, cultures and between texts and images especially in the context of the representation of the recent wars in Syria and Iraq. My location in the work, as a reflection on the mirrored purple screen, as well as a viewer of the work, produced a self-consciousness and a partial blindness to the content described in the voice-over. In rendering the images it described inaccessible visually, my attention was drawn not so much to the failure of representation but instead to the imaginative and productive space that existed at the edges, between subtitles, voice-over and images. The installation of *Repetitive Strain* produced questions concerning peripherality, both as my position within the research and as a conceptual positioning of the research. Many viewers missed the ThinkPad in the exhibition altogether. This became interesting to me, the potential to miss this aspect of the installation through not glancing in that direction, or a momentary lack of attention in the space, lapses in focus and disengagement. In a sense the laptop served as a grounding for the rest of the installation, a point of contextualisation. Without the laptop, the installation could function very differently, perhaps as O'Sullivan writes, 'opening up a gap within these all too familiar series and circuits of knowledge/information'.[273] I realised that working through a practice of glitching could potentially open the work to multiple interpretations and indeterminacy rather than operating as a source of conclusive meaning-making.

272 O'Sullivan, 'Art Practice as Fictioning'.
273 Simon O'Sullivan, 'From Stuttering and Stammering to the Diagram: Deleuze, Bacon and Contemporary Art Practice', *Deleuze Studies* 3, no. 2 (December 2009): 250.

Closing

The technical materiality of the operative images online and the hardware on which I view them became part of the content of *Repetitive Strain*. An encounter with this technical materiality arguably interrupted the technical ideology of the videos as seamless, bodiless and precise. Zooming into the pixel and the marks of bodily contact with the screen generated partial perspectives and disrupted visual legibility. Similarly, using the embodied, albeit technically mediated voice to deliver the semi-fictional and incoherent voice-over through multiple speaker channels interrupted any conception of a singular and authoritative narrative. Through installing the works at the Embassy Gallery, I questioned how the relationship between the viewer's body with the screen (through the conditions of installation), could inform and contribute to the work itself. Installing the moving images in the gallery expanded the exploration of technical materiality beyond the visual and the linguistic to multi-sensory encounters with the operative images. Thus, the physical and spatial encounter with technology also became part of the content of the work. In the Embassy Gallery, to experience *Repetitive Strain*, the viewer had to physically participate with the work, beyond sensory experiences of looking and listening by lying down underneath the screens. Some viewers reported that the feeling of being physically grounded while others revealed that the flipping of the conventional spatial experience of the screen felt unsettling. In this sense, installing the work in public sphere produced multiple understandings of the work itself, beyond and including my own, recognising, as artist and writer Trinh. T. Minh-ha states, the 'reading subject' as 'meaning maker-contributor'.[274] Both of these aspects of the work became important; the proprioceptive encounter between bodies and technical materiality became crucial to interrupting the ideology of the technical conveyed by the videos online and, the exposition of the research in public contributed to a decentred reflective practice.

Taking a multi-sensory approach which included the co-presence and intertwining of sonic, visual, proprioceptive, and haptic registers (I will return to the relationship between pixellation and haptic visuality in Chapter Five, I Could Feel That My Eyes Were Open...) embodies a multi-modal sensory perception of the operative images. The research produced both a methodological shift towards hybridity and a shift in my research methods towards installation-based practice. *Repetitive Strain* drew upon documented and fictional accounts of living under drones and traumatic experiences, through the memories of a spatially dislocated voice and subject position of the narrator, albeit compromised and split. This is a risky strategy, one which Haraway attempts to avoid through a situated, yet partially located

274 Minh-Ha, *When the Moon Waxes Red*, 93.

perspective. The 'conquering gaze from nowhere', is a transcendent view from above and/or below, 'that inscribes all bodies' she argues.[275] The voice was mediated to sound both distant and nearby, embodied and disembodied and referred to the position of the subjugated and the view from above. In this sense the voice-over is dislocated, in the multiple divergences of the narrative storyline but also spatially in the surround sound installation.

Although not engaged with any type of field research, nor representative practice (portraying the trauma of war or the inability of representative modes to capture the trauma of war), through practice I nevertheless questioned how I could avoid repeating the colonialist infrastructures used in the capturing of operative images and their online networks. Donna Haraway argues that fictioning can provoke 'oppositions, divergences, and convergences'.[276] In the voice-over texts fictioning operated within language to generate gaps and subversions in meaning. Fictioning through audio-visual in addition to sculptural practice generated multiple narratives and polyvocality. However, the texts and ensuing voice-overs risked an over-identification in which bodies were were reinscribed and represented according to a white western colonialist logic of which both Gayatri Chakravorty Spivak and Haraway are cautious. Thus, it could be read as approaching a problematic and corrective stance, through arguably the linguistic equivalent of representation or representing the failure of representation, both of which I have been critical of previously. However, situated knowledges and partial perspectives do critically respond to the issue of my own white western body operating as an artist-researcher in institutions of knowledge production.

What unites the works of James Bridle and Trevor Paglen, which I have previously discussed, and Richard Mosse, discussed in the next chapter, is an investment in a practice of hacking; hacking military intelligence, hacking military equipment, hacking surveillance technology, exploring and exploiting to varying degrees the vulnerability of technologies of institutions of power. It could be argued that they are using their privilege to reveal and confront asymmetric power relations and the impact of military interventions on vulnerable people. However, their methodologies and methods arguably align with revelatory modes of 'the myth of the lone hacker' which, according to Jonanthan Crary 'perpetuates the fantasy that the asymmetrical relation of individual to network can be creatively played to the former's advantage'.[277] In the revelatory modes of their works there is an underlying corrective stance and apparently little consideration of their privalaged status as white western males. Fictioning, on the other hand, operates as 'the sign of something […] that will not pander

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275 Haraway, 'Situated Knowledges', 581.
276 Haraway, *Simians, Cyborgs and Women*, 114.
277 Jonathan Crary, *24/7: Terminal Capitalism and the Ends of Sleep*, (London ; Brooklyn, New York : Verso, 2013), 46.

to the demand to make sense (at least, following the dominant codes of meaning, and top-down decisions about what should have meaning)'.[278] Fictioning, employed through the interweaving visual, textual and sonic elements arguably confounds any sense of unambiguous meaning-making. In this sense making *Repetitive Strain* moved my research beyond questions of representation, to questioning the role of bodies, fictioning and materiality in disrupting signifying regimes.

Through multiple narratives of the voice-over, the visual traces captured by the microscopic camera and the installation of the works in gallery spaces, I began to consider how my doctoral research was operating in dialogue with theories that rejected the human versus machine narrative. Instead the human is positioned as part of a complex assemblage with technology that embraces destabilising and multiple standpoints, and partial perspectives. This position contradicts the transcendent and colonialist gaze associated with Haraway's theorisation of the 'god trick'. Joanna Zylinska, referencing Haraway, proposes a more embodied perception, through opening to an 'entangled form of image and world formation', offering the potential of a 'better ethics and a more responsible politics'.[279] *Repetitive Strain* began to open my research practice up to a conceptualisation of bodies rather than the body. This includes the bodies of those living and dying under drones, non-human bodies, bodies of operators, of viewers, including my own body among others. Crucially, Zylinska asks,

> Could we think of a standpoint that does not see the critic's mind as a disembodied entity, capable of rising above the networks of data and images while assessing everyone else's entrapment in them?[280]

Fictioning arguably confounds any stable sense of positioning in which the ontology of human and technological bodies could be understood through practice as decentred. Through the conflicting and metafictional voice-over, the tensions between materiality and representation and how these tensions are intertwined with multi-sensory registers in the installation, *Repetitive Strain* generated important provocations for how my research practice could generate embodied encounters with operative images responsibly. This sense of 'being with' is also woven through my conceptualisation of my own practice as existing among multiple others rather than acting as a proposed solution.

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278 O'Sullivan, 'Art Practice as Fictioning'.
279 Joanna Zylinska, *Nonhuman Photography* (Massachusetts: MIT Press, 2017), 8.
280 Zylinska, *Nonhuman Photography*, 29.

I suffered a severe migraine once.
There was no warning.
I woke up violently in pain, completely paralysed and unable to speak. I couldn't see properly.

I remember trying to call out, but no sound emerged – my mouth didn't open.

Afterwards, I was referred for a scan to check if I had a small stroke. It was a strange feeling, lying on the scanner bed, experiencing the procedure

lying down
looking up,

my body passing through the machine, sensing the scanning sensor encircling me as it moved.
A familiar sound, suddenly more intensified from this angle.

Fuzzy Logic

Opening

Early on in the research, I became aware of the complex ways the body is exploited in drone warfare through medical terminology and the use of medical language to legitimise drone warfare. A conversation with a former colleague about her research into image-guided radiation treatment planning reminded me of the resemblances between the technical visualising practices spanning my former career as a radiographer and my current practice as an artist-researcher. Image-guided robotic radiosurgery is a complex procedure used to treat patients with inoperable malignant tumours, the delivery and planning of which I have been involved in on a number of occasions. As I watched RAF thermal drone footage on YouTube, I thought about the similarities of this visual experience to my own experience as a radiographer. This is why I was drawn to the images in the first place; they are technologically comparable visual practices operating to enact very real material effects on bodies. I discussed the techno-scientific and theoretical implications of how medical scanners digitally reconstructed the body with my former colleague. She reminded me that in many types of medical scanning, including computed tomography (CT), the sensor collects radio-density data at 2 - 3mm intervals. It performs an interpolation between these image slices, to reconstruct the visualisation of the body. So, the reconstructed body is partially sensed, partially generated by an algorithm computed by the machine and visualised by computations that turn this data into pixels on a screen.

We discussed our shared concerns and the problematic ways the medical field invokes metaphors of warfare and violence and how medical terminology such as 'surgical precision' is co-opted by the military. The employment of this type of rhetoric is, according to Chad Harris, a 'mass media construct' to create an additional appearance of 'smooth interoperation between humans and machinery' using the language of scientific technicality.[281] Medical rhetoric depoliticises warfare; bio-medical metaphors work to render military violence 'intrinsically therapeutic' where 'counter-insurgency becomes chemotherapy, killing insurgent cells' and 'sometimes even innocent bodies to save the body politic'.[282] In this way the violence of drone warfare is presented as a humanitarian act of saving through the destruction or purification of bodies.[283] The military's employment of medical rhetoric, specifically relating to the excision and eradication of cancer, viruses and infectious diseases to support counter-insurgency campaigns positions who they term 'insurgents' as 'an alien force that invades the social body', according to contemporary

281 Harris, 'The Omniscient Eye', 118.
282 Gregory, 'From a View to a Kill', 205.
283 Rasmussen, 'Foucault's Genealogy of Racism', 41.

war scholar Colleen Bell. [284] This metaphor of cancer, is arguably racially inscribed through the lens of colonialism in how it positions certain bodies as mutations to be controlled, disciplined and eradicated. This medical, curative language reinforces the ideology of technical, surgical precision conveyed linguistically in the operative images online. The commonalities between therapeutic military rhetoric and radiographic therapeutic medical practice extend to the ways art practices concerning military warfare use the logic of the corrective or curative. These practices rely on exposing apparently covert information, in the utilisation of the visual and linguistic language of objectivity or the instrumentalising of viewers' bodies to teach them something about the nature of drone warfare.[285]

In Summer 2018, I participated in an artist residency at Leitrim Sculpture Centre in northwest Ireland which culminated in an exhibition titled Fuzzy Logic. The exhibition consisted of a moving image installation titled *If/Then* and a series of aluminium sculptures which I collectively refer to as *Fuzzy Logic*. Leitrim is the least densely populated county in Ireland, with an average of 20 people per square kilometre. It took time to adjust to the lack of sounds made by the lack of bodies in my surroundings. But other sounds emerged, animals, farm machinery, wind and rain. In my studio I began re-watching the operative videos online, almost all of which are thermal images. There are also some non-UK and non-US military videos in circulation which reveal both high resolution colour and thermal footage of bodies being targeted by drone strikes.[286] In the initial weeks of my residency in Leitrim I spent many hours with a Digital Imaging and Communications in Medicine (DICOM) file forwarded to me by my former colleague. The file was that of a radiographic phantom, called Lungman, accessed through the Cancer Imaging Archive which is an online resource for medical professionals containing open source data for research purposes. Radiographic phantoms, are synthetic models made from polyurethane and epoxy resin, used mainly for research and teaching purposes in medical imaging. They are built to scale

284 Colleen Bell, 'War and the Allegory of Medical Intervention: Why Metaphors Matter', *International Political Sociology* 6, 3 (2012): 327.
285 For example, Jonathan Fletcher Moore's *Artificial Killing Machine* encourages the viewer to sit in a chair and be the subject of replica weapons shots. The installation utilised data from the Bureau of Investigative Journalism's live drone strike database to fire toy cap guns each time a civilian was killed in a drone strike. The work positions the viewer as the target to imagine as the artist states, 'existential risk'. See Jonathan Fletcher Moore, 'Artificial Killing Machine', accessed August 5, 2018, https://www.polygonfuture. com/artificial-killing-machine. The replication of the notion of violence through the use of artificial weapons is also seen in Wafaa Bilal's *Domestic Tension*. The installation consisted of a room in which the artist lived for the duration of the performance with a computer connected to a paintball machine. Viewers could log into a website online and choose to aim and shoot Bilal remotely via a live chatroom feed. See Wafaa Bilal, 'Domestic Tension', accessed September 02, 2018, http://wafaabilal.com/domestic-tension/.
286 See Christoph Koettl et. al., 'How a Drone Hunted Three Kurdish Fighters in Syria', *The New York Times*, accessed August 08, 2018, https://www.nytimes.com/video/world/ middleeast/100000005738262/turkey-drone-attack-kurds-syria.html and Robert Mackey, 'What Italian Drone Pilots See as they Scan Iraq for Militants', *The New York Times*, accessed August 8, 2018, https://www.nytimes.com/2015/12/12/world/middleeast/what-italian-drone- pilots-see-as-they-scan-iraq-for-militants.html.

based on clinical data and demonstrate 'life-like' grey-scale contrast on the scan images.[287] The phantom body was CT scanned, and the data uploaded to the database. The archive also contains human data and scans, though I was uncomfortable using even anonymised human data for my experimental research purposes. The phantom is essentially a non-human body that functions similarly techno-visually to human bodies through machine vision. It would allow me to openly experiment and explore my initial concerns regarding the structural resemblance of the techno-visual conditions between the drone imagery I was watching online and the radiographic images I had captured in the past, and the material bodies they redescribed through the logic of techno-science.

Media theorists Katherine Friedrich and Moritz Queisner argue that putting medical images and thermal drone images side by side is problematic, but 'it nevertheless points to a structural resemblance of the technological conditions between military and medical interventions' thus facilitating an exploration of how the remote visualising technologies and interfaces enable and black box 'operative agency and autonomy'.[288] On an operative level, the difference between embodied vision and on-screen visuality of both practices were provocations I wished to explore further through my research practice. The CT scan, used both diagnostically and therapeutically (in treatment planning) provides the main interface between the physician and the patient, and the images generate a range of registers of visual access to the inside of the body. Thus, as Friedrich and Queisner concur, it is the image of the patient's body, rather than the patient's body that becomes the central reference.[289] Both practices decorporealise the body; the unpredictable fleshy matter of the body is mapped and calculated, captured on a microscale through algorithmic analysis and on a macroscale through the generation of grey-scale images designed to be technically read and potentially actioned in some way. Both practices employ what Jeremy Packer calls the 'radiographic episteme' concerning the exploration of scanning systems and practices that produce images without light.[290] Both practices share this epistemology which consists of clear distinctions between the binaries of presence and absence, 0 and 1.

287 'Multipurpose Chest Phantom N1 "LUNGMAN"', last modified September 22, 2019, https://www.kyotokagaku.com/products/detail03/ph-1.html.
288 Kathrin Friedrich and Moritz Queisner, 'Automated Killing and Mediated Caring, How Image-Guided Robotic Intervention Redefines Radiosurgical Practice', in *Proceedings, MEMCA-14: Machine Ethics in the Context of Medical and Care Agents*, (London: AISB50 Convention, 2014): 2, 3.
289 Friedrich and Queisner, 'Automated Killing and Mediated Caring', 4.
290 Jeremy Packer, 'Screens in the Sky: SAGE, Surveillance, and the Automation of Perceptual, Mnemonic, and Epistemological Labour', *Social Semiotics* 23, no. 2 (April 2013): 189.

Phantoms used in both medical research and teaching produce very real effects on corporeal bodies, be it through the testing of treatment plans for applications, or the pedagogical implications in clinical practice, on patients. Bodies are simultaneously reconfigured and redescribed through this algorithmic visuality. Using a radiographic phantom not only allowed me to explore this redescription, but to begin to problematise the reduction of the body to its decorporeal surface, ignoring the physical dimensions of bodies, 'the reproductive organs, lungs and heart, glands and capillaries', and thus to begin to consider what bodies are capable of.[291] In this chapter 'Inscribing' attends to the ways bodies appear decorporeal in/as radiographic and drone thermal imagery, and 'Leaking' explores the ways bodies defy or escape the technical regime of radiographic and drone thermal imagery. My motives were to consider technical operationality as just that, rather than as an ideology, which is arguably present in the video content online in which this technical ideology is surgical and therapeutic. Many of the artworks I have mentioned and will mention, produce and reproduce an encounter with this ideology of the technical, as corrective, but arguably do not consider the material and corporeal implications of the technical operations.

Please look at the contents of the folder titled Fuzzy Logic on the accompanying SD Card.

291 Kathy Davis, 'Reclaiming Women's Bodies,: Colonialist Trope or Critical Epistemology?', *The Sociological Review*, 55 no. 1 (2007): 54 quoted in Barla, *Techno-Apparatus of Bodily Production*, 44.
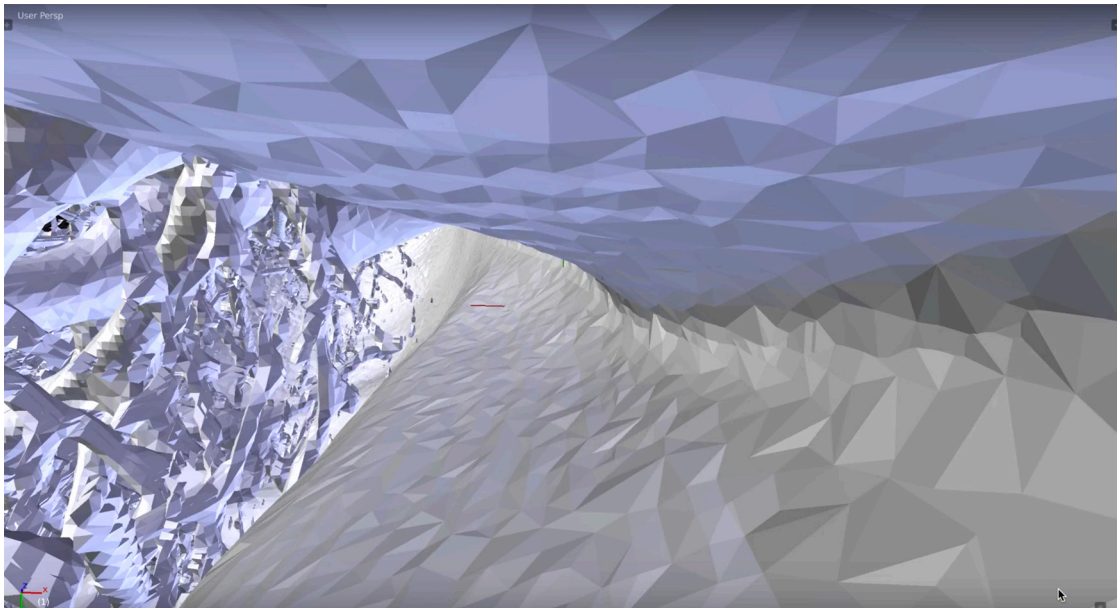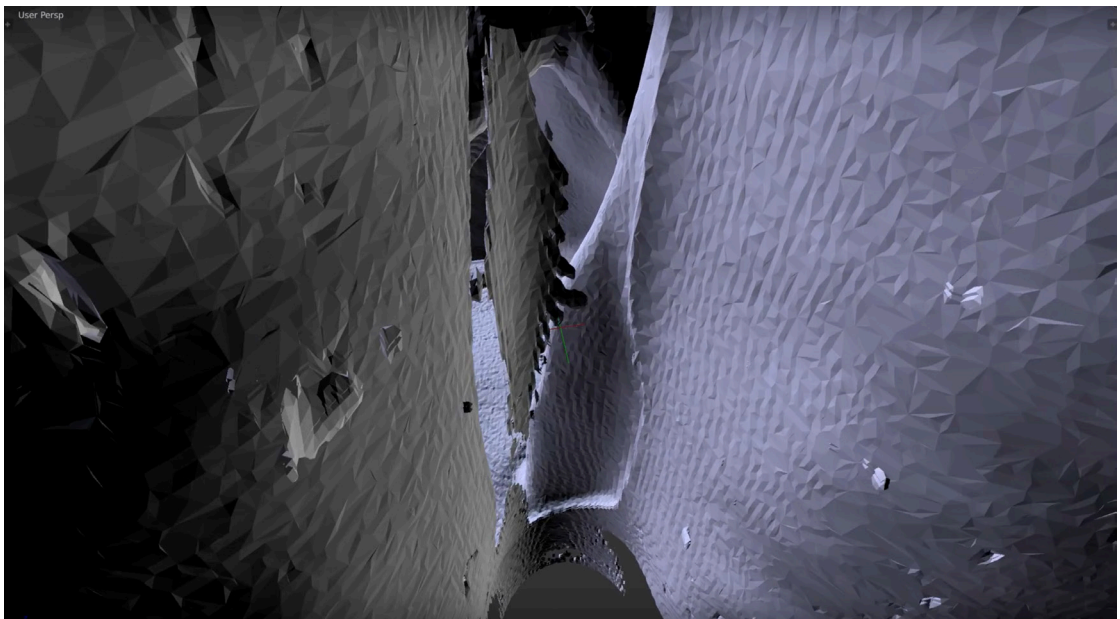
Image 29: Screen grab of 3-D model of phantom.

Image 30: Screen grab of 3-D model of phantom.

Inscribing

I accessed the phantom file in Osirix, an open source medical image viewing software program. Through medical imaging, the phantom emerges as having the radiographic attenuation qualities of human tissue. Lungman was never human, but through machine vision behaved and appeared as humans do, for the purposes of scientific research.

I travelled through the phantom body onscreen, navigating internally and externally, manipulating it in space. Inside Lungman were a number of tiny, geometric, synthetic tumours, which were clearly visible on the CT scan and endoscopic views, targets for potential radiotherapeutic planning. In practice, reinserting the technologically visualised body back into the frame of representation has ethical and political consequences which I will discuss later in this chapter. Yet I was intrigued by the de/materialisation of the technologically visualised body be it flesh or resin, from corporeal body to on-screen surface. What this decorporealising shift from bodily materiality, to the technical materiality of the image would reveal was central to my experiments in the studio. Both CT and military thermal images are operative, they are not only functional but also materially implicated, transforming tissues and materials into data, the implications of which are perhaps most contentiously illustrated in Richard Mosse's body of work titled *Incoming*.[292] *Incoming* consists of an immersive three channel high definition film with surround sound and a number of smaller works (photographic prints from the *Heat Maps* series and the sixteen screen film titled *Grid (Moria)*). *Incoming* was captured utilising a military grade thermal camera classified as a weapon under International Traffic in Arms Regulations.[293]

Thermal energy, heat, is a material property of all bodies. Understanding temperature visually changes our sensory experience of heat. As bodies, we sense other body heat only by direct proximity and contact through thermoreception. Thermoreception also allows us to understand the location of parts of our body proprioceptively, relative to other parts. Thermal imaging alters the sensory experience of heat to one that is less dependent on proximity and intimacy and instead easily visualised from a distance. It redescribes all bodies as identifiable by the algorithmic computation of their heat signature. Bodies are decorporealised into computational data and rematerialised as visual data-doubles. Lisa Parks argues that although some systems of categorisation are organised around visible differentiation such as gender, race or class, aerial thermal imagery turns bodies into 'indistinct human morphologies'.[294] I agree with Park's claim; on a material level, thermal

292 *Incoming*, directed by Richard Mosse (Europe, the Middle East and North Africa, 2014-2017), three channel HD video with 7.1 surround sound, 52min 10s.
293 'Richard Mosse — Incoming', *The British Journal of Photography*, last modified February 15, 2007, https://www.bjp-online.com/2017/02/mosse/.
294 Lisa Parks, 'Drones, Infrared Imagery and Body Heat', *International Journal of Communication*, 8 (2014): 2519.

imaging operatively reduces difference but it also visually produces a distinct category of bodies that are culturally and militarily understood in particular ways. This is a more nuanced shift as first, not all bodies are human and secondly, military thermal vision arguably produces two categories, either 'civilian' or 'combatant' – both of which are marked by the technology as *other*. In a military context the corporeal impact is that personhood is overwritten with stratification of the kind that renders any male aged 16 - 65 as 'military aged males', insurgents and geospatial targets.[295] The surround sound which accompanied *Incoming* is composed by Mosse's collaborator Ben Frost. The sounds moves between rumbling bass and drone like noises. As the film progressed these more ambient sounds were interspersed with, and at times disturbing, sounds collected through field recording, such as those accompanying the images onscreen of saws cutting through bones and distressed voices. At times there were sounds but no images, at others, images without sound, both of which providing a provocative interruption to the temporal flow of the work.

On my second viewing of *Incoming*, over a year later, I searched for some form of questioning of the politics and ethics of military visualising technology, or recognition of the personhood of those visualised, of disruption or criticality of the scopic visual regime.[296] Mosse's visualisations are high resolution, but as previously argued, the resolution of drone imagery is much contested, and on YouTube, the resolution of the operative content I was looking at is low. In *Incoming*, Mosse exposes technological biopolitical practices through the apparatuses of biopower, the surveillance, auditing administration and management of populations.[297] Bodies can be clearly seen and differentiated in the video installation and his concern for the humanitarian migrant crisis is admirable, along with the fore-grounding of the lives affected, documented both through daily routines and more catastrophic events. The work clearly exposes the circumstances through which, as I said in the introduction to this thesis, 'I' am the body whose life is preserved at 'their' expense. However, problematically, operating from a distance echoes the optics of state surveillance and the thermal image renders bodies in Mosse's words, as 'alien, monstrous and zombie-

295 Gregory, 'From a View to a Kill', 203.
296 Christian Metz coined the word scopic specifically in relation to the cinematic concerning 'not so much the distance kept, […] as the absence of the object seen'. Rather than distance from the object , in theatre for example, it is a 'double withdrawal' from the object. See Christian Metz, *Imaginary Signifier: Psychoanalysis and the Cinema* (Indiana University Press, 1982), 61. According to Gregory 'scopic' has since been 'uncoupled from any specific forms, displays and technologies to denote a mode of visual apprehension that is culturally constructed and prescriptive, socially structured and shared'. See Gregory, 'From a View to a Kill', 190.
297 Foucault defines an apparatus as a 'thoroughly heterogeneous ensemble consisting of discourses, institutions, architectural forms, regulatory decisions, laws, administrative measures, scientific statements, philosophical, moral, and philanthropic propositions'. See Matti Peltonen, 'From Discourse to "Dispositif": Michel Foucault's Two Histories', *Historical Reflections / Réflexions Historiques* 32, no. 2 (2004): 213–14.

like'; we are able to see 'their blood circulation, their sweat, their breath'.[298] Mosse's work is ambivalent to and arguably complicit with the ways military visualising technology applied in *Incoming* simultaneously represents bodies as effaced racialised *others*, and visually coded according to the algorithmic categories of military techno-scientific practice. In a military context, this complex technical mediation influences drone operators' decision making and actions, often predicated on an assemblage of data in which this machine generated visual content lies at the core.[299] Thus, thermal imaging is central to the necropolitical kill-chain of drone warfare.[300] Thermal imagery is most readily associated with military and hunting practices, and thus bodies visualised through its gaze are overcoded as decorporeal targets. These processes normalise the subjugation of those marked bodies, 'targeted for discriminatory observation and attack'.[301] In this cultural sense the thermal gaze homogenises all bodies in its view, whether human or non-human, as marked. Thus, thermal imagery should be considered carefully in relation to practices of interpretation and to the bodies that react to information rendered in this way and who enacts this interpreting, be that in a cultural or military context.

Furthermore, *Incoming*, presenting bodies through racialised optics in a cultural context, spectacularises the suffering of as Achille Mbembe says, 'debased bodies of human beings who have already been dispossessed and deprived of almost everything'.[302] The capturing of an intimate moment of prayer for one man and his display in the Barbican as a heat signature is deeply emblematic of the problematic power imbalance associated with the asymmetry of the weaponised gaze. Both the high definition resolution and scale of *Incoming*, presented on three huge screens further spectacularised this private moment. Cultural theorist Niall Martin draws attention to Mosse's insistence on the role of the imagery as a sign of 'bare life'.[303] He is specifically critical of the ensuing flattening and 'commonality between viewer and viewed' that Mosse proposes.[304] *Incoming* draws

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298 'Richard Mosse – Incoming', *The British Journal of Photography*, last modified February 15, 2017, https://www.bjp-online.com/2017/02/mosse/.
299 Friedrich and Queisner, 'Automated Killing and Mediated Caring', 3.
300 Derek Gregory defines the kill-chain as 'a dispersed and distributed apparatus, a congeries of actors, objects, practices, discourses and affects, that entrains the people who are made part of it and constitutes them as particular kinds of subjects'. See Gregory, 'From a View to a Kill', 196.
301 Wall and Monahan, 'Surveillance and Violence from Afar', 250.
302 Achille Mbembe, 'Deglobalisation', *Eurozine*, last modified February 15, 2017, https://www.eurozine.com/deglobalization/.
303 Giorgio Agamben's concept of bare life as the biological trace of life is critiqued by Rosi Braidotti as 'not generative of vitality, but rather the constitutive vulnerability of the human subject, which sovereign power can kill; it is that which makes the body into disposable matter in the hands of the despotic force of unchecked power'. She states that in Agamben's terms it is equivalent to a negative form of *zoë*. See Rosi Braidotti, *The Posthuman* (Cambridge, UK; Malden, MA, USA: Polity Press, 2013), 120. I will discuss Braidotti's theorisation of posthumanism and *zoë* later in this chapter.
304 Niall Martin, 'As Index and Metaphor: Migration and the Thermal Imaginary in Richard Mosse's Incoming', *Culture Machine* 17, (2019): 5.

attention to the many bodies captured through the thermal gaze, surgeons, workers, immigrants, for example, which are indicative of a common sense of vulnerability, as Mosse argues.[305] Yet in my view this is a problematic foundation for the work, without considering differences in gender, privilege and race, for example, never mind the profound operational and therefore material implications of thermal imaging on bodies. Although the work foregrounds vulnerable bodies, and exposes the optics of military thermal imaging, as Hito Steyerl argues, these practices and the technology employed in this endeavour, testify to the link between documentary practice and western colonialism.[306]

In 2018, Mack Books released *Incoming* as an artist book with accompanying academic essays by Judith Butler, among others.[307] The book records, again through thermal imaging, the lives of migrants in various camps across Europe. Each image is accompanied by a text which locates it in time and space, and details the living conditions of the camps, a gesture which seems to appease and correct the ethical dilemmas raised by the images themselves. Captioning situates the images within the realms of photojournalism, yet the production value of the lustrous metallic tritone printing on black paper elicits a confusing representation of haunted spectres rendered by racially inscribed optics of human suffering.[308] Using the phantom in my doctoral research practice allowed me to explore the relationship between a body, machine imaging and racial inscription, a process which reveals bodies as calculable targets for intervention. Mosse's usage of technology makes no attempt to subvert its operational capacities and instead engages with visual and linguistic ideology of the technical, working with the logic of science and militarism to produce spectacular images. My own use of technology was beginning to explore its vulnerabilities and moments where techno-scientific logic is interrupted. In Blender I transformed volumes into meshes and sculpted the forms onscreen. My laptop froze countless times during this process. I had to be patient, it was a process of give and take. Digital 3-D models are entirely constituted of surfaces; I worked only on the phantom body's outermost surface,

305 Mosse references Agamben's theory of 'bare life', discussed previously. See Richard Mosse, 'Incoming: Interview with Richard Mosse', *Photoworks*, accessed April 02, 2017, www. photoworks.org.uk/incoming-richard-mosse/.
306 Trinh T Minh-Ha also criticises this practice. See Minh-Ha, *When the Moon Waxes Red*, 65-78.
307 Richard Mosse, *Incoming* (London; Mack, 2017).
308 Similarly, Daniel Tepper and Vittoria Mentasti's ongoing photojournalistic project *The Third Eye* presents intimate thermal images of civilians living in Gaza alongside commercial images from a drone factory. The images are reminiscent of the advertisements I have seen on YouTube for military and hunting optical systems. If indeed their project is photojournalistic in nature, what remains questionable is the role of the thermal images in the project, apart from representing contrasting power relations between civilians living in Gaza and the Israeli military. In *Lens Culture* and the *British Journal of Photography*, captioning expands and situates the context in which we read the thermal images, in a similar way to the captions in *Incoming*, creating a sense of objectivity. See Marigold Warner, 'Manufacturing the drones Above Gaza', *The British Journal of Photography*, last modified September 22, 2019, https://www.bjp-online.com/2018/07/gaza-drones/ and Daniel Tepper and Vittoria Mentasti, 'Above Gaza', *Lens Culture*, last modified September 22, 2019, https://www.lensculture.com/articles/daniel-tepper-and-vittoria-mentasti-above-gaza.

its skin, pulling, dragging, editing the mesh. 3-D printing demands entirely closed surfaces; holes and gaps are glitches the machine cannot read. I ran the file through another software program to close the holes and manually edited the glitchy interpolations.

There can be no leaks though there is nothing to

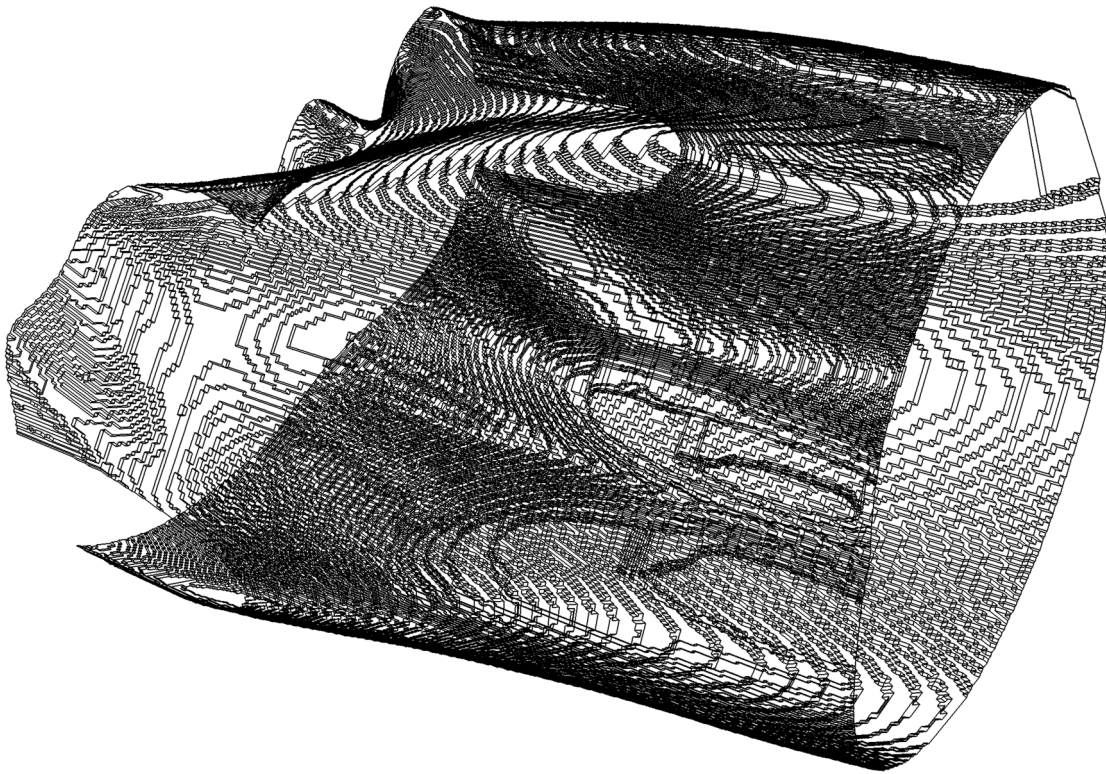   leak

                                                    out.

Image 31: Digital photograph of a hole in the mesh of the 3-D model of the phantom.

Image 32: Screen grab of the digital mesh of the outer surface of the phantom model.

The 3-D print, made from polylactic acid (PLA), was the largest the company had ever made and it pushed the machine head beyond the limits of its virtual edges, resulting in a volume that deformed and warped as the machine lost itself in its unmapped peripheries. PLA is a cheap and readily available material which is easily cast. Making a master mould from the PLA print allowed me to generate multiple versions of the print in wax. A two-part mould was constructed using silicon and plaster. I created several wax versions of the 3-D print, and played with form, shape and thickness of the pieces. An architectural framework was added to the forms to allow the molten metal to flow and refractory moulds were then formed around these waxes in the centre's mould making workshop. The sculpture centre's yard was overlooked by a construction site with builders working long days at a height. When the moulds were dry, we placed them in the burnout kiln in the foundry for three days. Refractory plaster can withstand extremely high temperatures and the kiln was old and the thermostat was blown. The technician slept in his van in the foundry yard for three nights, checking the kiln every four hours by placing his hand on the door to judge the temperature. The morning the kiln was opened, the foundry furnace was lit. The moulds, now containing nothing but an empty volume the wax once occupied, were removed from the kiln carefully and prepared for the pour. We coated them with further layers of wet plaster and placed them gently in the sand pit. The gates were closed, and the foundry workshop locked. Aluminium is inexpensive and readily available, the same silver material constituting the familiar surface of my laptop, its track pad sensitive to my touch. Watching and performing the pour, any pour in a foundry, is primordial, transformative and unique. It is a multi-sensory experience difficult to describe through language, the sound of the furnace roaring, the fumes from the molten aluminium and the sight of the red-hot crucible was at times overwhelming.

Leaking

Fictioning as a methodology allowed me to imagine conversations and write a script with other characters. I began writing *If/Then* as a dialogue between a scanning machine and a human. It developed through many iterations, eventually into a recollection of a conversation, rather than a dialogue and began to consider how machines, as feminist new materialist theorist Jane Bennett writes, 'act as quasi agents […] with trajectories, propensities and tendencies of their own'.[309] Bruno Latour's Actor Network Theory (ANT), describes these human / non-human interrelations as assemblages. ANT is, according to John Law,

> the enactment of materially and discursively heterogeneous relations that produce and reshuffle all kinds of actors including objects, subjects, human beings, machines, animals, "nature", ideas, organisations, inequalities, scale and sizes, and geographical arrangements.[310]

ANT proposes the abandonment of divisions between humans and non-humans and instead focuses on the agency of the actors within the network. Latour's approach explores how collectives of actors and agencies illustrate the role of material objects as 'full-fledged actors in our collective'.[311] Security studies scholar Mike Bourne suggests that ANT may provide a richer discussion of 'relations of security, technology and weapons', specifically how citizens, weapons and states are 'modified by coming together'.[312] Without entirely anthropomorphising the machine, then, the recollection of an imaginary dialogue I had written became entangled with other fragments of research into animal and machine vision, a Skype conversation with a scientist researching the use of motion detection suits for lie detection, patient experiences of medical scanning and personal reports in online forums and blogs about disassociated psychological states, took form.[313] I collected the technical sounds of machines online and in the studio, and recorded the voice-over using an app on my phone. It struck me how recording in this direct way afforded many of the qualities I had struggled to achieve in *Repetitive Strain* using multiple layers of effects. The sonic qualities of the voice were both embodied and recognisably human yet also dislocated, distant and it

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309 Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham: Duke University Press, 2010), viii.
310 John Law, 'Actor Network Theory and Material Semiotics', in *The New Blackwell Companion to Social Theory ed*. Bryan S. Turner, (Chichester, West Sussex, United Kingdom; Malden, MA, USA: Wiley-Blackwell, 2009), 141.
311 Latour, *Pandora's Hope*, 174.
312 Mike Bourne, 'Guns don't kill people, cyborgs do: a Latourian provocation for transformatory arms control and disarmament', *Global Change, Peace & Security*, 24, 1, (2012):142, 156.
313 Jane Bennett argues for a careful and strategic approach to anthropomorphism. See Bennett, *Vibrant Matter,* xvi. In Chapter Five, a fictional Skype conversation forms the main structure of the work *I could feel that my eyes were open*…Skype emerged as an important means to think through technologically mediated sensory and material connections and disconnections with other bodies.

was difficult to separate it from the background noise. I interrupted the voice-over with the found sounds of scanning, interspersed with the classical music the patient was presumably listening to at the time it was recorded. The voice-over script was full of diversions, tangents and wanderings.

I was also experimenting with Microsoft Kinect, an infrared scanning system used predominantly by gamers but also by artists looking for an easily accessible 3-D scanning and modelling hardware. Scanning with Kinect becomes most interesting to me visually when the subject moves. I screen-captured this motion tracking as I moved my head, hands and entire body around the studio and overlapped multiple versions of the meshed images in post-production later. The results were exciting in that they generated multiple perspectives, but techno-visually capturing my own body ran the risk of placing the representation of the white western body literally at the centre of the research and exemplifying the strategies enacted by the military to position drone operators' bodies as the vulnerable casualties of war. As Roger Stahl writes, when 'there is a need to put the target body in context, the image of a westerner, often in a Western domestic scene, tends to act as a substitute'.[314] I was considering not only the multiple bodies within the research practice but also multiple bodily perspectives and multiple bodily scales. Rather than entering, even temporarily, partial perspectives, which implies a kind of violence, I began to cautiously think of my own body as materially porous and therefore vulnerable to other vulnerable bodies.

Porosity attends to permeable boundaries and membranes between bodies and other bodies and things.[315] This feminist reclamation of the leaky bodies destabilises my own integrity as sovereign subject in an 'approach to the body that is porous, not through its surface but through the pores and holes that blur dichotomies of inside and outside'.[316] In my doctoral research, porous bodies are not only partial but also delocalised, proprioceptively through multi-scalar, multi-perspective and multi-sensory positions, and destabilised through to

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314 Stahl, 'What the Drone Saw', 670.
315 In her discussion of the impact Hurricane Katrina, Nancy Tuana uses the metaphor of 'viscous porosity' to describe the relational interaction between humans, matter and the social, akin to Donna Haraway's material-semiotic actor, discussed later in this chapter. She states that 'attention to the porosity of interactions helps to undermine the notion that distinctions […] signify a natural or unchanging boundary'. She uses the term 'viscosity' to imply a resistance, rather than the free flowing implications of 'fluidity' in human and material relational agency. See Nancy Tuana, 'Viscous Porosity: Witnessing Katrina', in *Material Feminisms*, ed. Stacy Alaimo and Susan J. Hekman (Bloomington, IN: Indiana University Press, 2008), 188-214. Leaky and porous bodies are also reclaimed by Elizabeth Grosz and Margrit Shildrick not as irrational and unpredictable but affirmatively disruptive and embodied subjects. See Elizabeth Grosz, *Volatile Bodies: Toward a Corporeal Feminism, Theories of Representation and Difference* (Bloomington, Ind: Indiana University Press, 1994) and Margrit Shildrick, '"Why Should Our Bodies End at the Skin?": Embodiment, Boundaries, and Somatechnics', *Hypatia* 30, no. 1 (2015): 13–29.
316 Nieuwenhuis, 'Porous Skin', 2.

holes; in the 3-D mesh, for example. They are at odds with techno-scientific and calculative logic. This mode of vulnerability as decentred and multiplicious, operates to generate an assemblage of relational bodies and multiple perspectives. Boundaries collapse during the course of the moving image, due to the unfolding nature of the dialogue and diversions off-script where the subtitles depart from the voice-over, creating a confusing relationship between the linguistic narrative and the sensory registers of the operation of technology. Human subjectivity and agency is transformed by using technology in ways that are more than mere reactions to the technology. Drone operators are themselves the subjects of techno-cultural military systems, the specifics of which are outlined by Peter Asaro in detail, the 'transformations in how drone operators understand themselves, as members of the warrior class in modern society and as labourers in a bureaucratised system of killing'.[317] In techno-visual systems, imaging defines the aesthetic access to the body and thus both the observer and observed align to these conditions.[318] Sociologist Catherine Waldby describes this 'cybernetic turn' as the 'calibration of living entities according to the logics of the computer'.[319] Even Judith Butler acknowledges that

> persons use technological instruments, but instruments surely also use persons (position them, endow them with perspective, establish the trajectory of their action); they frame and form anyone who enters into the visual or audible field, and, accordingly, those who do not…[320]

This blending of techno-cultural mediation casts, as she says, some lives as 'ungrievable', lives that have been framed as 'threats to human life as we know it rather than as living populations in need of protection', whose deaths are deemed necessary to protect the 'lives of the living'.[321] How these processes are algorithmically inscribed with the value systems of those who code them must be considered critically in relation to moral responsibility.[322]

Friedrich and Queisner suggest that the 'co-operation' and 'strategic alliance' between humans and 'military robots such as drones' enact a 'hybrid agency' resulting in a 'loss of individual autonomy'. [323] Yet they omit any reference to the complex programming and algorithmic computations input by humans at research, development, and quality assurance stages of technical development. Techno-visuality and the images it produces in this context can be understood as being part of a complex assemblage of 'action and

317 Asaro, 'Labour of Surveillance and Bureaucratised Killing', 6.
318 Friedrich and Queisner, 'Automated Killing and Mediated Caring', 3.
319 Catherine Waldby, *Visible Human Project : Informatic Bodies and Posthuman Medicine*, (London: Routledge, 2000), 19.
320 Judith Butler, *Frames of War: When Is Life Grievable?*, Reprint edition (London; New York: Verso, 2010), xi- xiii.
321 Butler, *Frames of War*, 31.
322 Barla, *Techno-Apparatus of Bodily Production*, 36.
323 Friedrich and Queisner, 'Automated Killing and Mediated Caring', 1.

decisions, influencing human and algorithmic responses, but also being influenced themselves in the specific kinds of processes and calculations they undertake'.[324] Latour proposes an ontological symmetry, rather than differentiated power relations.[325] However, as I have claimed, this does not necessarily mean distributed responsibility; agency like vulnerability, is distributed differentially. Likewise, Franz and Queisner contest the discourse of 'symmetrisation of agency' with regards to drone warfare, stating that it 'reduces the confrontational nature of this co-operation' and 'obscures the influence of powerful actors that are not necessarily part of the command chain'.[326] In this context Lucy Suchman and Jutta Weber advocate for both attention to human-machine assemblages and agencies along with clearly defining the agency of human responsibility within 'political, legal and ethical/moral regimes of accountability'.[327]

ANT in a sense repositions bodies as agential, yet it pays no attention to postcolonial, critical race or feminist theories that consider how bodies are marked and inscribed. Whilst Latour relates the actant to that which is represented, as Haraway states, 'the objective world *appears* to be the actant solely by virtue of the operations of representation', the representer 'claiming independent object status for the represented'.[328] She argues that all bodies are materialised through apparatuses of bodily production, which she describes as arrangements of material-semiotic human and non-human entities, as well as the practices that produce these materialisations.[329] In this sense, bodies are understood to be generative, collapsing distinctions between the 'material and the textual, the ontological and the epistemological and active and passive subject'.[330] Drawing on Gayatri Chakravorty Spivak, she is critical of the ways western philosophers adjust to the problematic nature of representation by stressing its negativity, rather than acknowledging the things that we 'can never possess – or represent, because representation depends on possession of a passive resource, namely, the silent object, the stripped actant'.[331]

324 Jeremy Knox, 'Algorithms', last modified September 19, 2016, https://newmaterialism.eu/almanac/a/algorithms.html.
325 Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network-Theory*, Clarendon Lectures in Management Studies (Oxford ; New York: Oxford University Press, 2005), 76.
326 Franz and Queisner, 'The Actors Are Leaving the Control Station', 131.
327 Jutta Weber and Lucy Suchman, 'Human–Machine Autonomies', in *Autonomous Weapons Systems*, ed. Nehal Bhuta et al. (Cambridge: Cambridge University Press, 2016), 76.
328 Donna Haraway, *The Haraway Reader* (New York: Routledge, 2004), 88.
329 Actants, she states are the forces and processes doing things, whereas actors are the entities involved, and have 'character'. Actants can comprise both actants and actors, in this sense they are material-semiotic. Objects of knowledge, for Haraway, are processes produced by and including all of these assembled actors and actants, including language, processes which she terms as 'material-semiotic nodes'. See Haraway, 'Situated Knowledges', 595.
330 Haraway, 'Situated Knowledges', 595.
331 Haraway, *The Haraway Reader*, 89.

I reflected on times I have sat in front of the treatment delivery console with a team of technicians, physicists, fellow radiation therapists and surgeons and enabled the delivery of radio-surgical treatment. The radiographer is the last link in the chain – the operator, delivering the treatment and paying attention to the algorithmically interpolated visualisations of the body on-screen whilst simultaneously monitoring the patient in the room. I feel that it is important to not confuse hybrid agency with technology, with responsibility, bearing in mind as I and others have argued, these encounters condition our attitudes and interactions.[332] This is especially pertinent in contexts in which the body is algorithmically visualised and redescribed through machine vision, such as the practices I examine. As I have argued, these visualisations are techno-scientifically and often algorithmically and culturally racially inscribed, signifying decorporeal rather than fleshy, material bodies. Understanding these processes is key to a responsible practice.

Using Osirix I flew through the phantom body, again recording the screen as I did so. I collected research images online of fleas, birds, night vision advertisements, medical scanning research and robotic surgery. The script cut through multiple temporalities and bodies, traversing memories, operators, passive and active bodies, instructions, questions, anecdotes and stories. The fly-through gives the user the perspective of moving seamlessly through the body, while producing images without, according to Catherine Waldby, the 'vulnerable spasms and wetness of the interior flesh' as it rejects and accepts the endoscopic camera.[333] In this alternative and additional perspective to surface and the radiographic visuality, I had the sensation that the phantom body was an inertialess and zero gravity, computational space, that I was travelling through. In this floating perspective, as Waldby continues, 'the virtual anatomy is open to almost any kind of manipulation, because any action performed upon the body is reversible and free of consequences'.[334] There is a sense of control as the camera moves slowly and smoothly through and around the body, subverting the relationship between binaries such as internal / external worlds. This is the perspective of virtual reality and video games, placing 'navigable images back into the mode of cinematic montage', thus complicating a sense of fixed perspective through the state of immersion that virtual reality and first-person video games create.[335]

332 Tom Holert, 'Meshed Space', in *Myths of the Marble*, ed. Alex Klein et al. (Berlin: Sternberg Press, 2018), 110.
333 Waldby, *Visible Human Project*, 73.
334 Waldby, 73.
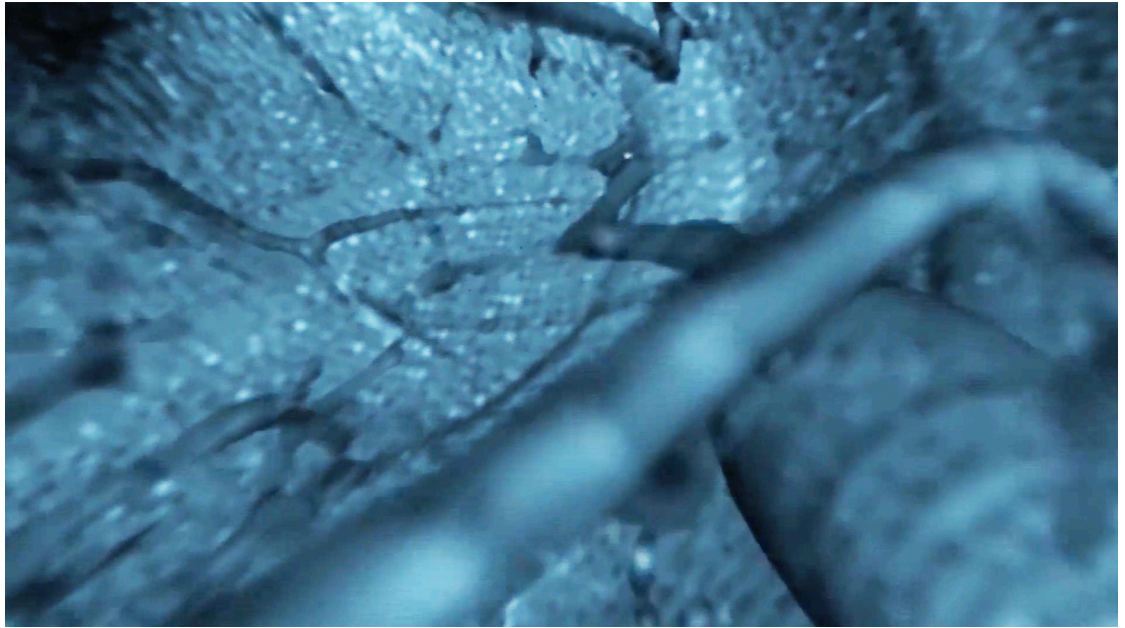335 Holert, 'Meshed Space', 110.

Image 33: Screen grab from *Fuzzy Logic* (If/Then), 0:49/8:00.

Image 34: Screen grab from *Fuzzy Logic* (If/Then), 1:13/8:00.

Hollow forms emerged from the plaster, leaks in the technology that produced them. They were empty, fragments of bodies. The casts were not more than a couple of millimetres thick, equally hard and fragile in appearance. Their pixellated surfaces, inscribed with the virtual and 3-D printing technology that produced them, simultaneously resembled the patterns of tree bark and the topography of remotely sensed sea beds. Yet running my hands over their surface, it stuck me how decorporeal they felt: static rather than fleshy, moving and embodied, tying into discourses of hardness, sovereignty and impenetrability rather than vulnerability. They resembled shells of inert figures, hovering between organic and digital. Techno-visual practices align the observer's and the observed body to the condition of visual and aesthetic access it has defined. The body is contained within these parameters. Yet

leaks

leaked.

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I considered Haraway's approach to partial perspectives, specifically a decentring, both conceptually and practically of artistic research strategies to be productive. I was beginning to recognise an adjustment to Haraway's situated practice and partial perspectives, both as a bodily porosity and delocalising, in the generation of multiple perspectives, in and through the decentring of practice that considered multiple modes of embodiment. Further examination of the sculptures' surface revealed moments of unplanned haemorrhages, attachments where molten metal escaped into vacuums, forms known as flashing. 'Why should our bodies end at the skin, or include at best other beings encapsulated by skin'? writes Haraway.[336] Strange tumorous growths adhered to and interrupted the digital surface, a reminder that materials are demanding and have their own agency. They found paths of least resistance, exploiting weak points in the skin of the sculpture and leaked through. The body is not separate from the world, but permeable and therefore vulnerable to it. It cannot be contained. Techno-visual practices operate on the premise that images of bodies do not lie, yet both bodies and technology are vulnerable to disintegrity. Bodies move, metal leaks. In *If/Then*, I used animated text to imply the tension between the disembodied and embodied hand and to imply a liveness through time-based performativity. Thinking about language in terms of leaks, ruptures and haemorrhages, I endeavoured to work with words in a more material way, attempting to interrupt the relationship between representation and materiality, so that, as Trinh T. Minh-Ha states, 'the referential function of the film image/sound is […] reflected upon in its own operative principles and questioned in its authoritative identification with the phenomenal world'.[337] In this way I began to use language to destabilise the visual and aural components of the moving image.

336 Haraway, *Manifestly Haraway*, 61.
337 Minh-Ha, *When the Moon Waxes Red*, 43.

Image 35: Digital photograph of flashing on the surface of the aluminium sculpture.
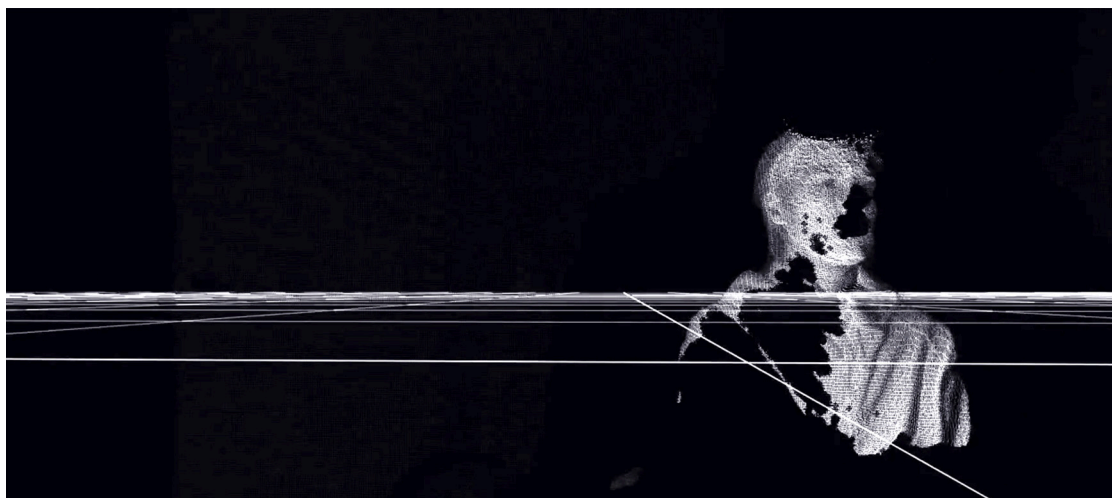
Image 36: Screen grab of holes in the digital mesh.

I explored monocular, binocular and peripheral vision in human, non-human and techno-visual bodies and images, moments of 'see[ing] together without claiming to be another'.[338] This position embodies what feminist posthuman theorist Rosi Braidotti terms an 'eco-philosophy of multiple belongings', as a 'relational subject constituted in and by multiplicity', one that 'works across differences and is also internally differentiated, but still grounded and accountable'.[339] Posthuman subjectivity enables an embodied and therefore partial form of accountability which is grounded in relational, and collective assemblages.[340] Making direct reference to the deployment of technologically mediated necropolitical violence, she identifies drone operations as posthuman, because of the complex technical mediation involved in their operations. However, Braidotti notably draws attention to the very human network in which lethal weapons are deployed by drone operators. In *Frames of War*, Judith Butler calls for a re-conception of life damaged by war which implies an inseparability between human and animal ontologies although unlike Haraway and Braidotti, she does not fully acknowledge an assemblage of human, non-human and technological bodies.[341] Drawing on Haraway however, she continues that this 'co-constitution [that] implies the need for a reconceptualisation of the ontology of life itself'.[342]

This relationship is evident in Netta Laufer's project *25FT*.[343] The series comprises a number of thermal images, both still and moving, appropriated from Israeli Defence Force surveillance cameras operating at the dividing fence between Israeli and Palestinian territory. According to the artist, 'the work simulates the position of the soldier controlling the camera, focusing only on animals and the landscape in the occupied West Bank'.[344] The series demonstrates the fluidity of the border by means of its disruption by animal life appearing as an 'array of radiators' in the thermal images.[345] It also reflects the artist's refusal to represent human bodies through the thermal, weaponised gaze. Braidotti argues against a form of vulnerability through which 'we are recognised as full citizens only through the position of victims, loss and injury and the forms of reparation that come with it', a vulnerability that is hopeful rather than 'based on the negative instances of wound and loss'.[346] This brings to mind how bodies are represented in Mosse's *Incoming*. Rather for Braidotti, it is an 'affirmative politics' that considers the agency of bodies, does not deny 'the reality of horrors, violence and destruction' and instead constitutes an ethics

338 Haraway, 'Situated Knowledges', 586.
339 Braidotti, *The Posthuman*, 49.
340 Braidotti, 49.
341 Butler, *Frames of War*, 13.
342 Butler, 76.
343 Netta Laufer, *25FT*, 2016, installation of video and series of still photographs.
344 Netta Laufer, '25FT', accessed March 9, 2018, https://www.nettalaufer.com/25ft.
345 Nicole Starosielski, 'Thermal vision', *Journal of Visual Culture* 18, 2 (2019); 154.
346 Braidotti, *The Posthuman*, 126, 129.

that interrogates the 'shifting inter-relations between human and non-human forces'.[347] She proposes that a posthuman notion of the 'enfleshed and extended, relational self keeps the techno-hype in check'.[348] In my view, Laufer's series attempts to attend to these forces sensitively and responsibly; animals are understood through the weaponised, thermal view as disruptive of an oppressive military regime. Human life is also in fact present in the moving image work, in the form of the soldier's tracking movements, their presence implied through the mobile and at times unsteady tracking movements of the thermal camera. The predominantly silent moving image is occasionally disturbed by the sound of radio communication between soldiers although the sounds generated through interference in the radio transmission disrupt the voices, rendering them for the most part, imperceptible. In this sense the work implies Jane Bennett's acknowledgement that it is impossible to entirely escape anthropocentricism.[349] Yet this 'problem' is also constitutive of the attention to human responsibility I have engaged with, which is also evident in the voice-over of *If/Then* (albeit a destabilised communication).

A critique of posthuman feminist theorists is that their notion of the confusion of boundaries is based on a dualism, for example, the nature culture divide and ignores ancient, pre-existent, non-western and indigenous knowledge which is not based on these binaries.[350] However, as I have argued, the logic of science, technology and militarism is. In fact, *Fuzzy Logic* partially explores an algorithm modelled on more nuanced values than zero and one that attempts to circumvent this logic, specifically the provocations of 'if' and 'then'. Thus, whilst I acknowledge the problem, I think that these areas of theoretical scholarship are theoretically and practically valuable to this research project. Towards the end of *If/Then*, there are visuals of anonymous bodies moving under radiographic imaging. Despite patients' best efforts, bodies move in CT scans, due to twitches, ticks and nervousness. I have contemplated this agency and vitality in the ways I have explored distributed agency and human responsibility through practice. Thus as a speculative approach to artist practice, elements of affirmative politics and the agency of bodies can begin to sketch a responsible approach to how bodies are considered in the research, particularly a decentred subject that 'anchors the subject in an ethical bond to alterity, to the multiple and external others that are constitutive of that entity which […] we call the 'self'.[351] A consideration of the liveliness and forces of things both interior and exterior to humans can, according to Jane Bennett, alter how we understand political issues.[352]

347 Braidotti, 122.
348 Braidotti, 82, 90.
349 Bennett, Vibrant Matter, 120.
350 Juanita Sundberg, 'Decolonising Posthumanist Geographies', *Cultural Geographies* 21, no. 1 (January 2014): 33–47.
351 Braidotti, The Posthuman, 100.
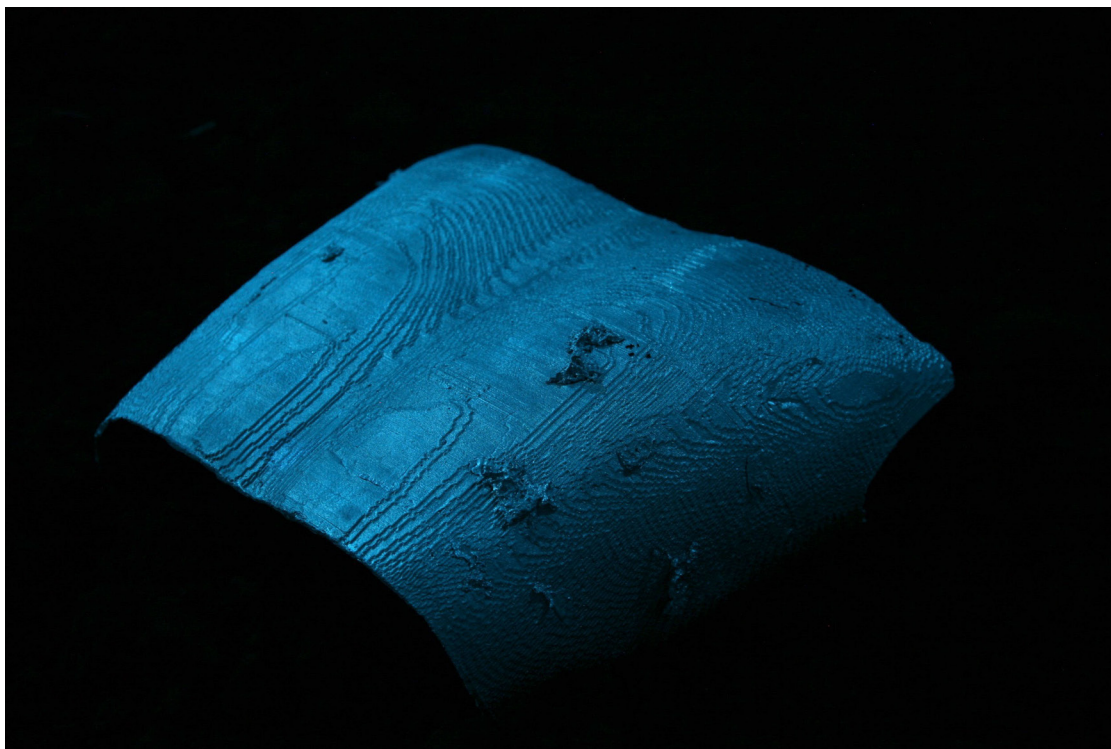352 Bennett, *Vibrant Matter*, xvi.

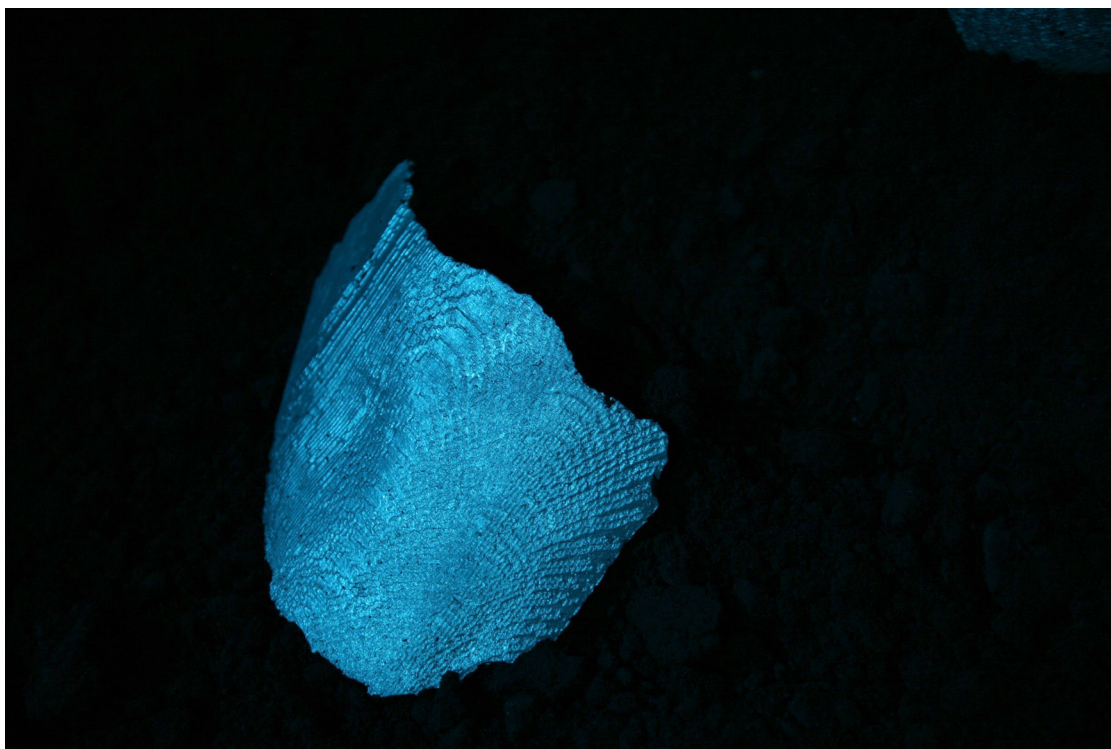Image 37: Digital photograph of *Fuzzy Logic* installed at Leitrim Sculpture Centre, 2018.

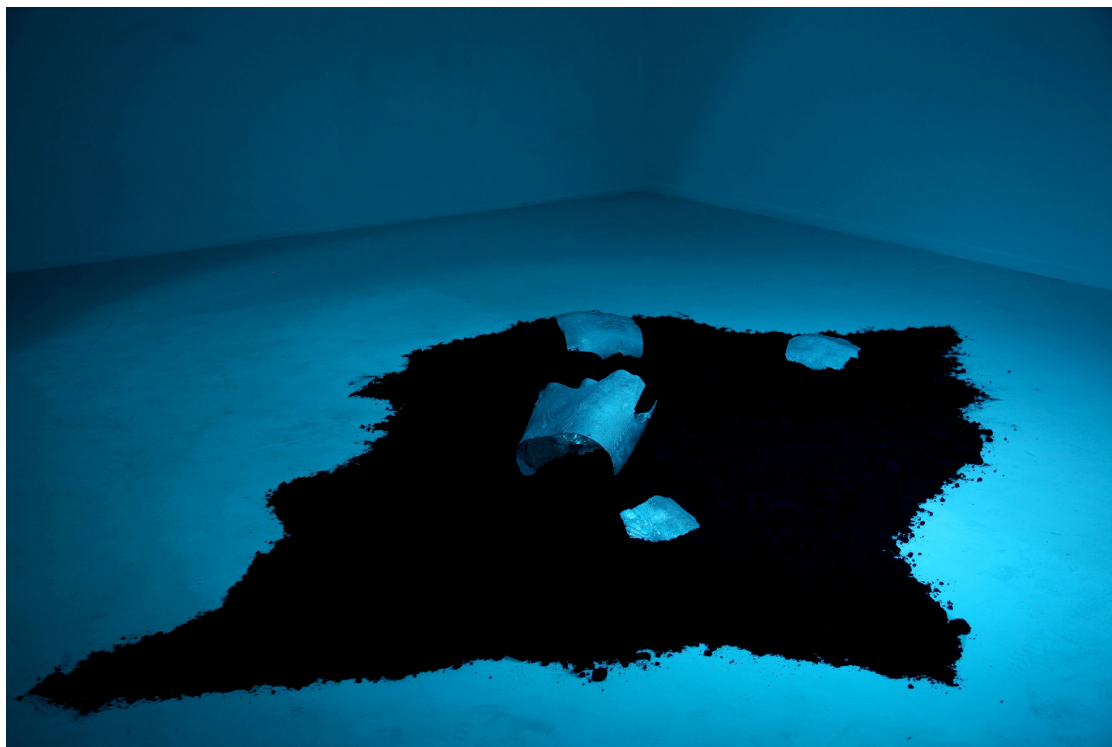Image 38: Digital photograph of *Fuzzy Logic* installed at Leitrim Sculpture Centre, 2018.

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Image 39: Digital photograph of *Fuzzy Logic* installed at Leitrim Sculpture Centre, 2018.

Image 40: Digital photograph of *Fuzzy Logic* installed at Leitrim Sculpture Centre, 2018.

Installing

Fuzzy Logic was exhibited in the gallery of Leitrim Sculpture Centre in September 2018. The gallery consists of one large central space with smaller rooms at either side. The single channel video work with stereo sound entitled *If/Then* was projected with a custom-built screen and seating in the main gallery space. The series of sculptural forms were displayed under blue lighting conditions on black sand in one of the adjoining rooms. I blacked-out both spaces and reconfigured the circulation in the space. The projection screen was designed and installed at an elevated height and angle in the gallery, higher than conventionally installed screens and leaning slightly forward. The screen was constructed from steel tubing and canvas, its surface painted matte grey to absorb light and produce richer dark tones from the projection. During the week of the install, the days were spent blacking-out, painting, grinding, polishing and sanding. The nights were spent in the gallery making final edits to the film and sound. The close proximity to the work, both spatially and temporally enabled a sort of partial blindness and numbness, allowing intuition to inform certain decisions. I designed custom seating in the form of a large wedge, elevated to three feet at one end. It was covered in black cushions so that viewers could lie horizontally looking up at the screen. This confirmed a mode of encountering the work that I had tested before, with *Repetitive Strain* and have seen before in the installations of Laura Poitras and Ai Wei Wei for example.[353] Both installations were dependent on the position of viewer's body instrumentally to demonstrate the uncovering of the technologies of surveillance and the revelation of perceived invisible workings of the tools of data collection through data visualisations.

The installation brought together the practices of moving image, sculpture and text that I was now confirming as a method in the research. In both *Repetitive Strain* and *Fuzzy Logic*, the fabric of the architectural space itself was necessarily considered and transformed. Installation is also a method, the aim of which was to activate the viewing conditions of the images, restaged through intermingled, multi-sensory and embodied registers, and to disrupt passive modes of encountering the works in the installation. This hybrid and

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353 Laura Poitras's exhibition *Astro Noise* at the Whitney Museum of Modern Art in 2016 featured a similar configuration in her installation *Bed Down Location*. The viewing conditions reoriented the body and the aerial view created a communal space for experiencing the work. This flipping of perspective and of the viewers' perception through collective viewing experience was emphasised in the revelation, later in the exhibition, that the heat signatures of the viewers were also being live tracked.See 'Laura Poitras: Astronoise', Whitney Museum of American Art, accessed November 07, 2019, www.whitney.org/Exhibitions/LauraPoitras. Similarly, *Hansel and Gretel*, an installation by artist Ai Wei Wei and architects Herzog and De Meuron at the Park Avenue Armory in 2017, used thermal imaging to track viewers in space. In an adjoining room, screens reveal that the exhibition space is being live streamed, and each viewer can use facial recognition to track themselves in the previous recordings of their interactions with the installation. See 'Hansel and Gretel', Park Avenue Armory Programs, accessed November 07, 2019, www.armorypark.org/programs_events/detail/hansel_gretel.

assembled practice of installation was composed of a range of agents that mediated each other. The speakers were set up at either side of the screen and projected sound towards either side of the custom seating and much of the experience of watching the film was lying down in darkness. Some viewers reported that it reminded them of undergoing a medical scan. The sonic aspect of the work in particular generated this experience. Through the installation of *Repetitive Strain*, I had learned that I could control lighting within the installation with the projected image. The animated text appeared on an entirely black background. It's an odd sensation, lying in a completely darkened space, potentially beside a stranger who cannot be identified clearly. Darkness was a transitory space: bodies entered from, and exited to daylight in the exhibition. At times in *Fuzzy Logic*, the only light in the exhibition space was that of a crack of blue emerging from an adjoining room. Using coloured overlays on the gallery spotlights, my desire was to draw attention to the surface of the sculptures and the mediated viewing experience in the gallery. Placing the sculptures on the ground, on the light absorbing black sand (a material appropriated from the casting workshop), I also wanted to mediate the viewers' physical position and perspective with the work. The voice-over attempted to subvert the relationship between bodies; operator, scanned subject, machine and viewer. Each element within the assemblage; moving image (and sound), sculptures (in the adjoining room), and the spatiality of the installation affected how it was encountered, in what digital media scholar Aylish Wood terms a 'distributed attention', meaning that the viewers' perception was potentially always partial.[354]

In an installation such as *Fuzzy Logic* which embodies (at least partially) a techno-scientific encounter, an encounter with the technical rather than technical ideology, the viewers' bodies operate as unpredictable and uncontrollable disruptions. The viewers bring their 'dispositions', 'cultural knowledge' and 'embodied agency' to the experience of the installation.[355] Moving image in particular single screen projection allows for the nature of the practice to unfold temporally. The black wedge functioned as a viewing platform but also occupied a sculptural form with the space which in a sense immersed and situated the viewer within the centre of the more dis/embodied aspects of the work, particularly the voice-over, animated text and the sculptural forms. Furthermore, *If/Then*, and the placement and materiality of the wedge made for viewers to lie upon, arguably prolonged their attention in the experience and contemplation of the installation. In other words, as an assemblage of competing bodies, spatiality and temporalities, the viewer's distributed attention engaged, partially engaged or disengaged with the works in the installation, thus rendering the work itself unstable and contingent. Its meaning then, according to artist and

354 Aylish Wood, *Digital Encounters* (United Kingdom: Routledge, 2007), 135.
355 Wood, *Digital Encounters*, 157.

writer Catherine Elwes, is considered as 'multiple and polymorphous'.[356] In this sense both the presence of fictioning within the work but also the very nature of a hybrid installation generates a non-corrective artwork, the meaning of which is unstable and heterogenous.

356 Catherine Elwes, *Installation and the Moving Image* (New York: Columbia University Press, 2015), 153.

Image 41: Digital photograph of *Fuzzy Logic* installed at Leitrim Sculpture Centre, 2018.

Image 42: Digital photograph of *Fuzzy Logic* installed at Leitrim Sculpture Centre, 2018.

Closing

Working in practice with the radiographic phantom allowed me to explore both its therapeutic and technical registers and to think through an encounter with operative technicality, rather than the ideology of the technical. Examining technical materiality at the level of micro-processes (in addition to visualising pixels and images) revealed techno-scientific logic, based on binary code and binary categories. This exploration, along with an analysis of Richard Mosse's *Incoming* revealed how the technical imaging systems of drones decorporealises bodies; thermal vision's algorithmic gaze arguably loses the corporeal, lively and embodied aspect of lived bodies. The militaries' use of visual and linguistic signifiers of therapeutic technicality serves to disavow any recognition of, or encounter with, bodies living and dying under drones. Yet reinstating and representing bodies according to this logic as a corrective (art) practice is deeply problematic. In the sonic and visual aspects of *Fuzzy Logic*, I had certainly positioned the viewer in the belly of the beast of techno-science. Yet I was concerned that the impact of extreme darkness and the imposing sound of the machine fixed the viewers into the position of scanned and observed bodies, rather than dislocated bodies in an assemblage of other bodies; human, non-human and technological. I questioned if I was instrumentalising the viewers' bodies, in order to convey or teach something of the impact of computation, measurement and surveillance of bodies, which I have previously been critical of as a corrective and curative mode of practice. The tension between interiority and exteriority in terms of the sensory registers and the spatiality of the installation could have been developed further in *Fuzzy Logic*. On reflection I would explore the potential of installing both *If/Then* and the Lungman sculptures together in one smaller space. Combining the works could intensify the notion of interiority/exteriority between the moving images and sculptures and thus generate multiple perspectives and bodies within one space. Yet *Fuzzy Logic* is suggestive of an unsettling confusion of boundaries in which all bodies are vulnerable and sovereignty is destabilised and decentred through multi-sensory, multi-perspective and multi-scalar registers.

In *If/Then*, the voice-over begins in a similar mode to *Repetitive Strain* through the fictional recounting of the memory of a conversation from the subject position of the narrator, a body which has undergone a medical scanning procedure. This conversation occurs between a scanning machine, a machine operator and a scanned body. Over time positions begin to erode; the narrative switches tenses and moves between the recounting of the conversations and the live conversation itself, directly addressing the viewer and listener at the end of the conversation. The spatiality of the audio moves from stereo to a mobile mix of spatial positions and the characters begin to morph, the machine operator, the scanned body and the machine itself begin to fold into each other. The voice-over generated a gradual dissolution of the location of a subject position, again exploiting

the dis/embodied tensions of the voice. The multiplicity and hybridity of Braidotti's (and Haraway's) account of the posthuman assemblage echo Butler's call to recognise our shared vulnerability, relationality, interdependence and for the decentring of the first person narrative, but without representing or materialising a negative form of vulnerability. For Braidotti, a posthuman ethics proposes an 'enlarged sense of inter-connection between self and others, […] by removing the obstacle of self-centred individualism'.[357] Bearing this in mind and the structural technical similarities between military and medical interventions that I had considered both personally and through the production of the installation, my thoughts returned to the bodies of those operated on, bodies living and dying under drones, corrective and curative modes of practice and again the question of my responsibility. Attention to Judith Butler's and Elaine Scarry's theorisation of the body's vulnerability and injurability is a good starting point to think about an embodied encounter, yet both in different ways position the body as subjugated. Through practice, attending to the materiality of the technical revealed how I might also think, as Haraway states, 'of bodies as sites of performance in their own right rather than nothing more than surfaces for discursive inscription'.[358] Similarly Braidotti's posthuman theory advocates for a speculatively agential approach to all bodies; it 'locates the subject in the flow of relations with multiple others'.[359] A practice concerned with drone warfare that considers these complexities could potentially begin to create a more responsible body of artistic research, one that acknowledges my privilege as a white, western artist-researcher and generates an embodied experience with these censored operative images without re-inscribing techno-scientific and colonial modes of treating the body.

A consideration of more bodies and bodily perspectives emerged through the research, the non-human, the technological, the spectral data-double, bodies of those living and dying under drones, the viewer, the operator, along with my own porous and permeable body. *Fuzzy Logic* confirmed a reorientation of practice towards hybridity consisting of installation, sculpture, writing, sound and moving image that I had gestured towards with *Repetitive Strain*. A hybrid practice has the potential to generate embodied experiences and entanglements between sensory registers, including but not only the visual. A multi-scalar, multi-perspective and multi-sensory encounter with these actual technical processes interrupts the ideology of the technical purveyed in the videos online and evident in some art practices concerned with drone warfare and military vision. Both machine visualising practices I have examined shared structural and linguistic resemblances in the ways bodily

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357 Braidotti, *The Posthuman*, 50.
358 Haraway, *Simians, Cyborgs and Women*, 195.
359 Braidotti, *The Posthuman*, 50.

mutations, abnormalities and technological artefacts and glitches interrupted their legibility. Only when we fully explore this encounter do we realise that all bodies are vulnerable. This vulnerability is differentiated. It can also be unruly; bodies move and glitch the scan, holes appear in the digital mesh, flashing flows onto the surfaces of the sculptures. 'Feminism loves another science: the sciences and politics of interpretation, translation, stuttering, and the partly understood', writes Haraway.[360] Indeed, the interruptive modes of stuttering and glitching implies an agential approach to bodies and materiality as well as vulnerability. Attending to pores and holes could responsibly acknowledge the gaps in my agency as an artist-researcher, and in what can be visually and linguistically represented and sensorially registered in practice. And vitally, as Judith Butler argues, it is a porosity to the *other*, a corporeal porosity, that is also the source of interdependence, and the potential for an ethical connection with the *other*.[361]

360 Haraway, 'Situated Knowledges', 589.
361 Lloyd, 'Towards a cultural politics of vulnerability', 94.

I burst a blood vessel in my eye. The white was

pink
for days.

All the world looked pink through that eye until the redness dissipated.

It happened when I was polishing a piece of textured aluminium that I had created, a process which demanded intense looking and concentration on the surface. The workshop was hot, and I was inexperienced.

A tiny blood vessel haemorrhaged.

I Could Feel That
My Eyes Were Open…

Opening

Fuzzy Logic brought about a renewed understanding and repositioning of materiality within my doctoral research practice. Towards the end of my stay in Leitrim and after the exhibition opened, I had the opportunity to work in the hot glass workshop. Having never worked with glass before, I was struck by the demands it makes. It was a two-way relationship, with both parties occupying different power dynamics at different times. The kiln takes several days to reach a temperature sufficiently hot enough for the glass to glow red; 900 degrees Celsius is the optimum temperature for blowing forms. During this period, the kiln had to be monitored nightly and as I was staying nearby, I offered to check on it. In the darkness I could sense the presence of the kiln at the entrance, vibrating with the sheer intensity of heat it was producing. I had made a plaster mould from the 3-D prints, into which hot molten glass was blown. Blowing the forms was an experimental process. It was a six-person job; two glass blowers, the foundry technician, the woodwork technician, the centre's administrator, and myself all had roles to play in a choreographed and fast paced dance. Glass demanded our attention and enacted its own agency. If we did not adhere to its needs, it shattered. Furthermore, with forms of the scale we were working with, it behaved unreliably. Just as the aluminium forced its way through weak points in the plaster cast and leaked out onto the surface, glass, even in the hands of experts was unpredictable. This understanding of materiality echoes Tim Ingold's reference to 'active materials' with which the maker, or makers 'join[s] forces' with 'worldly processes that are already going on, and which give rise to the forms of the living world that we see all around us'.[362] In both the case of glass and aluminium, the molten material was cast into preformed moulds, fabricated by myself and the mould making technician, with help from other artists using the workshops. The forms were never in a resting state, but in a constant flow of temperature and moisture variation; at times it was essential to keep them moist, at others to dry them out, only to coat them in wet plaster again.

Ingold's writing on active materials embodies an approach to matter echoing feminist theorist Karen Barad's agential realist theory of mattering in which agencies and phenomena do not precede, but rather emerge through their mutual relations. She argues that phenomena are not understood as individual subjects existing in and experiencing a world which is separate from them, but instead how they progressively 'co-constitute one another'.[363] Through a process of 'intra-action', which Barad defines as the entanglement of matter and agency, matter becomes an active rather than passive agent and agency is

362 Tim Ingold, *Making: Anthropology, Archaeology, Art and Architecture*, (Oxon: Routledge, 2013), 21.
363 Karen Barad, 'Posthumanist Performativity: Toward an Understanding of How Matter Comes to Matter', *Signs: Journal of Women in Culture and Society* 28, no. 3 (2003): 815.

'congealed'.[364] The infinite particles of the material of the molten aluminium flowing and leaking into the ruptured, emergent cracks and splits within the mould could be understood as a tangible marker of this liveliness of materials and the congealing of the multiplicities of relational bodies and forces involved in the making of the work, not only in the final dramatic moments experienced in the foundry and glass hot shop. Barad writes,

> All bodies, not merely 'human' bodies, come to matter through the world's iterative intra-activity – its performativity. This is true not only of the surface or contours of the body but also of the body in the fullness of its physicality, including the very 'atoms' of its being.[365]

The meeting of molten material and the plaster moulds could be described, as Ingold puts it, not as 'the imposition of form onto matter, but the contraposition of forces' in both materials, extending this relationship to the 'variability of matter, its tensions and elasticities, lines of flow and resistances'.[366] Drawing on Deleuze and Guattari, he argues 'whenever we encounter matter "it is matter in movement, in flux, in variation"',[367] calling to mind the unpredictability of molten aluminium and glass and thus attending to matter's generative potential.

Barad's theory, following the work of quantum physicist Niels Bohr, extends Judith Butler's account of performativity to the non-human and technological. Drawing on Maurice Merleau-Ponty, Butler argues that the notion of performativity comprises both linguistic and material 'speech acts and bodily acts'.[368] Through speech acts, she argues, certain social and ideological conventions are performed into reality, the enactment of which has effects on what is perceived of as reality, particularly how these performative, discursive practices materialise the body. Although she argues that language and materiality are embedded in one another, her theorisation of the matter of the body is one that is shaped and shapes primarily through language.[369] For Butler, matter is a 'process of materialisation that stabilises over time to produce the effect of boundary, fixity, and surface' positioning the matter of bodies primarily as subject to processes of regulatory power structures rather

364 Barad, 'Posthumanist Performativity', 822.
365 Karen Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*, Second Printing edition (Durham: Duke University Press Books, 2007), 153.
366 Ingold, *Making*, 25.
367 Gilles Deleuze and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia* (Minneapolis: University of Minnesota Press, 1987), 450-451 quoted in Ingold, *Making*, 25.
368 Butler, *Undoing Gender*, 198.
369 Diana Coole, 'Butler's phenomenological existentialism' in *Judith Butler's Precarious Politics: Critical Encounters*, Terrell Carver and Samuel Allen Chambers, eds., (London: Routledge, 2008), 23 and Barad, *Meeting the Universe Half Way*, 67.

than as materially agential.[370] Barad's approach to performativity attends to an enmeshing and entanglement of material and discursive practices; crucial to her understanding of how power works is understanding how power works on and through materials. Barad, as I understand it, does not label herself as a new materialist theorist.[371] Nevertheless, her theory exemplifies a stance that is more akin to what Deleuze and Guattari theorise as the fixed 'molar' of matter and the 'molecular' relationality of materiality.[372] The materiality of the body then, is understood as relational, 'not to envision something fixed in either physiology or discourse but to posit a contingent entity that is always adaptively recomposing (moving, adjusting, testing, imagining, anticipating)'.[373] Thus, a new materialist (or in Barad's case, agential realist) theorisation of the body could attend to the limits of Scarry's and Butler's approach to bodily agency.

Nonetheless, in the context of drone warfare, language matters. Not just in how citizen subjects are mobilised through the rhetoric of propaganda, language matters in how it performs in a Butlerian sense; who gets labelled civilian and combatant matters in who lives and who dies. It is this complex relationship between the performative and material forces of language that I explored during a four-month residency at Zentrum für Kunst und Urbanistik (ZK/U) Centre for Art and Urbanistic in Berlin in Spring 2019. I recognised that this new materialist approach to matter was increasingly permeating my research practice, in the consideration of multiple unstable bodies, including my own as artist-researcher, in a situated approach. Partial perspectives and heterogenous relationships between materials and discursive practices meant that this consideration was at times illusive and unrevealed to myself, as Haraway states, 'we are not immediately present to ourselves'.[374] At ZK/U, I was the only native English speaker and over many meals shared with artists from all over the world, we discussed patterns in language, mispronunciations, and mistranslations. I enjoyed the way conversations were unwieldy and vulnerable to unintended diversions through misunderstandings, mutating into entirely other conversations in which the fabric

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370 Judith Butler, *Bodies That Matter: On the Discursive Limits of Sex* (Abingdon, Oxon ; New York, NY: Routledge, 2011), 9. Caroline Holmqvist argues that Merleau-Ponty's work, in its attention to bodies, both materially and emotionally, has important implications for 'how we theorise the human-material assemblage of contemporary war'. She also argues that a human centred, phenomenological approach can engage with how focussing on the specificity of bodies, both human and non-human, a 'human-material assemblage', can have more general implications 'for the collective of human beings'. Although Holmqvist pays particular attention to material agency, she does not engage with new materialist theory in any detail, moreover she theorises a phenomenological approach to material agency. See Holmqvist, 'War Ontologies and the Materiality of Drone Warfare', 546.
371 Barad proposed that rather than critiquing what has come before, theories should be read *diffractively* through each other, meaning a consideration of where they differ and align together. It is in this sense that I conceive her disidentification with the *new* of new materiality.
372 Deleuze and Guattari, *A Thousand Plateaus*, 429-31.
373 Paul C. Jasen, *Low End Theory: Bass, Bodies and the Materiality of Sonic Experience*, Bloomsbury Music (New York: Bloomsbury Academic, 2016), 13.
374 Haraway, 'Situated Knowledges', 585.

of language was vulnerable to its own undoing and digressions. In this chapter, 'Glitching' considers my initial explorations of the mechanisms through which I began to understand new materiality through visual artefacts and bodily stammers, whilst 'Stuttering' outlines how considering these processes in and through the human body shifted my understanding towards a more unruly practice. 'Mattering' attends to how this understanding generated artistic practice that interrupted the visual and linguistic ideology of technicality in the operative images online.

Please look at the contents of the folder titled I Could Feel That My Eyes Were Open… on the accompanying SD Card.

Glitching

In the studio I began to examine specifically the titles, captions, and the language of the operative images uploaded to the YouTube network more closely. As I discussed in Chapter One, Operative Acts, they demonstrate the process of how, as Elaine Scarry writes, that in war the rhetoric of results produces a 'language of killing and injuring [that] ceases to be a morally resonant one'.[375] This happens first, when the rhetoric shifts away from bodies to collateral damage, secondly, when the military itself becomes a body, wounded in war, and thirdly, when bodies themselves are transformed into the objects they inhabit, such as bases and compounds.[376] I gathered the captions into a document, to examine if any patterns would appear when I viewed them collectively.[377] The linguistic infrastructure around them was repeated throughout; 'share', 'save' number of 'views' and 'subscribed' appeared regularly. Among the later uploads in particular, there is a focus on locations and buildings. An earlier upload from the RAF reads:

RAF Reaper neutralises Taliban bomb factory.[378]
76,404 views
SHARE SAVE

Ministry of Defence
Published on Nov 25, 2010
SUBSCRIBED 17.6K

Video footage from a Reaper unmanned aerial vehicle (UAV) of 39 Squadron RAF. Reaper is being used as part of a raft of capabilities to counter the improvised explosive device threat in Afghanistan. The footage is the first ever released of a Reaper strike by the RAF and was recorded in the last three months in Helmand province, Afghanistan. A RAF Reaper Unmanned Aerial Vehicle (UAV) of 39 Squadron destroys a Taliban bomb factory in Helmand province with pin-point accuracy. Following information acquired from an intelligence gathering operation, clearly showing insurgents preparing IED making materials in a walled compound, an armed RAF Reaper UAV was tasked to engage the enemy and destroy the facility. As with any operation of its type, the need to minimise loss of civilian life and damage to property is paramount. The UAV remained in position to provide further detail

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375 Scarry, *The Body in Pain*, 67.
376 Scarry, 'Injury and the Structure of War', 4-5.
377 A review of user comments on these videos is beyond the scope of this research. See Lisa Parks, *Rethinking Media Coverage: Vertical Mediation and the War on Terror* (New York; London: Routledge, Taylor & Francis Group, 2018), 154-157.
378 Ministry of Defence, 'RAF Reaper neutralises Taliban bomb factory', #DefeatingDaesh Playlist, uploaded on November 25, 2010, YouTube Video, 1:20, accessed November 2, 2019, https://www.youtube.com/watch?v=m63c3W8I-Rw. This video was originally posted on the RAF's 'Operations' playlist. However, as previously mentioned, this playlist has been deleted and many of the videos including this one are now available on the MoD's and #DefeatingDaesh playlist.

on the bomb making operation, and early the following morning,
the bomb makers resumed their production. The RAF Reaper was
cleared to engage the factory using a precision missile strike.
The attack was so precise as to destroy only the facility, with
the solid walls of the compound and surrounding building remaining
intact. Analysts have estimated that the final amount of material
laid out was enough to make over 100 IEDs (4,500 lbs of explosive
material).

Category
News & Politics
SHOW LESS

Whereas a later upload from the MoD reads:

RAF Reaper Strike on ISIL vehicle in Iraq July 6 2015.[379]
16,046 views
SHARE SAVE

Ministry of Defence
Published on Jul 9, 2015
SUBSCRIBED 17.6K

On Monday 6 July 2015, a Reaper tracked an ISIL armoured personnel
carrier which was used in combat against Iraqi troops. Although
the terrorists attempted to conceal their vehicle in a palm grove,
this proved no defence against the Reaper, armed with Hellfire
missiles. The Reaper subsequently destroyed an armoured pick-up
truck, which had been converted to a large car bomb and positioned
to hamper Iraqi movements.

Category
News & Politics
SHOW LESS

379 Ministry of Defence, 'RAF Reaper Strike on ISIL vehicle in Iraq July 6 2015',
    #DefeatingDaesh Playlist, uploaded on July 9, 2015, YouTube Video, 1:17, accessed November
    2, 2019, https://www.youtube.com/watch?v=F8e9DiXK9Zc.

An upload from the MoD in 2016 reads:

> *RAF Reaper strike on Daesh truck 31 May 2016.* [380]
> *19, 265 views*
> *SHARE SAVE*
>
> *Ministry of Defence*
> *Published on June 2, 2016*
> *SUBSCRIBED 17.6K*
>
> *A RAF Reaper RPAS (Remotely Piloted Air System) kept close watch*
> *on a group of terrorists test-firing and loading weapons, including*
> *a heavy machine gun on a supply truck. The reaper destroyed the*
> *truck with a direct hit with its Hellfire missile.*

An upload from USCentCom in 2014 reads:

> *Strike on weapons storage facility, Al Hasakah Military Garrison*
> *in South Milibya, Syria.* [381]
> *96,800 views*
> *Sep 30, 2014*
> *SHARE SAVE*
>
> *U.S. Central Command*
> *10.8K subscribers*
> *Strike on a weapons storage facility, Al Hasakah Military Garrison*
> *in South Milibya, Syria.*

The captions rarely make linguistic references to bodies, contributing to how the body is 'redescribed, omitted or relocated'.[382] Moreover the aircraft is personified (for example 'a Reaper on patrol', 'a Reaper observed'). If bodies are mentioned, the body of the military; pilot, soldier, sensor, air traffic controller, (for example 'troops' and 'aircrew') replaces the bodies of those living and dying under drones. Examining the texts, I highlighted references to targets and compiled them into a list. It was clear that the captions had been emptied of their human content, a deliberate gesture that transforms the content so that, as Scarry remarks, injuring 'slips from view'.[383]

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380 Ministry of Defence, 'RAF Reaper strike on Daesh truck 31 May 2016', #DefeatingDaesh
   Playlist, uploaded on June 2, 2016, YouTube Video, 0:14, accessed November 2, 2019,
   https://www.youtube.com/watch?v=33Am3GE3a1I.
381 US Central Command, 'Strike on weapons storage facility, Al Hasakah Military Garrison
   in South Milibya, Syria', uploaded on September 30, 2014, YouTube Video, 0:25, accessed
   November 2, 2019, https://www.youtube.com/watch?v=33Am3GE3a1I.
382 Scarry, 'Injury and the Structure of War', 8.
383 Scarry, 4-5.

palm grove
strike
storage
storage buildings
bunkers and tunnels
a network of bunkers and tunnels
vehicle
truck
troops
industrial site
mortar
carrier
armoured pick-up truck
pick-up truck
tunnel
tunnel
bunker
communications vehicle
trucks
trucks
headquarters
barge and boat
remotely piloted vehicle base
building
workshop
weapons cart
bunker
bunker
tanks
tunnel
bunker
bunker
truck-bomb
truck-bomb
workshops
weapons factory
workshops and storage sheds
boat
boat
bunker complex
targets
tunnel
tunnels and bunkers
underpass
truck
truck-bomb factory
buildings
position
fortified positions
strongpoints

supply routes
operations
tunnel
operations
solidly constructed building
headquarters
armoured
mechanical excavator
headquarters
command posts
explosives storage
storage buildings
large concrete bunker
tunnel
armoured vehicle
truck-bomb
small boats and a barge
truck
barge
positions
engineering vehicle
building
weapons store
barge
truck-bomb
bunker
targets
tongue
artillery position
bunkers
mortar position
RAF operations playlist
pick-up truck
tongue
weapons cache
mouth
truck-bomb factory
factory
civilians
vehicles
bunkers and tunnels
operations
civilians
bunker and tunnel
highly accurate attack
operations
bunkers and tunnels
tunnels
bunker complex
targets

Butler's theory is useful in this context in that it challenges how discursive practices reconfigure the body as *other*, both materially and linguistically and produce the effects that they name. Yet, as I and others have argued, in Butler's account, materiality is primarily understood to be passive and inert; how the body acts is only understood as contributing a corporeal excess in speech acts. As feminist theorist Vicki Kirby argues, matter for Butler is theorised as exceeding representation, stating, 'our sense of the materiality of matter, its palpability, and its physical insistence, is unspeakable and unthinkable'.[384] Attempting to understand the nature of the unspeakable through practice I began several opened-ended lines of enquiry. Repeating the words, I focussed on pronunciation, annunciation, tempo, and the tone of my voice. I was thinking about how the vocal apparatus forms, moderates, and controls the flow of language exiting the body. I began researching phonetics and speech exercises aimed at improving articulation. My intention was to develop an experimental text that explored the vocalisation of these words, speaking and unspeaking, through the language of speech therapy. Focussing on the words themselves, how they are formed physically, I considered how the body could disrupt the rhetoric of control and obfuscation. I extracted words from the military language and inserted them into the rhetoric of speech therapy, including rhyming and breathing exercises. Through the text I also desired to engage with and address other bodies collectively. The text directly addressed the viewers / listeners / readers and asked for the words to be repeated aloud. I printed the text and hung it on the studio wall, reciting it at various times throughout the day. I began thinking of the voice in more complex material ways in terms of its embodiment, both physiological and technological, alongside its intra-actions with the fabric of the stone building, my surroundings, and the high-pitched hum of the borrowed microphone I was using. According to Heidi Fast and Milla Tiainen, voices 'result from intra-actions among corporeality, sounds, technologies, particular cultural techniques, practices of vocalising, […] also engender[ing] intra-actions between several feeling, acting, and thinking bodies'.[385]

> comb tomb bomb

> remember to check what your tongue is doing

> breathe

Reading the texts from military videos aloud, rather than silently, changes the ways the text is materially and sensorially encountered, calling to mind the grain of the voice, discussed in Chapter Three, Repetitive Strain. Graininess, in my view, attends to the tactility of the voice,

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384 Vicki Kirby, *Telling Flesh: The Substance of the Corporeal* (New York: Routledge, 1997), 108.
385 Heidi Fast and Milla Tiainen, 'Voice', last modified September 23, 2019, https:// newmaterialism.eu/almanac/v/voice.html.

roughness, smoothness, but also other bodily, social and cultural signifiers. This sense of graininess also emerged in the multiple voices in *Fuzzy Logic*. Reading the words aloud, I became aware of the specificities of the voice, how long it had been since I had spoken, its bass and clarity, and other factors relating to my mood and accent, for example. In this sense vocalisation could produce embodied and disembodied registers, which could potentially interrupt linguistic signification and meaning within the onscreen texts. Simultaneously I was recording the inside of my mouth with a plumbers' USB endoscopic camera, trying to locate my vocal cords. Inside was dark and only by switching on the light on the camera could I grasp the glistening reds, pinks, and blues. I recorded screen captures of the internal explorations, along with the text typed live onscreen. The font, apart from its fleshy colour, referenced military and computational scripts. Alongside these explorations, I downloaded several anatomical 3-D models of the vocal apparatus. These 3-D files were generated purely from creative modelling processes as opposed to being modelled on scans of actual human anatomical specimens. They consisted of a generic human larynx and vocal cords, modelling the average or universal human anatomy. I opened the files as texts, rather than 3-D forms, and began working between the text files and the 3-D visualisation to sculpt them. Modelling in this way is unpredictable and exploits both the susceptibility of the file to disruption and interruption and its vulnerability to be accessed in unintended ways. This way of working is reminiscent of glitch techniques employed by certain artists to create abstracted or partially abstracted forms from 3-D models, moving and still images. My intention was not to align myself with this way of working, instead to explore the manipulation of data as a material, rather than to program specific outcomes. Humanities scholar Anne Pasek contends that 'glitch artists make use of the accident to "disfigure" flow, image and information, or they exploit the void – a lack of information that creates space for deciphering or interpreting the process of creating (new kinds of) meaning'.[386] However, arguably glitch artists such as Rosa Menkman are skilled in the art of programming specific outcomes in their work. Menkman describes glitch art as a series of 'forms and events' moving between the 'fragile, technologically-based moment(um) of a material break, the conceptual or techno-cultural investigation of breakages', drawing attention additionally to the commodification of glitch art in commercial music videos, for example.[387]

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386 Anne Pasek, 'The Pencil of Error: Glitch Aesthetics and Post-Liquid Intelligence', *Photography and Culture* 10, 1 (2017): 45.
387 Rosa Menkman, 'The Glitch Art Genre', *Fluxo*, last modified September 23, 2019, https://www.ofluxo.net/the-glitch-art-genre-by-rosa-menkman/.

Glitch art is at its most relevant to me when its self-reflexivity beckons a sense of materiality drawing attention to the 'hidden circuits and software as lively and unprogrammed (by human or machine)'.[388] This is a stance more akin to when, as Pasek, drawing on digital media theorist Wendy Hui Kyong Chun states, 'the animism of computers does not rest in the militaristic command of a user nor in the essence of a file's source code; it is rather the agential assemblage of all these causal forms acting together'.[389] I began to move away from the notion of glitch art and towards the voice, thinking of twitches and stutters, always physiologically unprogrammable, more akin to a mutation, moving uncontrollably both through the body and technology. As previously discussed, in medical radiography, the word 'artefact' describes the technically sensed visual register of these types of unpredictable anomalies, generated through errors in signal processing due to various phenomena. Artefacts, be they sonic or visual are generally understood to be undesirable, producing inaccurate readings yet arguably embody material agency in more dynamic ways than the deliberate encoding and programming of glitch art. Movement indicates a liveliness; trembling, twitching, and stuttering are involuntary gestures that could interrupt the flow of text, bodies and language, where the voice comes to be understood in terms of its 'vibratory quality'.[390]

388 Marks, *Touch*, 177-178.
389 Wendy Hui Kyong Chun, 'On Sorcery, or Code as Fetish', *Configurations* 16, no. 3 (2008): 303-304 quoted in Pasek, 'Glitch Aesthetics and Post-Liquid Intelligence', 45.
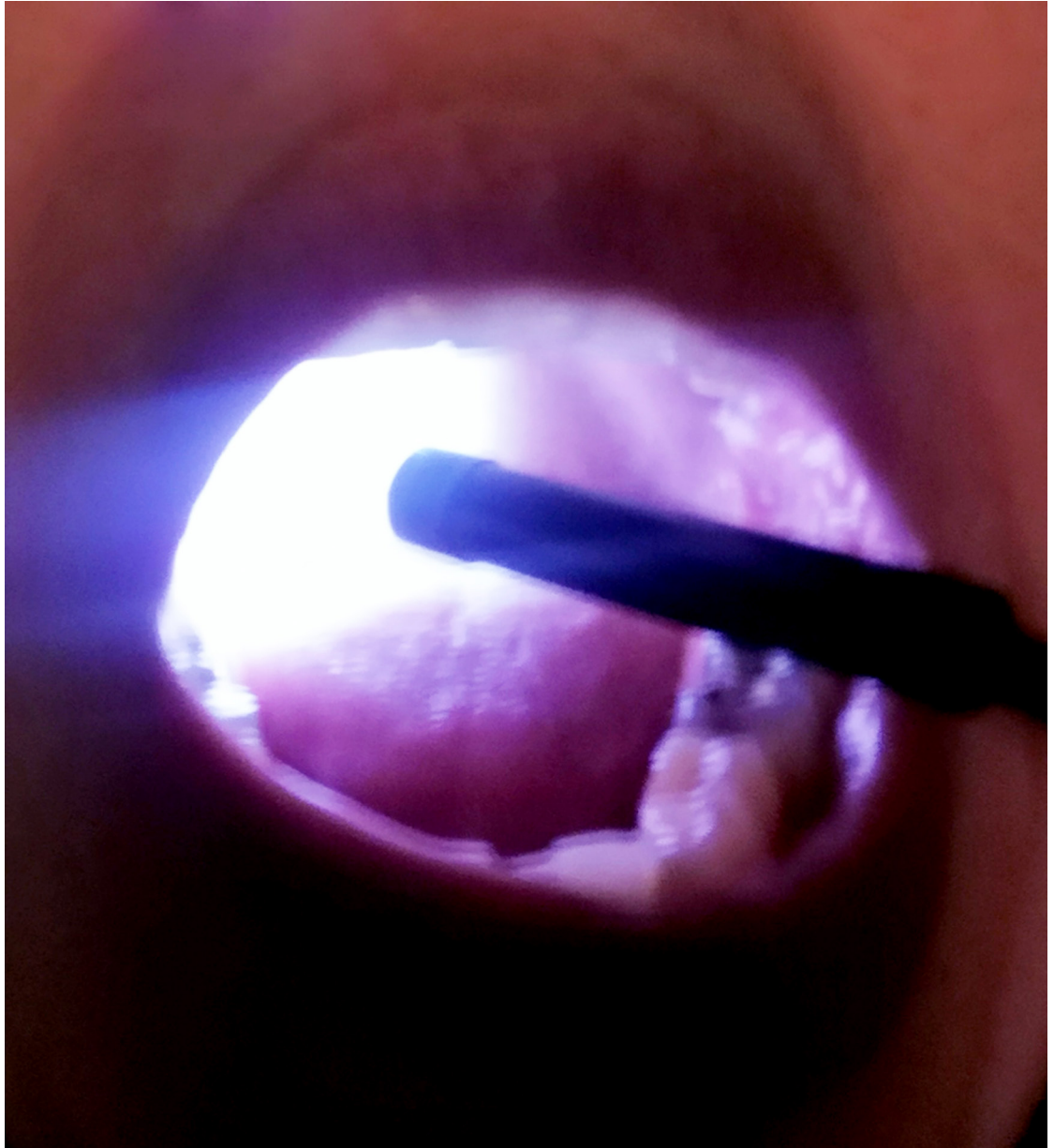390 Fast and Tiainen, 'Voice'.

Image 43: Digital photograph of using an endoscopic camera to record inside my mouth.

Image 44: Still from test video.

In the studio I was struggling with the conditions under which it would be appropriate to show operative drone images appropriated from YouTube in the work, an ongoing dilemma since *Material Translations*. The benefit of working with moving image in this context is that the temporal flow can be manipulated so that the time-based aspect of the video could act as a potential sensitiser to subsequent revelations. With this in mind, I experimented with the content. I downloaded a thermal drone video from the MoD's YouTube channel, and I began to blur the image as it moved on screen. I slowed the speed of the video and introduced blur from the beginning that very slowly dissipated. In the last couple of seconds of the video, the image became clear; a grey-scale thermal video of the remains of a bombed building, a cross hair, a number of greyed-out redacted areas appeared. The video work I developed was approximately three minutes, consisting of the text overlaid on the blurred imagery. The recognisable sound of a metronome clicked in the background. Images of the inside of my mouth appeared at the beginning (and the end, as the video was looped). The metronome is a tool deployed to regulate speech, not just musical tempo. I overlaid my own voice with an effect that rendered it to sound as if it was in the distance, or speaking through a poor phone line connection, similar to the way I treated the voice-over previously. I was interested in this tension between the intimacy of inside the vocal apparatus and the implied physical sonic distance. Again, the voice as both embodied and disembodied, was reminiscent of *Fuzzy Logic* when the relationship between operators' and operated bodies and, inside and outside perspectives became blurred. The voice-over responded to the text's instructions, though over time it diverged and repeated incorrect words and sounds. This discrepancy between the text on screen and the voice-over was a device I had previously used in *Fuzzy Logic*, although in this case the voice was more obviously disregarding the directions the text was instructing. It was also reminiscent of Hito Steyerl's *How Not to Be Seen: A Fucking Didactic Educational .MOV File*, in how Steyerl presents a series of lessons which, although parodic, are instructional and incorporate visual demonstrations. Although Steyerl does not directly instruct the viewer to complete actions, and the work is not participatory, the voice-over does directly address the viewer, as is also the case with Farocki's *Eye / Machine* trilogy. These works have a demonstrational quality both visually and verbally, as did this initial video sketch.

I showed the video as a wall-based work (in progress) on a flattened Lenovo ThinkPad with headphones at an open studio event at ZK/U. The tension between regulating and deregulating, inside and outside the body was rich, yet my feeling was that I was enacting an instructional position through the framework of the performativity of language rather that disrupting it. Furthermore, the work did not engage with the environment in which it was shown, nor did it engage with the spatiality and viewing conditions of the installation context. Visually and conceptually I was concerned about revealing in the final moments,

the content of the video. One unexpected interaction was with a child who clicked alongside the metronome for the entire duration of the video, his head nodding with every beat. As it happened, he was the son of a friend undergoing speech therapy for a stammer. Attending to the agencies of bodies to 'kick back', philosophy of technology scholar Josef Barla, drawing on Deleuze and Spinoza, proposes the potential of bodies to be unruly.[391] Critical of the ways techno-scientific practices are inscribed with notions of infallibility as opposed to vulnerable to injury, liable to error, bias and artefacts, he suggests that this position allows for a 'more materialist understanding of performativity'.[392] Considering the stutter in this way, as a kind of glitch, I thought about the potential of unruliness, as a marker of both vulnerability and agency. As Deleuze asks, 'what can a body do'?[393] However, the practice-based research I had created was undeniably instructional and concerned primarily with the control and regulation of the bodies and more specifically, stutters and artefacts.

391 Barla, *Techno-Apparatus of Bodily Production*, 11.
392 Barla, 17.
393 Gilles Deleuze, *Nietzsche and Philosophy* (London: The Athlone Press, 1996), 39.

Stuttering

I began further research into vocal stutters / stammers (the terms are used interchangeably depending on the geographical location) and their effect on the voice. From Berlin I Skype video called through a bad connection with a friend of a friend who is a speech therapist. My understanding of the stammer was that of a bodily artefact, a mutation that cannot be predicted or controlled. My notes from our conversation read;

-when someone is stressed
-highly emotive states
-when linguistic demand outweighs capacity
-breakdown
-cannot cope
-blocking, repetition, prolongation

We discussed techniques that the affected person can incorporate into their life to ease the stammer. We talked about ssssssssoft onset,

choral,
choral,

delayed

speech

and the positive effect that these techniques can have; when successful they reduce the stammer dramatically. Soft onset involves breathing out slowly while articulating the initial part of a word. Choral speech involves speaking alongside someone reading the same text and delayed speech involves pausing and slowing the rate of speech. We also discussed coping methods which involve visual or tactile representations of fluent speech. In the end the Skype connection broke down and we finished our conversation through messaging.

I thought that perhaps the video sketch I had made could be developed into a chorus, with several videos and voice-overs in sync, disrupted by moments of the chaos of overlapping and out of sync registers. At times, the voices clear and in unison, at others, incoherent, akin to Simon O'Sullivan's conceptualisation of Deleuze and Guattari's minor literature; O'Sullivan argues that contemporary art is a language that 'counteracts the operation of order-words and the exercise of power'.[394] Quoting Deleuze, he suggests that the stuttering and stammering of a major language can 'create vacuoles of non-communication, circuit breakers so we can elude control'.[395] I learned that a vocal delay can also induce a stammer. A vocal delay repeats an exact recording of speech to the speaker, out of sync with the original articulation. The interval between speaking and hearing the repeated speech can be customised to induce varying intensities of vocal stammering. Using a program online called Speech Jammer, I induced this state, while reading the words aloud. Most affected were words with more than one syllable as I began to both prolong and block mid-way through.

Tar----------------------------get

Operrrrrrrrrrrrrrrraaaaaaaaatttttttttttttiiiioooooooonnnnnn

According to O'Sullivan, vacuoles of non-communication or rupturing events open up a slowness and stillness; they offer an escape from the manipulation performed by, what he calls 'other affective assemblages' that increasingly operate in a parallel logic to art.[396] These vacuoles emerge from practices that are sometimes formless and never predetermined, he suggests, but are balanced between representation, signification, and complete abstraction. O'Sullivan's text is not literal in advocating for the stutter, instead suggesting that the glitch

394 O'Sullivan, 'From Stuttering and Stammering to the Diagram', 247.
395 Gilles Deleuze, *Negotiations: 1972–1990*, trans. Martin Joughin, (New York: Columbia University Press, 1995), 175 quoted in O'Sullivan, 'From Stuttering and Stammering to the Diagram', 247.
396 In addition, O'Sullivan suggests that the mass media 'that increasingly operates on a self-consciously affective register — as a kind of nervous system' are one of these assemblages, generating a perpetual state of fear in a 'politics of pre-emption'. Arguably this point on the mass media involves an overlap with the military-industrial-media-entertainment network. See O'Sullivan, 'From Stuttering and Stammering to the Diagram', 251.

is a productive way to think about art as an event that 'interrupts knowledge', 'breaks information', and 'stops making sense'.[397] Yet bearing in mind my reservations around glitch art, I wondered if the artefact, might be a more appropriate way to describe the rupturing of representation visually, through the 'logic of the glitch' as O'Sullivan calls it.[398] I returned to the text, and my notes from the Skype conversation with the speech therapist. Our WhatsApp messages that followed the stunted conversation read,

> Hi – such a bad connection my end – WIFI has now completely failed...
> Sorry
> But thanks for taking the time to speak!
>
> No worries – let me know here if you have any more questions.

I began writing a fictional conversation between myself and an other / another / myself / my other, another version of myself / other, happening through Skype. The connection was bad, but I asked them to repeat some of the captions I had been analysing. The conversation kept breaking up and we struggled to communicate. They also expressed their own discomfort with repeating the texts and looking at the visual material they were describing on YouTube. The dialogue is direct, emergent and unfolding performatively, interrupted by breaks generated by a poor internet connection. It aligns with Tim Ingold's notion of telling as a performative gesture relating to both sensory, material awareness and stories that disrupt articulation. To tell, he argues, refers not to the provision of information and specification rather to the itinerant character of moving bodies and vital materials; articulate speech, on the other hand, is assembled in the mind, prior to vocal expression, the 'friend of reason' but the 'enemy of sentience'.[399] The vocal cords not only generate the voice, with other parts of the body, but also tell; through proprioception they constitute part of the echolocation apparatus that allows us to tell if we are in open or enclosed spaces in darkness.[400] I was the instigator of the conversation, but also the listener / responder.

To work like this was unfamiliar, arrived at through moments of utter exasperation with myself. The text became not about controlling communication (as was the case in the earlier experimental video work), but instead a conversation interrupted; an appeal to speak, communicate, and understand, and the inability to do so. Could the artefact / stutter / logic of the glitch be a partial and speculative material, corporeal dislocation, where vulnerable and porous bodies enact agency? Attention to a dislocated, destabilised and permeable

397 O'Sullivan, 'From Stuttering and Stammering to the Diagram', 247.
398 O'Sullivan, 249. From this point on I will use the term 'logic of the glitch' to describe the processual nature of glitching, rather than its appearance visually or sonically.
399 Ingold, *Making*, 111.
400 Ingold, 111.

subject can reveal what Haraway calls the apparatus of bodily production. According to Haraway, knowledge is generated through the production of boundaries, always shifting and emergent. These boundaries are materialised through internal, intimate individual processes, and external social interactions among the apparatus of bodily production.[401] In this way, because it is constituted through internal and external relations, a dislocated, destabilised, permeable subject position could potentially reveal and mean something more general about what it is to be vulnerable. This inhabitation of relational subjectivity and an ontological indeterminacy is a dislocated feminist position. It disrupts and intervenes in an intersectional, self-referential feminist perspective yet importantly, does not disavow it.[402]

I began to break up the text I had written and unravel its structure so it was both asking for and failing to create a communicative encounter. I considered the notion of vulnerability and injurability as a lens through which to write, exploring the ways my language fails and breaks down in an attempt to know and articulate the experience of bodies marked as *other,* specifically bodies living and dying under drones. In post-production I edited out a lot of the linguistic content I had been struggling with, particularly the military language. What remains is the expression of the difficulty to communicate across a poor Skype connection and the discomfort of looking at the content online. In this sense, the text began to embody a cybogian mode, 'the struggle for language and the struggle against perfect communication, against the one code that translates all meaning perfectly,[403] recalling Jo Namy's video installation, discussed in Chapter Three, Repetitive Strain. Gaps appear in the voice-over with these removals, spaces interspersed with repeated attempts to bridge the communication breakdown. I applied an Auto-Tune feature to adapt my voice. Auto-tune adapts the pitch of the voice to the tone you assign it. If used subtly, its influence is barely detectable. However, repeated overlaying of the effect on the voice-over introduced tonal jumps and blips producing a vocal trembling. I was interested in Auto-tune and the digital 3-D files of the vocal cords as they are based on generic models or code of what the anatomy of the vocal apparatus should generically look like and the voice should generically sound like. However, they are relatively easy to intervene with and mutate beyond their ideologies; repeated overlaying of Auto-Tune causes the voice to jump between pitches. Using Auto-Tune in this specific way gives the voice a dissonance, the voice often resembling human and technically generated qualities. Here, specifically I wanted to explore

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401 Haraway's theorisation of bodies as objects of knowledge in this way characterises what she calls 'material semiotic nodes', mentioned previously in Chapter Four. See Haraway, 'Situated Knowledges', 595.
402 As previously mentioned, Jasbir Puar, drawing on Rey Chow, articulates how intersectional feminism's attempt to attend to difference and the specificity of *others* is paradoxically 'beholden to the self-referentiality of the "centre"'. See Puar, 'Becoming-Intersectional in Assemblage Theory', 55.
403 Haraway, *Simians, Cyborgs and Women*, 176.

the voice as decentred and dislocated, human and machine, both bodily and disembodied, recalling the grain of the voice discussed previously. I recorded a screen capture of the entire script being typed, the voice-over functioning as a speculative mutation of this original script, its minor language /

stutter.

You're breaking up – can you hear me?

Mattering

Butler's notion of vulnerability is limited in that it depends on recognition for an ethical encounter to occur. It is primarily based on asymmetrical power relations that 'we' or 'I', recognise 'you'.[404] Yet calling to mind Donna Haraway's notion on the partiality and provisionality of vision, she states that recognition depends on 'an exchange that dislocates us from our positions', arguing that to ask for or offer recognition is 'to elicit a becoming, to instigate a transformation'. She continues, 'I will not discover myself as the same 'you' on which I depend in order to be'.[405] To ask for and offer recognition is not the same as apprehending that bodies are not recognised by recognition.[406] Rather than pointing towards the frames of recognition, or the apprehension that invisible bodies exist outside these frames, arguably both corrective gestures, to ask for and offer recognition could be understood as an embodied encounter in which the senses are engaged in looking for connections. Asking for, in the context of my research means listening for, looking for, rather than the request for recognition for my own body. This encounter considers the material-semiotic processes through which bodies are marked and how I relate to them, rather than occupying a distant, disembodied and rational stance. The text I was writing redeployed performativity to embody 'doings / actions', rather than an attempt to express any performative representation. [407]

The operative images on YouTube enact power through performative language and images representing certain bodies as mute and *other* while simultaneously not recognising these bodies marked as *other* as vulnerable, as lives. These practices have very real effects on bodies. But this muting is perhaps more nuanced, as Spivak theorises; any attempt to speak for the subaltern is also a muffling of their voice. She argues that it is impossible for us to recover the voice of the subaltern or oppressed colonial subject marked as *other*.[408] She points out that any articulation of the heterogenous subaltern subject results in them becoming either not subaltern anymore or in fact reinscribed and represented according to western intellectual logic.[409] The liveness and performative gesture of broken up language and stuttered telling, rather than articulate speech intervenes in the military's linguistic representation of these events. Karen Barad states that performativity in this sense, 'is

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404 Butler, *Precarious Life*, 45.
405 Butler, 44.
406 Butler suggests that 'apprehension, understood as a mode of knowing that is not yet recognition or may remain irreducible to recognition' is a 'haunting' that enables us to acknowledge that there has been a loss, and hence that there has been a life. See Butler, *Precarious Life*, 6.
407 Barad, *Meeting the Universe Half Way*, 135.
408 Spivak, 'Can the Subaltern Speak?', 271 – 313.
409 Spivak, 284. Furthermore, I am reminded of Edward Said's critique of how Western academic scholarship marks certain bodies as unable to act for themselves. See Edward W. Said, *Orientalism*, (New York: Vintage Books, 1979), 11.

precisely a contestation of the excessive power granted to language […] a contestation of the unexamined habits […] that grant language and other forms of representation more power in determining our ontologies than they deserve'.[410] Her account of performativity embodies a dynamic reading of matter and its agency, along with attending to the relationality of bodies, incorporating non-human and techno-scientific practices.

The speech and language therapist had told me about a technique used by people who stammer to help control their speech, a gesture where they (often surreptitiously) press their fingers into their bodies, to feel their way through the syllables. I recorded this gesture, my fingers pressing into my thigh as I spoke the words. There is a kind of anxiety to this repeated gesture of one body pressing against an other / another / myself / my other, another version of myself / other. I slowed and softened the footage by blurring it slightly and cropped closely to the fingers so that it was difficult to tell what part of and whose body I was touching, and who the 'I' was that was deliberately sinking mine / their fingers into the pink flesh. Barad addresses relationality when she argues that there can be no 'unambiguous way to differentiate between the object and the agencies of observation', in a rejection of the 'inherent separability of observer and observed', where 'phenomena do not merely mark the epistemological inseparability of "observer" and "observed"; rather, phenomena are the ontological inseparability of agentially intra-acting "components"'.[411] Phenomena, for Barad are these entanglements with others but include apparatuses as dynamic sets of open-ended practices, iteratively refined and reconfigured.[412] In a quantum theoretical approach, she suggests through the movements of particles, that touching oneself is always an encounter with the 'infinite alterity of the self', stating that 'all touching entails an infinite alterity', so that touching *others* is also touching the self, and touching the self is also 'touching the strangers within'.[413] Thus, in Barad's account, we are relational and constituted through an entanglement with *others*, calling to mind Butler's claim that her own foreignness to herself is the source of an ethical connection with *others*.[414]

Drawing on Kathryn Yusoff, Barad suggests that it is imaginative and poetic modes that 'put us in touch with the possibilities for sensing the insensible, the indeterminate, "that […] is not being, but the opening of being toward" the other'.[415] This opening of being toward

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410 Barad, 'Posthumanist Performativity', 802.
411 Barad, *Meeting the Universe Half Way*, 114.
412 Barad, 167.
413 Karen Barad, 'On Touching – The Inhuman That Therefore I Am', *Differences* 23, 3 (2012): 213, 214.
414 Butler, *Precarious Life*, 46.
415 Kathryn Yusoff, 'Insensible Worlds: Postrelational Ethics, Indeterminacy and the (k)Nots of Relating', *Environment and Plan D: Society and Space* 31, no. 2 (April 2013): 220 quoted in Barad, 'On Touching', 216.

reverberates with the permeability that has resonated through my research, the asking for and offering recognition. Furthermore, as Barad continues,

> But what would it mean to acknowledge that responsibility extends to the insensible as well as the sensible, and that we are always already opened up to the other from the "inside" as well as the "outside"?[416]

We are brought into touch with the incalculable and alterity within, lying, as Barad suggests, at the root of 'caring', where caring is not implied in a curative or corrective way, but instead as a 'troubling of the self'.[417] In the video, the body is neither passive nor static, mattering rather than material. The fingers press slowly into the skin; there is a certain resistance marked in the surrounding tissue, yet it is simultaneously appears tender and delicate. Out of pace with the voice-over, the movements no longer function as a tactile aid for the speaking voice. They are reminiscent of what Jane Bennett calls 'a thing-power', manifested as 'an uneasy feeling of internal resistance, as an alien presence that is uncannily familiar'.[418] Thing-power, she argues 'emphasises the closeness, the intimacy, of humans and non-humans' and is intrinsic to assemblages that include humans, 'the beings best able to recount the experience of the force of things'.[419] This recounting or telling is destabilised and dislocated by the fingers moving; the movement itself becoming a stuttering of the temporality of the voice-over and the passage of time within the installation. I agree with Jane Bennett's assertion because there is a sensitivity implied in the consideration of human responsibility within assemblages and distributed agency. Within this, I consider Spivak's theorisation of the subaltern in how I acknowledge how the limits of this ability are shaped through the unstable positions of an array of bodies, vulnerable and permeable, delocalised and not fully known to themselves.

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416 Barad, 'On Touching', 217.
417 Barad, 217.
418 Jane Bennett, 'The Force of Things: Steps toward an Ecology of Matter', *Political Theory* 32, no. 3 (June 2004): 361. Importantly, Bennett is critical of new materialist approaches to the body that consider materiality as dead matter, running the risk of objectifying the body, flattening ontologies and therefore not acknowledging difference.
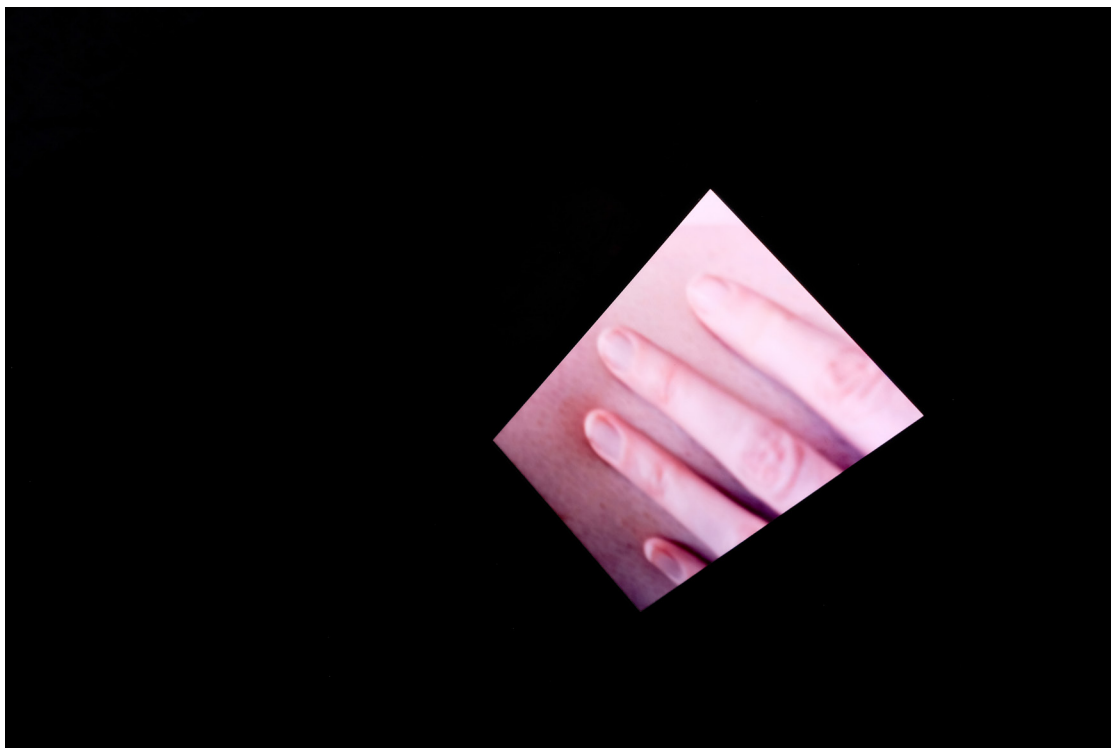419 Bennett, 'The Force of Things', 365.

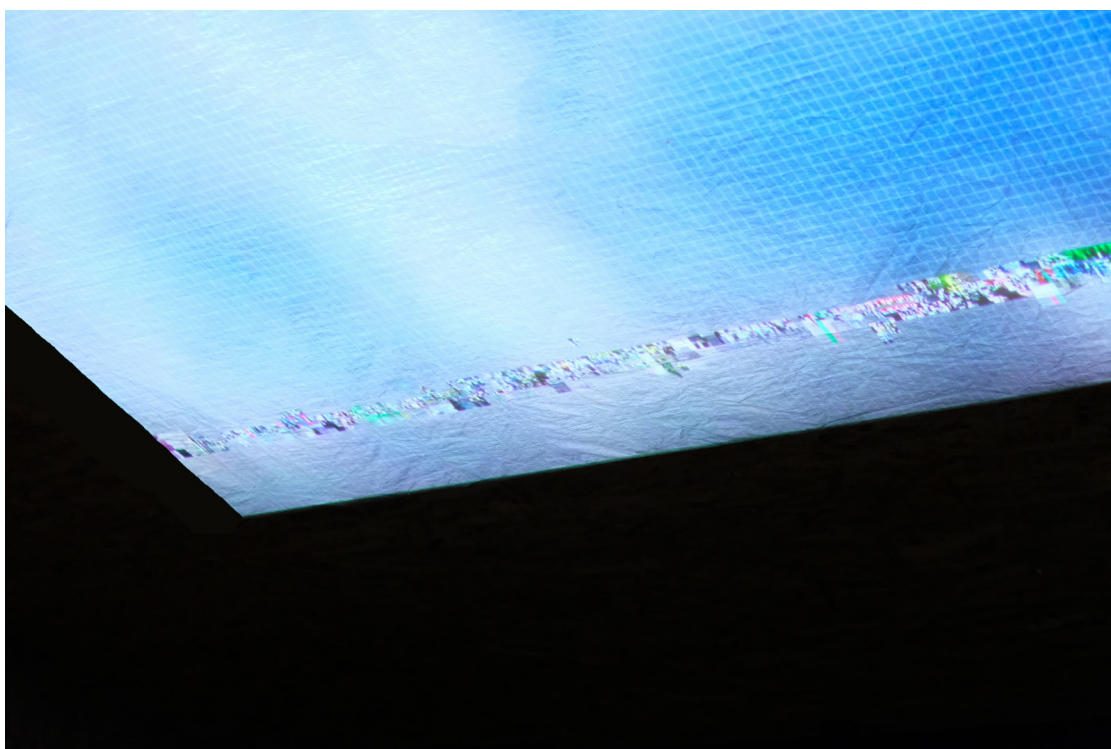Image 45: Digital photograph of *I could feel that my eyes were open*…installed at ZK/U, 2019.

Image 46: Digital photograph of *I could feel that my eyes were open*…installed at ZK/U, 2019.

In the studio I began to download some of the YouTube videos from the US and the UK military channels and import them into Adobe Photoshop. I had experimented with screen captures of editing processes, zooming and panning for example, in the work in progress I showed at the peer to peer critique at Lewisham Arthouse mentioned in Chapter Three, Repetitive Strain. I now began this process with moving image. Using a colour video this time, as opposed to thermal, I recorded this examination and navigation into and across the video. I also reduced the speed of the video so that the pixels moved much more slowly across the screen as I examined them almost topographically. In some ways the movements of the searching across and within the moving image mirrored the movements of the drone I was encountering through the camera images. Using screen capture creates multiple temporalities, that of the slowed down drone camera footage, that of my jerkier movements in Adobe Photoshop and the temporality of the film itself which runs to just over 5 minutes. I simultaneously developed a soundtrack using the moving image as the source material. Taking a screen grab from the moving image, I converted the file into a bitmap, and imported it into Audacity, an open source audio editing program. Audacity has the capability to read bitmaps and convert them into sound files. This was an experimental process; I had not worked with files in this way before. It is part of a process often used in data bending to create glitch art, in which the image is converted into a sound file, edited sonically and then converted back into an image file to generate a distorted, glitched image. The sonification of the image produced low-level rumbling and noisier crackling sounds – sonic artefacts generated in the conversion which I enhanced further in Audacity by adjusting the pitch.

Once rendered, the film also contained a number of visual artefacts, which I speculate are due to the fact that my laptop is running at overcapacity and struggles with this level of processing. In normal circumstances I would run the render again, but on this occasion, it seemed appropriate to continue with the file as it was, engrained with these spontaneous miscommunications between sender and receiver, described by Laura U. Marks as the 'liberating of electrons'.[420] The most obvious visual outcome is a broken line of pixels, different versions of which traverse the screen a number of times. This brightly coloured mosaic interrupts the pixel grid (created by zooming in on the video in Adobe Photoshop), but also the colour palette of the video which is mostly blues, greys and black. The visual experience of pixellation and glitches draw attention to the surface and tactile materiality of the image, the 'electronic texture' as Marks says, rather than its depth or representative capacity, enabling a more embodied perception.[421] Thus the visible is understood through haptic and proprioceptive modes, entangled with other senses. Acting as a break in

420 Marks, *Touch*, 158.
421 Marks, 'Video Haptics and Erotics', 333.

flow of time, colour and electronic pathways these visual artefacts not only operate to 'compromise the totality' of technology's grasp, but also reveal the 'material actions of otherwise hidden circuits and software'.[422] Here according to Pasek, we find hints of the 'non-human forms of authorship and relational traces created by the digital processes that co-construct the image'.[423] Unlike glitch artists who use the technique of data bending to deliberately simulate glitches, discussed previously, these artefacts are raw, unmediated and spontaneous, interrupting the impression of smooth technical processing and temporal flow of the moving image.

The deep rumbling and static sounds that accompany the video are the manifestation of the translation of data from one mode to another and the resulting noise is the active breakdown in communication between sender and receiver. Both visual and sonic qualities of the moving image enact what sound theorist Brandon LaBelle calls 'delayed presence'.[424] Drawing on Christof Mignone, Labelle suggests that stuttering can be understood as 'the radical porosity – an agitation precisely upon the lines of the delimited body, the one functioning under the orders of the proper and the powerful'. Stuttering, (or, the logic of the stutter), in this sense, may 'speak back' this pressure enacted upon it, 'in the form of the unclear, the improper, the tensed and the pressured'.[425] Through voice-over, the body is neither mute nor withdrawn, instead at times actively telling and vocalising, at other times actively vocalising a refusal to speak, unsynchronised and 'dislocated from its image'.[426] In his discussion on the invisible, Labelle suggests that voice-over, as an 'acousmatic sound occurring off screen, […] has access to spaces and knowledge that exist beyond the frame'.[427] The acousmatic, he suggests, relates to the sonic agency and material properties of sound, 'based upon the conditions of the unseen', 'haunting the experiences we have of looking'.[428] Attentional and perceptual work is required, LaBelle suggests, to establish meaning, and what lies beyond we see.[429] Arguably this is very much the case in Jo Namy's *Purple Bodies in Tranlsation*. However, in my view in this moving image I had created a non-corrective work gesturing towards in/accessibility and in/communicability, rather than either recognising or apprehending the unseen or invisible. Through material registers, rather than signifying modes, the visual, sonic and tactile were sensorially intertwined.

422 Pasek, 'Glitch Aesthetics and Post-Liquid Intelligence', 44.
423 Pasek, 45.
424 Brandon LaBelle, *Lexicon of the Mouth: Poetics and Politics of Voice and the Oral Imaginary* (New York: Bloomsbury Academic, 2014), 135.
425 LaBelle, *Lexicon of the Mouth*, 135.
426 Brandon LaBelle, *Sonic Agency: Sound and Emergent Forms of Resistance* (Cambridge, MA: Goldsmiths Press, 2018), 37.
427 LaBelle, *Sonic Agency*, 38.
428 LaBelle, 36.
429 LaBelle, 37.

Installing

Both videos and their accompanying soundtracks were installed in what can be described as an elevated bunker at ZK/U Centre for Art and Urbanistics in May 2019. The bunker is a small, self-contained space elevated on stilts attached to the external structure of the main residency building. It is accessed by a set of stairs and has a low slanted ceiling. The moving fingers, accompanied by the voice-over were displayed on a small screen with inbuilt stereo speakers hanging from the ceiling. The pixellated moving image was projected onto the ceiling, accompanied by the rumbling static sounds emanating from a pair of speakers placed on the ground at either side of the space. The entire space was blacked-out and two black mattresses were placed on the floor, so that viewers could lie horizontally and experience the installation above them on the ceiling. Both videos were synchronised together so that at times either one played alone, at other times neither images appeared on screen, throwing the installation into total darkness. At the rear of the space, a laptop was installed flat against the wall, playing an animated text with the original, unabridged voice-over script. The text contains elements from the military's uploads, along with phrases and words vocalised in the space. The entire work was looped in the installation with no beginning or end, into which viewers could enter or leave at any time. The loop was just over five minutes in total, though many viewers remained lying in the space for longer. The voice-over appeared and disappeared intermittently, yet the bass and static sounds remained constant throughout. The darkness and sonic aspects of the work, which comprised the architectural and material qualities of the space itself, enveloped and immersed the viewers, interrupting day-to-day reality outside the installation. Immersion, according to sound theorist Will Scrimshaw is an embodied, intimate and relational presence between audience and artwork, 'an experiential unification of the present in space and time through an immediate experience of sonic flux or vibration'.[430] Yet this was not a seamless experience; the voice-over and the visual elements partially operated within signifying visual and linguistic modes. Furthermore, in the elevated space (the bunker was on stilts), one could feel the low-level vibrations through the fabric of the wooden construction but also hear the sounds from the park and port nearby. The multi-perception of sensory registers from inside and outside the installation space contributed to a disorientating sense of spatio-temporal lived presence.

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430 Will Schrimshaw, *Immanence and Immersion* (London: Bloomsbury Academic, 2017), 2.

Image 47: Digital photograph of *I could feel that my eyes were open...*installed at ZK/U 2019.
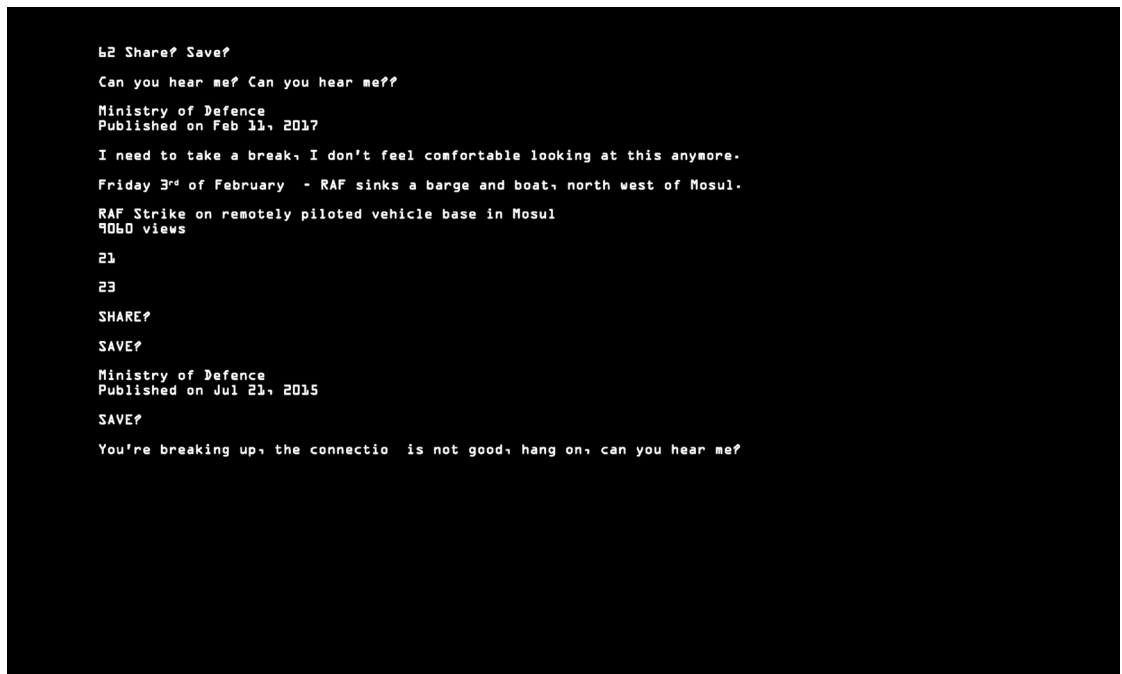

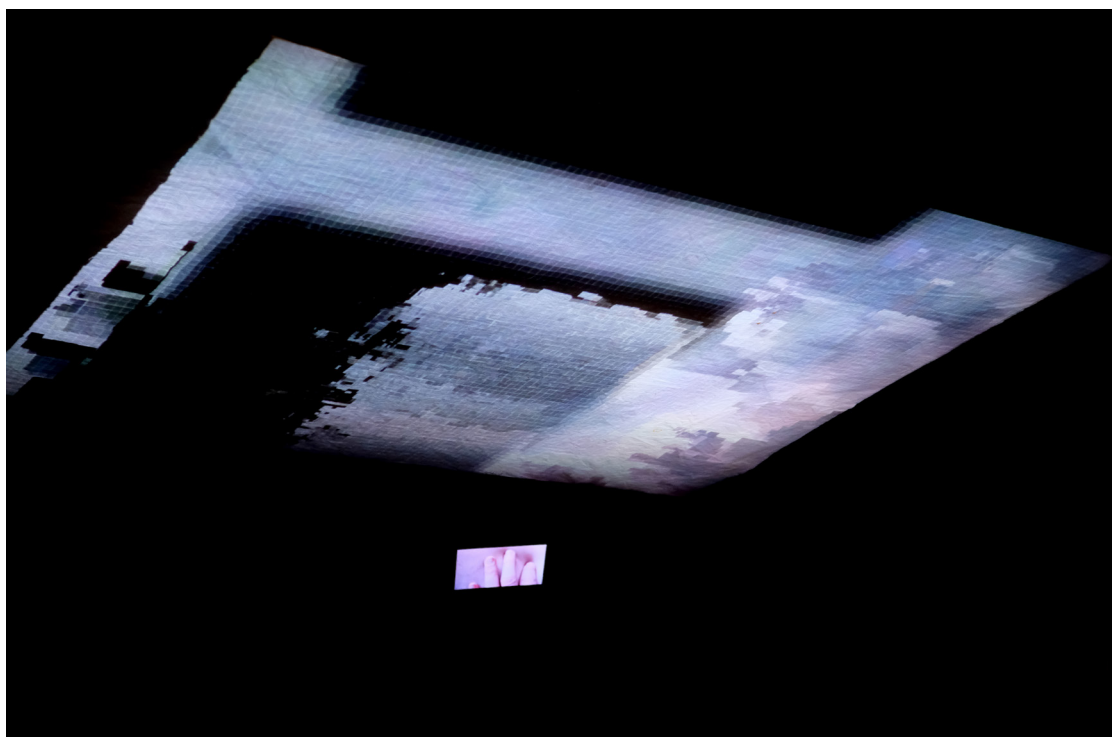Image 48: Screen grab from *I could feel that my eyes were open...* (animated text), 4:36/5:00.

Image 49: Digital photograph of *I could feel that my eyes were open…*installed at ZK/U 2019.

Image 50: Digital photograph of *I could feel that my eyes were open…*installed at ZK/U 2019.

A specific attention to the trembling and vibratory quality of the voice-over dialogue can be considered as a shift from one in which the body is inscribed by language to one where the body becomes language in a performative and material sense.[431] Both this vibratory condition of the sound and images and the horizontal positioning of the viewers' bodies could potentially dislocate or stutter habitual modes of perception of the images. Vibration, according to English literature scholar Shelly Trower, 'is not itself a material object at all, but it is bound up with materiality: vibration moves material and moves through material'.[432] These felt registers can draw attention to relationality and alterity, to the effects of difference, 'who and what matters and who and what is at the very same moment excluded from mattering'.[433] New materialist theory is criticised as lacking specific attention to both post-colonial theory and race and the way bodies are *othered* in discursive practices of exclusion.[434] Yet Barad does attend to difference in how material-discursive apparatuses produce boundaries through what she terms as 'agential cuts', which create temporary stabilisations among relational bodies. They are a cutting together/ apart and thus any temporary stabilisation - what comes to matter - should be considered responsibly with what and who is simultaneously excluded from mattering.[435] This attention to difference constitutes a further responsibility to the politics of location, i.e. which agential cuts are enacted, considering as I wrote at the beginning of this thesis, who the 'I' is – the body whose life is preserved at 'their' expense.

Furthermore, the 'politics of scale' is deemed questionable in the application of an approach grounded in atomic and subatomic particle physics to macro bodies.[436] Political theorist Paul Rekret states,

> In both cases, epistemic access to social phenomena at various spatial scales (and a micro-scale in particular) grants access to some subterranean conception of political agency but simultaneously risks triviality.[437]

431 Barbara Bolt, *Art Beyond Representation: The Performative Power of the Image* (London ; I.B.Tauris, 2004), 160.
432 Shelley Trower, *Senses of Vibration: A History of the Pleasure and Pain of Sound* (London: Continuum, 2012), 6.
433 Peta Hinton, Tara Mehrabi, and Josef Barla, 'New Materialisms_New Colonialisms', in *Proceedings*, ISCH COST Action IS1307 New Materialism Working Group Two (2015): 1.
434 New materialist ontology is criticised in that it 'reassures thought and action of its autonomy by disavowing its objective constraints' and thus it 'disavows the terrain upon which these constraints might be contested'. See Paul Rekret, 'A Critique of New Materialism: Ethics and Ontology', *Subjectivity* 9, no. 3 (September 2016): 240. Yet, in the context of techno-scientific practice in which bodies are dematerialised, both Haraway and Barad, also scientists, provide a new materialist approach that is generative in the ways they deconstruct binaries relating to 'origins and purity which still haunt the bodies of everyone who has been marked as Other'. See Barla, *Techno-Apparatus of Bodily Production,* 113.
435 Gregory Hollin et al., '(Dis)Entangling Barad: Materialisms and Ethics', *Social Studies of Science* 47, no. 6 (December 2017): 922.
436 Hollin et al., '(Dis)Entangling Barad', 927.
437 Rekret, 'The Head, the Hand, and Matter', 64.

I argue that Barad's approach in particular is relevant to the ways bodies are both included and excluded from mattering. As feminist new materialist theorist Taru Leppänen argues, drawing on Deleuze and Guattari, molecular 'micropolitical' becomings are both connected to and leak from molar 'macropolitical' structures; both scales of political conceptualisation are needed for a politics of anti-racism.[438] Thus it is not the case of either / or the micro / macro scale but instead what is relevant is a careful reading of how they are entangled in the production of difference and bodies marked as *other.* The video work containing the pixellated drone footage utilises one of the few non-thermal moving images available on the MoD and US militaries' YouTube channels and my selection of it was partially a gesture against how thermal vision inscribes bodies as targets. Zooming in to the level of the pixel, I acknowledge the politics of scale. Looking closely at these images, whether by examining with a microscope, examining the algorithmic processes, and zooming in with Adobe Photoshop confirms that the materiality of technology demands a close and intimate reading. This careful attention to the material processes of technology helped me to understand the macro processes of inscription but also disrupts the ideological visual language generated by the operative images online and the network in which they are published. Furthermore, the pinkish white fingers, pushing on pinkish white flesh is an embodied, intimate locating gesture, as much as it is dislocating, cropped, and excised onto a small screen. It is both corporeal and decorporeal, familiar and strange. The installation is an embodied encounter through which the vulnerabilities and unruliness of matter is considered through multiple scales, perspectives and sensory registers. In this vibratory sense, Jane Bennett argues, embodiment constitutes an array of bodies, that are not exclusively human; she states that an awareness of the foreignness that we are, could change how we humans consider political events.[439]

438 Taru Leppänen, 'Race', last modified September 22, 2019, https://newmaterialism.eu/
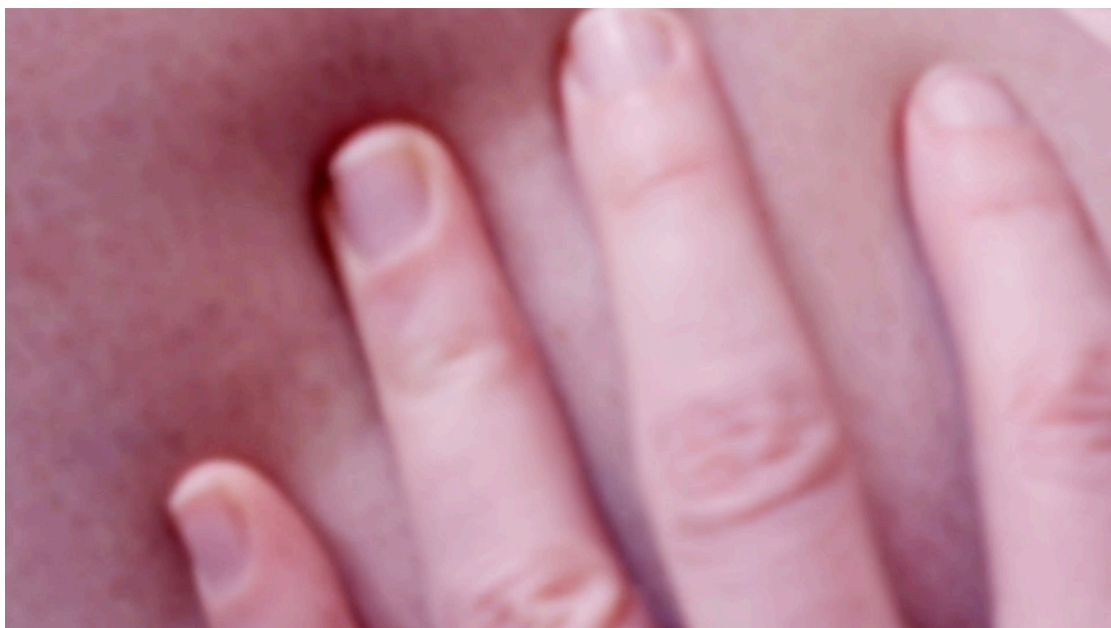   almanac/r/race.html.
439 Bennett, *Vibrant Matter*, 113.

Image 51: Screen grab from *I could feel that my eyes were open…* (fingers), 3:31/5:10.

Image 52: Screen grab from *I could feel that my eyes were open…* (operative moving image), 3:15/5:10

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In October 2019 I took part in a group show called Scaffold at the Bomb Factory Art Foundation in London. The Bomb Factory is an artist-run gallery and studio space and registered charity, occupying the site of a Victorian warehouse, which was used as an ammunition factory during World War II. I exhibited a re-worked version of *I could feel that my eyes were open…*, this iteration consisting of two cube monitors and stereo sound played through a single set of headphones. I was interested in displaying the work in a more sculptural way and the Hantarex cathode ray cube monitors had the formal qualities of scale and mass that conveyed this sense of material weight. Rather than the viewer being grounded, as in the previous iteration, now the videos themselves were grounded. Hantarex monitors have glass screens, which are slightly rounded at the edges. The slow-moving images displayed on both appeared as objects trapped within the cubes. Screen capture generates a kind of compression between the camera and the screen, always parallel to the plane of the screen, which was intensified in the cubes. There is no looking askance, instead we face the images. Rather than flat projections of light or digital surfaces, they had a kinaesthetic quality. I had envisaged displaying the animated text, which revealed to some extent the content the conversation the voice-over was gesturing towards, on a laptop on the opposite wall of the gallery. However, I felt the text was tautological and I decided to test the work without it. Instead I showed a sculpture I had made in early 2017 alongside the work on the Hantarex monitors. The sculpture, cast in copper from a synthetic model hand, was installed on the wall next to the monitors. I fabricated the work by taking a mould of the hand and cold casting it. Cold casting is a technique in which resin and metal powder are used to create imitations of foundry casts. Two fingertips were capped with silicon protective cases, of the kind used in industrial kitchens for health and safety. I imagined these tips speculatively as supersensitive feelers emerging from the hand. I had never tested the two works together but once installed they acted reciprocally together – the hand appeared to be emerging out of the wall, grasping towards something, or someone. The conversation also generated this sense of grasping, listening and looking for.

The content of the work as exhibited then, revealed very little, rather, it revealed a lack of content, other than an inability to grasp the nature of the subject of the work. This denial meant that viewers remained with the looped videos for their duration and longer, waiting for a visual or verbal explanation perhaps. Detaching the operative image from its circulation online and placing it juxtaposed with the voice-over and images of the fingers transcribed and ruptured its sense of virtual reality. The virtual here, according to political theorist Christina Masters, 'more often than not, has very little association with lived fleshy

realities'.[440] In some ways this iteration presented something incomplete and arguably unfathomable, yet performative in its simultaneous denial of any resolved sense of meaning. It could be understood akin to how, according to Simon O'Sullivan, fictioning performs its own alienation, in the 'sign of something that will not give ground to the world-as-is, will not pander to the demand to make sense'.[441] The work is a gap 'within these all too familiar series and circuits of knowledge/information. A gap which we might also configure here as a form of non-communication'.[442] The non-corrective, performative nature of the work, simultaneously grasping materially and sensorially towards communication and a communication break-down, connection and disconnection, suspended many viewers, waiting for a revelation that never arrived, a revelation that was previously unknown to me. This iteration of the work also revealed to me the potential of art practice concerned with a gap in meaning, subscribing to the logic of the glitch, and actively enacting it, disrupting the operationality not only of the operative image but of the artwork itself and thus attending to the notion of what the work cannot say.

440 Christina Masters, 'Bodies of technology and the politics of the flesh', in *Rethinking the Man Question: Sex, Gender and Violence in International Relations*, ed. Jane Parpart and Marysia Zalewski (London; New York: Zed Books, 2008), 102-103. Masters argues that the interface has rendered violence invisible; the complex realities and experiences of bodies, along with bodies themselves, are absent in contemporary warfare.
441 O'Sullivan, 'Art Practice as Fictioning'.
442 O'Sullivan, 'From Stuttering and Stammering to the Diagram', 250.

Image 53: Digital photograph of *I could feel that my eyes were open…* installed at The Bomb Factory Art Foundation, 2019.

Image 54: Digital photograph of *I could feel that my eyes were open…* installed at The Bomb Factory Art Foundation, 2019.

Closing

The intertwined relationship between bodies became palpable through the installation of *I could feel that my eyes were open…* Linguistic and representational modes were destabilised through the logic of the glitch, in the broken up Skype conversation and the digital artefacts generated through the re-recording of the drone video on my laptop screen. The voice-over is an active live conversation with myself/someone else, a body/bodies that is difficult to see and hear through a stuttered and glitchy fictional Skype connection. The voice we hear is jumpy, both tonally, technically mediated using multiple Auto-Tune filters and through the nature of the words spoken. The voice is searching for someone, 'Can you hear me', 'Can you see me', the unknown person(s) never represented visually or sonically in the work. Nevertheless, through the voice-over there is the suggestion that at times they are present to the speaking voice. Once a connection is established, it breaks again in a persistent loop of connection and disconnection. 'You're breaking up…' In this case it is primarily the materiality of the voice and the technology that interrupt the conversation, the logic of the voice-over. Furthermore, the specific use of language in *I could feel that my eyes were open…*, (and *Fuzzy Logic*) challenges the role of language to articulate the gap between objects and words, matter and meaning. Language in my research practice pushes against the use of language as a corrective mode in art practice and towards materially orientated subversion of itself as a performative gesture from within the work.

The work acknowledged my position as artist-researcher, and the implications of this position on the research itself, but also acknowledged the simultaneous exclusion of other positions caused by this position. According to Barad, both are necessary to understand phenomena, in an approach that does not attempt to disentangle matter and meaning, but rather reads them through each other, diffractively, considering their (our) differences and their (our) sameness, and in particular the effects of this difference. The work engages through stuttering, touching, and an imaginary Skype conversation between myself, an other / another / my other, another version of myself / other, with an incalculable and irrational alterity within. With and through technology's vibrations and liveliness, this alterity is considered as a vulnerability, a troubling and opening from within. These practices have the potential to acknowledge a responsibility to bodies marked as *other* as relational, rather than enacting a self versus *other* dualism. In addition they acknowledge the difficulty of representing, speaking with/for marked bodies without *othering* them. Furthermore, installing *I could feel that my eyes were open…* revealed that while it is possible to disrupt techno-scientific modes of knowing with bodily agency and materiality, it is not possible to see, hear or sense the subaltern, nor to give voice to or represent subaltern bodies.

Following Spivak, this inability is not meant as a shutting down, or paralysis.[443] It is instead an imaginative, radical and conflicting openness, 'the possibilities for sensing the insensible'.[444] Sensing the insensible is understood through *I could feel that my eyes were open…* not as unveiling illusive or invisible content but in fact an embodied encounter with the unruliness of materials in which the senses are engaged in looking for connections.

I could feel that my eyes were open… considers how bodies are entangled together in an assemblage, revealing, through the logic of the glitch, that bodies are unruly without disregarding techno-scientific practices and ideologies that mark and absent bodies. This manifests through the visual artefact and the linguistic vocal stutter. They are both material processes of vulnerability, holes, pores and openings which were encountered through the multi-sensory, multi-scalar and multi-perspective registers of the work. Yet these openings are incalculable and disruptive. In attending to the vulnerability of technology through the logic of the glitch, the installation affirmatively interrupted and exposed the ideology of technicality that the operative images and their network generate visually and linguistically. Thus, as a restaging of the operative image, this body of work returns primarily to the visual and the linguistic, interrupted materially through visual artefacts and vocal stutters. Understanding bodies as unruly shifts the discourse towards incalculability and unpredictability and away from bodies rendered as passive and subject to techno-scientific control yet does not disavow these processes. In this sense *I could feel that my eyes were open…* considers how bodies are entangled but that this entanglement is power differentiated. The assemblage has been criticised from the perspective of distributed agency, yet as I have argued previously, distributed agency is not distributed responsibility. Importantly, Barad argues that

> despite the fact that "we" are always deeply entangled in (and thus part of) a close web of human and non-human relations and forces, "we" are still the ones who are responsible and accountable for what matters as well as for what is excluded from mattering.[445]

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443 Spivak, 'Can the Subaltern Speak?', 285.

444 Kathryn Yusoff,. 'Insensible Worlds: Postrelational Ethics, Indeterminacy, and the (K) nots of Relating'. *Environment and Plan D: Society and Space* (2012) quoted in Barad, 'On Touching', 216.

445 Barad, *Meeting the Universe Halfway*, 220. Paul Rekret has criticised Barad's theory for its reliance on 'thought's relation to the world' as a 'personal, inner experience that we as humans ought to cultivate'. But from my (and others) perspective, the physics of subatomic particles put to work in Barad's theory is not speculative nor a mysterious 'inner experience' — it is instantiated in and through material practice that underpins the structure of the world. His critique argues that 'new materialist "entanglements" have ceded the terrain of epistemology altogether', however, as Barad has claimed, her approach constitutes an 'onto-epistemology' in which knowing and being are entangled but not conflated. See Rekret, 'A Critique of New Materialism', 230 and Felicity J. Colman, 'Agency', last modified September 22, 2019, https://newmaterialism.eu/almanac/a/agency.html.

Barad's theory takes into account that any technology of measurement contains within it the influence of the measurer. This applies to both military technologies and also my own methodological position, aligning with and adapting Haraway's situated practice and partial perspectives. Creative art practice which does not aim to correct, reveal, represent those marked as *other* but instead is deeply intimate, self-reflective and imaginative can begin to explore this relationality. I considered techno-scientific modes of knowing the body, yet through intimacy with these systems of knowledge their operationality can be disrupted. Returning to O'Sullivan's argument that art can function as a mode of interrupting more familiar systems of knowledge; video and installation in particular can stutter and stammer reality.[446] Attention to the unruliness of material bodies, both human and technological can generate a speculative, non-corrective practice. Through my own embodied relational dislocated subjectivity, performing through the logic of the glitch, in *I could feel that my eyes were open…* I have attempted to responsibly and methodologically account for my own agency within the politics of these images. Jasbir Puar expresses the necessitation for considering the friction between intersectional and assemblage theory when read through each other.[447] Friction in practice, I argue, interrupts both the visual and the linguistic. In my view this friction is generated in *I could feel that my eyes were open…* in the graininess, jumpiness, glitchiness, bodily resistance and stuttering (both human and technical). This friction exists between the assembled and unruly nature of materials of bodies and technology in the installation, and visual and linguistic signifiers, creating a responsible embodied encounter, asking for and offering recognition, seeking connections rather than occupying a corrective or curative stance. As I have considered previously, Barad proposes that matter is always open to the *other*, and in this sense, we are still accountable and responsible to the other 'with whom we are entangled'.[448] Only when we think about bodies in this way can we shift towards a more affirmative and relational politics of vulnerability.

446 O'Sullivan, 'From Stuttering and Stammering to the Diagram', 250.
447 Puar states, 'intersectionality attempts to comprehend political institutions and their attendant forms of social normativity and disciplinary administration, while assemblages, in an effort to reintroduce politics into the political, asks what is prior to and beyond what gets established'. See Puar, 'Becoming-Intersectional in Assemblage Theory', 63.
448 Barad, *Meeting the Universe Half Way*, 393.

Conclusion

Opening

The research journey coincided with a number of theoretical calls for feminist, posthuman and embodied approaches to drone warfare, both predating and published during the research period.[449] This writing, from across the fields of political geography, gender studies and media studies, served to reinforce the context in which the practice was operating and reaffirm the emergent process of practice-based research. The bodies of work discussed in each chapter iteratively developed a response to the central question of the thesis: how can art practice create an embodied encounter with military drone images? The question specifically addresses censored operative content uploaded to the official YouTube channels of the US and the UK militaries. The research aimed first, through various modes of studio-based experimentation, to explore the restaging of the operative image. This experimentation evolved from still images translated into a range of media, into moving image embedded in hybrid sonic, sculptural and installation-based environments. These installations generated multi-sensory, multi-perspective and multi-scalar encounters with re-staged operative images. Secondly, it aimed to disrupt the ideology of technical seamlessness, precision and control propagated by the videos online both visually and textually. In response to this the research progressively adapted a situated and partial approach, exploring the vulnerability of bodies, both human and non-human. Technical vulnerabilities appeared through investigating error, spoofing and digital artefacts in the practiced-based methods, whilst bodily vulnerabilities emerged through leaks, stutters, ticks and narrative inconsistencies; both modes acted to disrupt the ideology of seamless interactions with technology. Thirdly, the research aimed to challenge the eschewal of encounter with absented bodies whilst avoiding both re-inscribing the body through colonial modes and disavowing the impact of drone strikes. As the research progressed, the vulnerability of bodies, materials, spaces and sounds also emerged as markers of their agency, interrupting the ideology of bodies as calculative entities and generating unruly experiential registers with bodies resisting categorisation and representation. These subtle human and non-human frictions and resistances registered through the practice-based research established an embodied and relational encounter with the restaged operative image.

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449 See for example Alison J. Williams, 'Enabling Persistent Presence? Performing the Embodied Geopolitics of the Unmanned Aerial Vehicle Assemblage', *Political Geography* 30, no. 7 (September 2011): 381–90, Lauren Wilcox, 'Embodying Algorithmic War: Gender, Race, and the Posthuman in Drone Warfare', ed. Louise Amoore and Rita Raley, *Security Dialogue* 48, no. 1 (February 2017): 11–28 and Caroline Holmqvist, 'Undoing War: War Ontologies and the Materiality of Drone Warfare', *Millennium: Journal of International Studies* 41, no. 3 (June 2013): 535-552.

The methodology I have developed through the course of this research project was generated through persistent attempts to explore the embodied and the dis/embodying aspects of drone warfare. The reading of feminist theorists within this research project emerges from both practical experiments and reflection on these processes. As the research progressed, the iterative development of the practice-based elements considers the frictions of how these theorists differ and overlap. Donna Haraway's theory of situated knowledges and partial perspectives is specifically relevant because of her theorisation of the 'god trick' and her proffering of a methodological position that challenges techno-scientific modes of visualising and of knowledge production. A feminist embodied methodology consisting of fictioning, posthuman assemblages and new materialist practice generated a unique and responsible situated practice-based approach which produced and explored multiple instantiations of vulnerability. Through a new materialist perspective, it contributes a new, reconfigured and decentred methodology to the field of art practice concerned with drone warfare, a non-corrective body of art practice and a unique adjustment of Butlerian vulnerability, read through both posthuman and new-materialist theories.

Contributions

The first contribution to knowledge is that the iterative research process engendered a unique new materialist methodological position which emerged through the practice-based research. This methodology contributes to the field of art practice concerned with drone warfare. It recalibrates an embodied and situated approach towards a more relational and agential understanding of bodies marked as other by military visual practices, specifically the operative drone image. I did not start the research journey taking this position into account, as the early practice-based works discussed in Chapter Two testify. However, through critical reflection on practice and theory, I renegotiated my methodological position, recognising a perspective that is feminist, embodied, relational, porous, partial, speculative, and decentred. An embodied feminist perspective is one where the body is understood not as a separate entity from the mind and in relation to other bodies. In my practice-based research, embodiment draws attention to sensory registers of new materialism, emphasising the corporeality of bodies in discursive power structures. I increasingly attuned and attended to these sensory registers in the processual aspects of my making and writing, understanding myself as entangled in an assemblage of human and non-human bodies and technical processes. If we think of bodies as sedimented matter, as fixed, discrete, closed entities, even if situated, then how can we possibly begin to think about and imagine other ways of experiencing the world and relating to and with other bodies?

My practice based research establishes a new materialist perspective which brings together a number of understandings of vulnerability in productive tension. As I examined in Chapter One, in the case of the operative images online, discursive practices generate the representative and linguistic ideology of technical efficiency and a bodiless war. I have not produced an exclusively new materialist ontology in response to this but instead I consider how materiality is dis/entangled with these discursive practices. As I have argued, power is enacted heterogeneously in assemblages; boundaries are stabilised and destabilised in different ways depending on this axis of power. In the military drone assemblages in which the operative images encountered online are central, these power asymmetries mean that discursive practices mark vulnerable bodies as *other* with catastrophic results. In material-discursive practices, in a Baradian sense, arguably entanglement means that materiality is always read through the discursive. Thus bodies, even resistant, are understood through their relationship to discursive practices. In Chapter Four, I explored how in the moving image *If/Then*, bodies interrupt the scanning machine engendering visual artefacts; the agency of the body is always connected to discursive practices, even if it reveals vulnerabilities in these practices by resisting and disrupting them. Additionally there is an understanding of materiality operating within the practice-based research that is unpredictable, separable and incalculable; it is also resistant. These posthuman

vibrations are a kind of confrontation with new materiality between human and non- human thingness. This confrontation resonates in the sensory registers of the practice, in particular the materiality of the voice and the sonic aspects of the work, which I began to explore in *Repetitive Strain*, discussed in Chapter Three. The posthuman vibrant new materiality that Jane Bennett refers to and which I drew attention to in Chapter Five is also present in the unforeseen leaks on the surfaces of the aluminium sculpture and the spontaneous glitching of the video in *I could feel that my eyes were open...* Vulnerabilities in processes are reconfigured as the vibratory resistance of materials, a kind of excess outside of discourse. This is an impasse, but we can attune to its embodied sensory registers. Attention to materiality in its thing-power is important, because otherwise agency would always be enacted in the context of discursive practices. Both aspects of new materialism are intertwined in the practice-based research - the inseparability of the material from the discursive, but also the thingness of materials.

The shifting understanding of materiality towards doings rather than fixity, means that bodies are considered porous – vulnerabilities which allow us to sense other subject positions. This position allows me to acknowledge what I am and what I am not – the white, western position of privilege from which I am researching, and therefore the limits of this research practice. This is especially pertinent in the consideration of bodies marked by institutions and practices as *other*, and the ways feminist intersectional theory is productive of what Jasbir Puar calls 'an ironic reification of racial difference', discussed in Chapter Three.[450] Through this new materialist perspective, bodies, both human and technical are explored, attuned to and modeled as both vulnerable and agential. They are unruly; they resist categorisation, capture, calculation and predictability. Nonetheless, agency is experienced through human subjects regardless of the way it registers; we cannot entirely escape the voice, language, and therefore the anthropocentric. It is difficult to escape anthropocentricism, which the human aspects of the installations discussed in Chapters Three, Four and Five, reveal in the mediated human voice-over, human hands touching screens and bodies, for example. The decentred human narrator is not separate from the installation but embedded in it, as is the human viewer. In that sense attention to posthuman bodies is registered but human responsibility is not relinquished. If bodies are vulnerable through their relations with other entities then it is this vulnerability that can also, according to Karen Barad, establish a relation to bodies marked as other based on connectivity. *I could feel that my eyes were open...*, analysed in Chapter Five, explores how we are connected to others from within, in a non-self versus other manner. Barad's approach to difference is not

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450 Puar, 'Becoming-Intersectional in Assemblage Theory', 53.

about separateness but about the connections that generate separateness, thus othering is about how we are connected to difference, rather than separate to it. *If / Then* also embodies this relationality as fixed subject positions and speaking voices erode and dissolve into each other.

Restaging the operative image through the practice of installation attempts to present an assemblage in which the ideologies and narratives are shifted towards the agentive capacities of bodies. Agency is understood as a multi-modal attention to the non-passive, the vibratory, resisting disembodied, objective categorisation. The practice of fictioning which I initially explored in *Repetitive Strain*, analysed in Chapter Three, was also key to this resistance. Fictioning itself is unstable, 'still at stake, not finished, still prone to falling afoul of facts', as Haraway states.[451] In Chapter Four, I described how I continued to test fictioning's potential to disrupt the role of language and representation in meaning- making in the moving image *If/Then*. Restaging the operative image through an embodied art practice in my research generated an encounter where bodies resist multimodally; the vibrations and porosity of materials, the resistance of bodies to categorisation and calculation within the installations and the resistance of the work itself to resolution and meaning. In this sense the practice-based research restaged the operative image in assemblages in which bodies are slippery, calling to mind the etymology of the word glitch, to slip. All four bodies of practice explore and reveal this resistance of stability and fixity in different and overlapping ways. It is thus the encounter itself that is unruly; bodies resist categorisation and representation, and restaging the operative image generates the conditions for a set of relations to occur in which encounters with operative images are potentially reorientated. The practice produces an encounter in which we don't mobilise our responses based on a fixed subject position. Understanding bodies new materially as multimodal in this way acknowledges that our practices, ideas, relations, forces, have material implications which are woven through micro every day and macro global political levels. Rather than ideologically predetermined, in these encounters the relations between bodies (human, non-human, technological) are destabilised. Installation art practice reconfigured assemblages, instantiations, fictions and reorientations potentially stuttering pre-existing assemblages.

Arguably this methodology can also contribute in practice, an embodied, decentred, new materialist approach to those areas of the humanities which have drawn inspiration from non-representational methodologies, such as cultural geography, ethnography, development

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451 Haraway, 'Companion Species Manifesto', 111.

studies and anthropology, supplementing their practice- based strategies. Focusing on vulnerabilities in embodied practices and processes, the research can also provide methodologically to other forms of cultural production outside of the field of fine art such as journalistic and documentary practice - both photography and moving image - along with literature and graphic design. The embodied and decentered methodology established can also contribute to fields of aerial machine vision such as remote sensing, satellite and aerial imaging. Attending to the embodied processes of production and the multiple potentialities of vulnerabilities in these processes has the potential to disrupt the conception of these images as scientifically and cartographically objective and technically precise. This new materialist perspective can contribute towards an understanding of the aerial view as embodied, lively and unstable rather than remythologised as abstract, omniscient and distant. Drawing attention to the felt registers of vulnerabilities, frictions and resistances, this particular approach to the unruliness of aerial images opens the possibility for them to exist other than as totalising, superior and, specifically with regards to operative drone images, persistently present. Furthermore, this new materialist perspective in its subversion of binary logics such as intimate and distant, subjective and objective additionally has the potential to position the aerial view as other than oppositional to alternative forms of mapping practices and views at ground level.

The second contribution to knowledge is a non-corrective body of art practice. By exploring multiple instantiations of vulnerability; of bodies, both human and non-human, including technology, materials and spaces, the practice establishes a hybrid body of work including moving-image and sculpture. The installations produced during the research period establish embodied encounters through hybrid sensory registers rather than re-presenting bodies marked as other. The installations also resist using spectacular and cartographic modes of representation and didactic or moralising practices. They problematise the ideology of the technical seamlessness conveyed by the operative images online and which is prevalent in art practice concerned with drone warfare. The body of practice titled *Fuzzy Logic* discussed in Chapter Four explored the therapeutic nature of military rhetoric characterising drone warfare as a medical intervention. Art practice concerning drone warfare often tends to seek to teach and to clarify and expose and includes practices which replicate techno-scientific linguistic and visualising modes of revelation or legitimisation. As I discussed in Chapter Four, the work *If/Then* reveals that the body is never captured in its entirety by the scanner; the technology cannot capture the body in its totality without interpolating some data. Furthermore, the body actively glitches the scan through its movements or foreign objects creating visual and computational artefacts. Materially, the 3-D prints warped at the extremities of the print bed, and molten aluminium broke through the mould and leaked out onto the surface of the sculpture. The melding of positions that the voice-over in *If/Then*

contributes, similarly disrupts any gesture towards what could be deemed a curative stance, or in a less therapeutic lexicon, 'corrective'.

In *If/Then*, assemblages of bodies no longer know themselves or each other fully; their agency and meaning have been disrupted and confused further. This occurrence is also revealed in *I could feel that my eyes were open...*, analysed in Chapter Five. This is an important gesture that critically pushes against the corrective, self-referential mode of the white researcher from which all gestures of care, the corrective and revelation are relative to. In this sense this body of work probed my own need to reconcile my position as artist-researcher in relation to other positions or non-positions. Reconciliation implies a resolution rather than an opening. My practice-based research however, produced an uncomfortable friction and a troubling, pushing against reconciliation of co-existent positions. This materialised as a decentred, hybrid methodology and methods, as installation emerged as an important aspect of the research which enabled experimentation with multiple methods. If, as I argue, the practice of publishing drone warfare by the military online engenders an eschewal of encounter through representational visual and linguistic modes of absenting the body, then art practice requires the imagining of alternatives that acknowledge how this non-encounter operates. While not ignoring the ideology conveyed by operative images, my research imagines ways not of overcoming these issues; they are not to be overcome – some lives are more vulnerable than others. Instead it explored and adjusts vulnerability in its multiple instantiations artistically through an embodied practice of writing, moving image, sound, sculpture and installation.

The third contribution to knowledge is a unique adjustment of Butlerian vulnerability, read through both posthuman and new-materialist theories. As the socially constituted lens through which Butler's theory of grievability and vulnerability operates, recognition and apprehension are based on sensory registers through which we become 'undone by each other' and recognise the *other*.[452] For Butler, in grief, to be beside (or outside) oneself with grief, one becomes aware of the *other* that constitutes the self. My practice-based research generates a re-conception of vulnerability as agential, exploring its interruptive and disruptive capabilities. Bodies materialise in their unruliness; as both vulnerable and agential entities they resist categorisation and calculation. Through through this new materialist perspective, multiple instantiations of vulnerability are explored in my doctoral research as an (heterogenous) enactment of power across an assemblage of bodies be they human or non-human. This stance acknowledges the ways material bodies are intertwined with and

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452 Butler, *Precarious Life*, 23.

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affected by the specific norms of visual and linguistic signifying practices of the military, and the ideology they produce. However, it repositions bodies as relational and resistant, rather than surfaces to be inscribed upon. Furthermore, it repositions technical processes as vulnerable to glitching, spoofing and error. Through sensed and felt registers my research attempts to consider how we are undone by each other materially and relationally in a posthuman sense, rather than by the visually and linguistically imposed norms of recognition and apprehension which as Butler admits, are always from a position of power.

As explored particularly in Chapters Four and Five, attention to the liveliness of bodies implies a relational responsibility to other bodies which is not based on the premise of self versus other. This adaption adjusts the problematic basis of recognition as a power relation, yet acknowledges power as heterogenous, existing between and among sensate and non-sensate beings. In my doctoral research practice, a new materialist perspective foregrounds materiality in both its vulnerability and resistance engendering an unruly encounter in which materiality and felt registers are entangled rather than separated and / or opposed. This adjustment is not a disavowal of Butler's theory but establishes a relational approach to oppressed bodies which is not embedded in ethics of grievability and morals. In response to the non-encounter generated by the operative images online, and prevalent in art practice concerning drone warfare, this methodology attempts to generate a responsible relational practice predicated on the complexities of embodied connectivity, of seeking recognition. Although all bodies are vulnerable, vulnerability is profoundly power differentiated and distributed. The vulnerability of technology is not the embodied vulnerability of those marked bodies living and dying under drones in highly embodied states of anxiety, body awareness, and oppression. This understanding of the multiple instantiations of vulnerability acknowledges Rosi Braidotti's affirmative mode of theorisation which does not deny the horrors of warfare but argues away from negative passions and affects towards relational capacities and interdependence. I argue that new materialist and posthumanist theory be read frictionally through Butler's theorisation of vulnerability and Gayatri Chakravorty Spivak's theorisation of subaltern bodies, to adjust to and understand the ways power is discursively and differentially enacted upon bodies. I think this reading of vulnerability bears much potential, one that contributes a responsible art practice which does not propose a moralising ethics, but instead a consideration of responsibility to others, with whom we are materially entangled.

Closing

The research practice is one in which discursive and material practices are both interacting (implying separability) and intra-acting (implying they are entangled) and through theory and practice I consider how they differ and align. The studio is a place where thinking, making, speaking, listening, reading, writing, sleeping, eating, and meeting happens and these relational conditions scramble logics and thoughts where theory and practice are in dialogue through other aspects of living. As material and sensible-sentient beings, embracing the inseparability of materials, sensing and thinking, the 'embodiment of the mind and the embrainment of the body'[453] reveals sensitive, unpredictable and transgressive insights into meaning-making. My doctoral study impacts and contributes in this way to both theory and practice, and theory-practice / practice-theory, the mattering of research. However, my doctoral research has limitations; I must be accountable for the role I play in the research, my white western position of privilege, and that I cannot escape human subjectivity. Materiality is explored in practice in its relationality and vibrancy, its potential to interrupt the capacity of discourse and representation in resolute meaning-making. Yet new materialist theory is itself arguably a white epistemic school of thought. The research attempts to reorientate the encounter with operative images while acknowledging the problematic position from which it is generated. A limit of this is however what is not possible to sense and materially register in my practice-based research. Subaltern bodies cannot permeate the unruly encounter; they constitute a lacuna in what can be seen, heard and sensed. According to Spivak we must not accept the impasse of subjectivity as fuel for inaction, rather to acknowledge what the work cannot say is a gesture towards what she terms 'unlearning'. Unlearning, according to Spivak, involves 'seeking to learn to speak to (rather than listen to or speak for)' the 'muted subject of the subaltern woman, the postcolonial researcher "unlearns" female privilege'. Spivak continues that this unlearning involves 'learning to critique post-colonial discourse...and not simply substituting the lost figure of the colonised'.[454] My practice-based research attempts to model how bodies can act resistantly in techno-scientific assemblages – while also acknowledging that bodies are vulnerable – rather than represent absented bodies as unruly, or as techno-scientifically mediated. It responds to subalternity in what is registered about the body that is not felt and sensed in the multiple gaps, pores and holes in the practice.

453 John Marks, *Gilles Deleuze: Vitalism and Multiplicity* (London: Pluto Press, 1998), quoted in Braidotti, *The Posthuman*, 86.
454 Spivak, 'Can the Subaltern Speak?', 295.

Throughout the research I carefully considered the impact of showing my work to audiences. I did not want to trigger anything in any potential viewer, to generate affect in a visceral way and nor was it my intention to educate the viewer. Instead the practice- based research comprises a slower, deeper mode of multi-sensory perception that restages our everyday exposure to technology and warfare online. All three installations explore the proprioceptive aspects of the viewers' positions, subverting what is perceived to be the conventional relationship to the screen, be it a personal laptop or video installation in a gallery. Darkness is exploited as a mode of sensitising the viewer to spatial, visual and sonic qualities of the installation, along with the presence/absence of other bodies in the space itself. The installations produced a certain discomfort in this unknowing and the unpredictability of bodies that 'can do and think and enact',[455] in their alterity, escape of categorisation and representation, in the irreconciled. In this sense the practice produced a particular mode of embodiment connected with living and vibratory tensions, rather than embodiment through emotion or affect and the outpouring of grief. Presumptions about other bodies shape how we respond individually and at state level, including responses affected by the media and the military such as indifference and retaliation, but also compassion and hospitality. However, arguably there is no guaranteed response other than incommensurability, the state of openness and uncertainty. My practice-based research is not a solution, nor does it purport to be a solution or corrective, but situates itself as co-existent among other practices and generates productive tensions and connections. Theoretical and practical approaches are entangled rather than one specific subject position acting as a regulator of all others. Acknowledging our shared vulnerability is vital in order to begin to consider bodies living and dying under drones, marked as *other*, absented from the US and the UK's militaries' representation of warfare on YouTube. If, as Judith Butler claims, 'another life is taken in through all the senses, if taken in at all',[456] then responsible imaginings are predicated not on the privilege of a return but an acknowledgement of this irresolution, and openness to seeking connections.

455 Rosi Braidotti, 'A Theoretical Framework for the Critical Posthumanities', *Theory, Culture & Society*, no. 4 (May 2018): 21.
456 Butler, *Frames of War*, 51.

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Appendix