Mishandling the human:
Virtual surveillance and actualised error

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Abstract

This project is a practiced-based inquiry into the relationship between physical reality and virtual worlds in a period where digital technology has substantially transformed how we interact with our surroundings. The research investigates this relationship with emphasis on the interdependent nature of neural networks, extended consciousness and online surveillance.

The research explores the increasing use of digital surveillance and the potential for the surrounding world to be restructured on feedback derived from algorithms. As the neural networks filtering such data are programmed with values reflecting the ideology of liberal capitalism, the results will inevitably be skewed in favour of this perspective. As smart devices and their users are contained within this feedback loop the paper considers how these systems of surveillance influence the perception of human identity.

The resulting work responds to the use of surveillance technology, focusing on gaps in information and distortions in representation that occur through this filtering and assumed information. The works question the nature of online surveillance from a posthuman perspective and explore the potential problems that can occur with the adoption of cavalier attitudes towards these technologies.

I have created three systems to reproduce the human form based on the mishandling of data. The resulting forms echo the fundamental contradictions inherent in these systems. The artwork produced through this process draws from limitations common to neural networks that process collected data. By decontextualizing, filtering, fragmenting and reconstructing data to create distorted versions of the original, the resulting sculptures present a vision of how systems alter subject matter when rendering a model from reality.
Declaration

This is to certify that

(i) the thesis comprises only my original work towards the masters,

(ii) due acknowledgement has been made in the text to all other material used,

(iii) the thesis is 14,271 words in length, exclusive of tables, maps, bibliographies and appendices.

Shane Leigh Nicholas
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Introduction

For those living in technologically advanced societies of the 21st century, this often involves being connected to smart devices. Smart devices act as an extension of users’ minds, making it easier to navigate and manage their surroundings. As a result of this relationship, these societies have become more or less accustomed to the online surveillance mechanisms imbedded within these systems.

The surveillance data collected through mechanisms embedded in these technologies has made it possible to trace user’s behaviour. The surveillance data is then collected, stored and filtered for use by parties investing in products that use these systems. It is likely that a person’s data trace will outlive them. Online browsing habits have expanded beyond the computer screen and into everyday life with the adoption of smart phones, GPS mapping and life logging devices, like fitness trackers. These devices rely on data collection in order to function and, in turn, users rely on the output of these devices to add further convenience to their lives.

There has been a rapid mass adoption of online surveillance technologies by companies and agencies that use this day to day data. These technologies, combined with the neural networks\(^1\) (hereafter referred to as neural nets) that are needed to process and make sense of this massive amount of data, led to the topic of this research. The Internet appears to have transformed into an indirect

\(^1\) A neural network is an algorithm that is programmed to learn the habits of its users, making it able to make small decisions on their behalf.
panopticon where users’ browsing habits are both funding and informing the content that is produced on the web. While many Internet users are aware of the presence of surveillance technologies, through an ongoing reliance on these technologies, they have gradually grown to ignore them as a benign presence. Knowing these devices are intimate viewers of their users’ lives, it is important to consider how they perceive their subjects. This led to a central question for this research: *What is seen by systems of online surveillance and what effect could these mechanisms have on the “real” world?*

In the past, I used painting and sculptural processes to investigate the cultural and psychological mutations that could occur through the rapid adaption of smart technologies. These works drew upon situations where rabid neo-masculinists leveraged off the anonymity of the web to make alarmingly abusive threats towards feminists that would otherwise be untenable in person. This caused me to consider how the mechanisms involved in advanced technologies could influence people who use them — often out of the simple need to connect with other humans.

Chapter One of this paper discusses the mechanisms employed for collecting and analysing data and the information theories and politics that shaped their development. *How we became Posthuman: Virtual Bodies in Cybernetics, Literature and Informatics* (1999) by N. Kathryn Hayles was used to help understand the cultural underpinnings of cybernetic theory and its influence on data collection and processing. This work highlights the limitations of data processing technologies and their underpinning neural nets. Political and philosophical biases are embedded into the automated processes that filter the
immense amounts of collected data. Hayles argued that liberal humanist values underpin these systems.²

Elsewhere, Rosi Braidotti argued, a humanist perspective embodies a white, European, male viewpoint and is responsible for destructive and exploitative tendencies of liberal capitalism.³ Posthumanism became the lens to analyse these findings. Given that a large portion of the world was being overlooked or misrepresented through these mechanisms, Tiziana Terranova’s theory on networked soft control was also useful here. These theories consider the level of empowerment that subjects of online systems could potentially have.

Chapter Two outlines the processes and basis underpinning this project’s artwork. In particular, I drew inspiration from Hito Steyerl’s The Kiss (2012), Matthew Day Jackson’s Pieta (2013), Jeppe Hein’s 360° presence (2002), and Antoinette J Citizen’s System and Method for Predicting the Future (2013). The common factor uniting these artists’ work is the use of systems to reveal the destructive potential and ironic truths that arise when technologies are misused or pushed beyond their limits. This understanding led me to create three methods to create distortions when reproducing the human form. These all employ faults within the structure/logic of a system.

1. A system of electronic interference where varying electrical charges wrestle for control over surveillance cameras on the basis of viewers’ interactions.

2. A method of casting that exceeds the confines of the cast. This employed expanding foam.

3. A process based, iterative method of 3d printing, rescanning, reprinting and rescanning.

To navigate the conceptual shift evoked through the finished works, I drew from the writings of Tiziana Terranova, Mike Kelley, Julia Kristeva, Donna Haraway and Ralph Rugoff.

The work for this project was not aimed at producing a journalistic investigation into the topic of online surveillance but instead drew inspiration from systems of online surveillance to produce artworks. Like systems of online surveillance, the systems I employed for this body of work were intended to produce a specific product, but often went astray. In terms of surveillance, such inaccuracies would be failures, but for this project, they represent new ways to develop my art while referring to the underpinning conditions that determine our era.
Chapter 1 – Theoretical background and inspiration

Neural nets and online surveillance

As defined earlier, neural nets are programs that extend the capability of the human brain by using algorithms to learn the patterns and preferences of users in order to make small choices on their behalf. A common example of a learning algorithm is a spam filter. Spam filters sit quietly in the background, sorting valuable communication from unwanted communication.

In her book *How we became Posthuman: Virtual Bodies in Cybernetics, Literature and Informatics* (1999), N. Kathryn Hayles stated that computer scientists foresee a future where human consciousness is aided and supported by a vast network of intelligent learning algorithms that make sophisticated judgements on behalf of scientists to extend the capacity of human cognition.  

4 For these algorithms to operate, data must first be collected and analysed to create suitable programs.

The rich environment of data collection created through online surveillance has forced collection agencies to rely on neural nets in order to manage the vast amounts of information collected from online user activities.  

companies can profit from that knowledge.\textsuperscript{6} Government agencies also use online surveillance, even to the extent of infiltrating Massively Multiplayer Online games to monitor behaviour they consider a potential threat.\textsuperscript{7}

In Tiziana Terranova’s PHD thesis \textit{The intertextual presence of cyberpunk in cultural and subcultural accounts of science and technology} (1996), she described early fears regarding the decentralised democracy evident in the Internet. She argued this could be transformed into an indirect panopticon or decentralised surveillance system.\textsuperscript{8} Decades later, online surveillance has become a key mechanism of Social Media Sites, generating revenue by selling data for targeted advertisers. This causes users of these sites to become ‘productive consumers’ where their shared media, combined with automated surveillance, produce both content and profit for the site; essential to funding its existence.\textsuperscript{9}

In Boris Groys’ \textit{Art Workers: Between Utopia and the Archive} (2013), he described the Internet as a “machine of surveillance” because it “divided the flow of data into small, traceable, and reversible operations.”\textsuperscript{10} This means that the Internet, by its very nature, intimately knows its subjects.

\textsuperscript{8} Tiziana Terranova, "The Intertextual Presence of Cyberpunk in Cultural and Subcultural Accounts of Science and Technology," (Goldsmiths College (University of London), 1996), 132.
The Internet is a place where the subject is originally constituted as a transparent, observable subject—and only afterwards begins to be technically protected in order to conceal the originally revealed secret.\textsuperscript{11}

In response to this scenario, many users spend much of their time on the Internet revealing information about themselves and then covering their tracks.\textsuperscript{12}

**Fundamental problems with online surveillance**

The current technologies that support online surveillance have questionable levels of accuracy and may be faulty at their core; they are problematic on both a theoretical and practical level.

Hayles drew on records from the *Macey Conferences on Cybernetics* (1946-1953) conducted to develop a single theory of information useful to control the use of data. Claude E. Shannon’s *A Mathematical Theory of Communication* (1948) proved a popular solution and was eventually adopted because it decontextualized information, making the processing of data more efficient.\textsuperscript{13} Unfortunately, removing context from information compromises the reading of data. Hayles suggested that some of the rejected theories would have contributed to an understanding of information theory that was more sensitive to gender, race and nationality.\textsuperscript{14} For example, Donald MacKay proposed a “definition that linked information with changes in a receiver's mindset and thus with meaning.”\textsuperscript{15} The computing power needed to process this definition was not

\textsuperscript{11} Ibid.
\textsuperscript{12} Ibid.
\textsuperscript{13} Hayles, 19.
\textsuperscript{14} Ibid.
\textsuperscript{15} Ibid., 18.
available at that time, so Shannon’s more efficient and context lacking definition became the logical choice.\textsuperscript{16}

In her work, \textit{System and Method for Predicting the Future} (fig 1),\textsuperscript{17} Antoinette J Citizen built a polargraph which predicted her actions and feelings an hour before they occurred. The system drew its data from a log of Citizen’s feelings and activities over six months. Despite the perceived menacing nature of online surveillance, the slow moving, ad hoc nature of the device undermined the use of algorithmic data collection technologies, making it appear less threatening and more of a curiosity.

This work attached a playful optimism to the unpredictable moments of a person’s life. The uninspiring content of the log and the hand-written manner in which it was displayed, made it more like a personal calendar a viewer might stumble upon—of little interest to anyone beyond its own subject. Indeed, most people’s activities on the Internet and in real life, are uninteresting at the best of times.

\textsuperscript{16} Ibid., 19.
\textsuperscript{17} Antoinette J. Citizen, \textit{System and Method for Predicting the Future}, 2014. Electronic Media, Dimensions variable. Antoinette J Citizen
Politics, Humanism, Posthumanism and Cthuluism

The largest problem that has occurred for these systems of data collection and their users is the amount of data that needs be filtered. In the article, *A Sea of Data: Apophenia and Pattern (Mis-)Recognition* (2016), Hito Steyerl claims that, “not seeing anything intelligible is the new normal,” and data analysts are overwhelmed by the amount of data they need to sift through. This has shifted the emphasis from the collection of data to the filtering of data.\(^\text{18}\)

In order to filter large amounts of data, a value needs to be placed on meaningful information. The remaining data is considered noise or ‘dirty data’. By attributing value to some pieces of data and zero value to others, the whole

picture will never and can never, be accounted for. It also imposes a value system that assumes what [and who] will be visible. Steyerl pointed to a situation where a demographic analysis of frequent hotel guests revealed that Middle Eastern teenagers were a significant proportion of the guests at luxury hotels. This was dismissed as dirty data because the data analysis team could not believe the findings. This is an example of human judgement colouring data filtration, but as neural nets learn behaviours from their users, prejudices like these have the potential to go overlooked indefinitely. This could create a feedback loop that echoes the prejudices of the system’s programmers with increasing effect into the future. Considering that only a few data sorting algorithms are used for most websites, a minor inconsistency could have a widespread impact.

Beside the issue of embedded, institutional prejudice, a more fundamental error is also in place. The values of liberal humanism are already thoroughly embedded into cybernetic (information management) systems. It is well documented that a deep belief in humanism was at the core of Norbert Weiner’s (the father of cybernetics) thinking. He saw the cybernetic human as being an extension of these values, embodying an autonomous, self-regulating humanist subject.

The ideals of humanism sprung from the Enlightenment, where the belief emerged that man was at the centre of the universe and in a constant struggle

19 Ibid.
20 Ibid.
21 Cathy O’Neil, Weapons of Math Destruction (Great Britain: Allen Lane, 2016), 23.
23 Hayles, 86.
with nature towards technological progress.24 Part of this belief is that through science, everything could be known and understood. 25 This meant that the earth and the entire universe could eventually be at the convenient service of mankind.

In 1972, Ihab Hassan announced an end to 400 years of humanism in response to new breakthroughs in scientific knowledge which disrupted the Cartesian ideals of the Enlightenment. 26 He argued that Vitruvian man now had a potential bionic competitor.27 It is also noteworthy that many scientific breakthroughs, especially in quantum physics, make the idea that all could be known and understood laughable.28 Instead, new technologies reveal humanity’s inadequacy in comparison to the Cartesian ideal. If humans are compared to the values of humanism, most would fall short of this ideal.

In *The Posthuman* (2013), Rosi Braidotti stated that the residual humanism attached to analyses of advanced technology places an over confidence in the moral intentionality of automated machines.29 This creates a blind spot in the analysis of many of the technologies that are in use to enable complex systems of advanced capitalism. She also claimed the enduring ideals of humanism made disposable those who did not fit the humanist mould, a fundamental problem, as humanism supposes the perspective of the privileged white European male.30 If humanist values are at the core of systems of quantified data collection, then the

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25 Ibid.
27 Ibid.
28 Pepperell, 161.
29 Braidotti, 43.
30 Ibid., 15.
record produced will accord to this lens, causing those who do not fit the ideals to be considered an anomaly.

In her text *Tentacular Thinking: Anthropocene, Capitalocene, Chthulucene* (2016), Donna Haraway confessed to tiring of posthumanism and opted to create an alternative perspective entitled Cthulusism. She also rejected the term Anthropocene since “Species man” is not responsible for the movements that have been most harmful to the planet but rather, the actions spurred by the philosophy of liberal capitalism. This prompted a new term—“Capitaloscene.” She further argued that solving the problems caused by this system is impossible to achieve within the self-same framework. The liberal capitalist structure needs to be abandoned and replaced with a mindset that incorporates the planet and other creatures on the planet as equal to mankind. She proposed a need to listen to the other creatures, particularly the tentacled invertebrate and adopt a perspective where man is no longer in a struggle against nature but instead needs to work with nature in order to survive.

The use of algorithmic data sorting programs are currently increasing and since they largely reflect the interests of capitalism, they also will have a particular ideological influence. It is inevitable that systems sorting the data will impose their own set of ideals. Further, given these systems are produced by private enterprise for the single intention of producing profit, these are the goals that will

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33 Ibid.
34 Ibid.
35 Ibid.
36 O’Neil, 218.
be enshrined within them. Unquestioned, this will produce another form of history, an indisputable data set that is filtered to match the mindset of liberal capitalism. The resulting history is likely to underhandedly reinforce a discriminatory, imperialistic, white patriarchal model where profit is the central value.

The distortion of information

In her text The Spam of the Earth: Withdrawal from Representation (2011), Steyerl argued that visual representation has transformed from empowering minorities with a voice to becoming an oppressive force that renders everyone traceable. Contemporary surveillance technologies and fear of inerasable, embarrassing online portrayals has ushered a widespread trend towards withdrawing from visual representation. She stated that spam imagery could become the stand-in representation of humanity. In this way, a data trace of spam will be the legacy of humanity. This version of represented humanity, produced by systems of quantified data collection, will outlive its users, replacing them with a new creature, a creature that only exists virtually and only slightly resembles its parent form; twisted doppelgangers whose social and political views are warped by the algorithms that filtered their activities.

In The Kiss (fig. 2), Hito Steyerl restaged an incident that happened in Bosnia in 1993 where a train was travelling from Belgrade to Bar in Montenegro; the train was stopped in Bosnia where twenty passengers were abducted, never to be

37 Ibid., 20.
39 Ibid.
40 Ibid.
seen or heard from again.\textsuperscript{42} During this event, one of the group was separated and the leader of the unit said “this is my brother” and kissed him before leading him away. No one knows who this person was.\textsuperscript{43}

Steyerl then restaged this event and captured it using a 3D laser scanner, designed to record crime scenes. This technology is intended to create the most accurate representation of a crime scene possible. It records the scene very slowly however, so any movement will be blurred. It also rotates from a central point, only capturing information that is visible from the central point, making it 2.5D instead of 3D.\textsuperscript{44} The limitations of the technology distorted the human subjects. The scanner caused ghost-like morphing and the absence of data hauntingly revealed holes in the human subjects where data could not be retrieved. This demonstrated how advanced technologies for collecting information often lack the ability to collect and represent all relevant information, but, as Steyerl said, “what it does capture, and strikingly so, is the ‘missing’ itself.”\textsuperscript{45}

The missing data became the voice of this artwork. The holes in the subjects revealed a deeply dehumanising effect resulting from current data collection technologies. Steyerl described the missing information from images as “white shadows.”\textsuperscript{46} In reference to \textit{The Kiss}, she demonstrated that new technologies, like 3D scans, make the absence of information dramatically obvious by leaving large gaps in representation. She compared it to a photograph, where what is


\textsuperscript{43} Ibid.

\textsuperscript{44} Ibid.

\textsuperscript{45} Ibid.

\textsuperscript{46} Ibid.
outside the frame is accepted to be missing but assumed to exist, whereas missing information in 3D technologies reveals a more imposing absence.\textsuperscript{47}

Figure 2  Hito Steyerl, \textit{The Kiss}, 2012. Installation, Dimensions variable. Overgaden. Sourced: http://www.feuilletonfrankfurt.de/2012/03/01/mengeles-schadel-der-aufstieg-der-forensischen-asthetik/

In Matthew Day Jackson’s \textit{Pieta} (fig. 3),\textsuperscript{48} he used a smart phone application to create a 3D scan from a plaster cast of Michelangelo’s \textit{Pieta}. He then used the scan to carve a copy of the copy from cement aggregate composed of various

\textsuperscript{47}Ibid.
\textsuperscript{48}Matthew Day Jackson, \textit{Pieta}, 2013. Concrete, ceramic, brick, thunder eggs, glass, steel, 216.5 x 197.2 x 117.5 cm. Hauser & Wirth.
refuse. The end result was an industrial looking, ill-defined and somewhat deformed version of the classic sculpture it came from. The origin of the statue is unmistakable and the final product still retains the classical composition. However, the ideal of the original is disturbed by its lack of definition and the random, brightly coloured streaks of refuse that litter its form. This work revealed the disturbing results of poorly handled data materialised. Through my project, a similar investigation occurred, creating distortions through a similar process and extending the exploration begun by Jackson’s and Steyerl’s artwork.

Figure 3  Matthew Day Jackson, *Pieta*, 2013. Concrete, ceramic, brick, thunder eggs, glass, steel, 216.5 x 197.2 x 117.5 cm. © Matthew Day Jackson, Courtesy the artist and Hauser & Wirth
Applying the same technique used in *Pieta*, Jackson made *Magnificent Desolation* (fig. 4)\(^{49}\) which depicts Auguste Rodin’s *Burghers of Calais* (1889)\(^{50}\) with similar deformations to his *Pieta* but cast in bronze.

Jackson explained that he:

> was re-casting Rodin’s narrative as a way to tell the story of the forced march of the astronauts en route to the moon and to suggest the incredible loneliness these men felt back on earth after essentially cheating death in the process of exploration.\(^{51}\)

Although the deformations in form were the work of photogrammetric algorithms, Jackson was able to draw metaphoric value from the work despite the lack of control the process entails.

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\(^{49}\) *Magnificent Desolation*, 2013. Bronze, 203.2 x 358.1 x 528.3 cm. Hauser & Wirth.

\(^{50}\) Auguste Rodin, *Burghers of Calais*, 1889. Bronze, 201.6 cm × 205.4 cm × 195.9 cm.

Power of the user

In Tiziana Terranova’s book *Network Culture: Politics for the Information Age* (2004), she described the Internet as an imperial force because it expands, constantly accommodating and absorbing new territory.\(^{52}\) It proclaims it benevolently welcomes differences but perversly claims everything it touches.\(^{53}\) "There is nothing to stop every object from being given an Internet address that makes it locatable in electronic space."\(^{54}\) With every new smart technology, the Internet touches users’ lives more, however, along with its welcoming voice and helpful instructions, comes its ever-watchful eye.

Hito Steyerl’s, *HOW NOT TO BE SEEN: A F**king Didactic Educational .Mov File* (fig. 5)\(^{55}\) which took the form of a tongue in cheek instructional video, lists and demonstrates several absurd methods to avoid observation in a world of mass surveillance. The work was inspired by a Monty Python sketch entitled *How not to be seen* (1970), in which people who have hidden from the view of the camera are discovered, then promptly murdered by the narrator of the skit.\(^{56}\) Steyerl’s version of this is set on an island with large patterns on the ground used to calibrate aerial and satellite photography. A robotic voiceover ran through the film, instructing viewers on several different methods to avoid detection in the age of digital technology, each suggestion more absurd than the last. The voiceover was accompanied by footage of a mixture of real and poorly rendered


\(^{53}\) Ibid.

\(^{54}\) Ibid.


virtual settings, with the artist at centre stage demonstrating each method while surrounded by dancing, faceless figures.

Avoiding detection became a joke. However, the comedy was undermined by the ongoing reminder of targeted drone warfare evoked by the calibration targets. The threat associated with discovery indicated by the original Monty Python sketch was also referenced in title of the artwork.

The absurd nature of the piece highlighted the vanity of attempting to avoid detection in a surveillance saturated world. It also dramatised the current mentality of the digital age; users of digital technologies have adapted and grown gradually used to the eye of surveillance. Negotiating surveillance has become an
active part of the lives of users of smart technologies. Users accept the eye of surveillance but also at times submit false information or make use of IP masking technologies to create moments of invisibility. This negotiation forms a part of users’ relationship with smart technologies.

While smart devices render users visible, they also empower them. In Jeppe Hein’s work 360° presence (fig. 6), a large steel ball rampaged around the gallery in a seemingly random pattern, destroying the space. Whenever someone entered the space, a motion sensor placed within the gallery triggered the motor propelling the ball, the ball would then stop moving when the person left the room. Viewers of the work were aware of the violent force in the room and the trail of destruction left in its wake, but were not aware they were responsible for the movements of the steel ball.

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58 Ibid.
Hein’s work illuminated the power of unintended effect. Anyone who chose to view the artwork became responsible for the destruction of the gallery. Through their passive observation of the artwork, viewers were empowered to transform the space (often unwittingly). Internet users face a similar situation; users are both empowered and disempowered through use of the Internet. Web consumption shapes the content users see and a continuous feedback loop creates an echo chamber of desire that then expands into the surrounding world and transforms it.
In the text *Too Much World: Is the Internet Dead?* (2013), Hito Steyerl proposed that the Internet is moving offline and inhabiting actual space rather than being bound to the virtual. She argued the proliferation of reconstituted images has created a mapping of the world that goes far beyond the boundaries of the planet and harkens a new age of post-production, reminiscent of soviet productivism. Steyerl was optimistic that the rules that govern the virtual world of the Internet could begin to operate in the actual world, causing the liquidity of open source community ideals to spread into resource management and the use and distribution of private/public goods and property. Contrary to this, given the liberal capitalist underpinnings of the neural nets that are filtering collected data, any flooding of the virtual world into the actual world will instead create a more complex web of hyper-capitalist consumer compliance. Accordingly, it will become increasingly difficult to disassociate from this.

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Chapter 2 – Artistic Methods

As a means of exploring the use and abuse of data in the reproduction of the human form, three methods were developed that would distort the human form due to missing data, imposed data, amalgamated and decontextualized data. The aim of these three processes was to exaggerate the type of distortions that could emerge in the human form when it was reproduced.

These three methods emerged from a series of experiments with the materials I was using and only coalesced as methods through a process of experimentation. The aim of using these three methods was therefore explorative, to see what they might reveal about the subject of this research project. Operating visually, they reshape and reinterpret data to produce new forms that are not true reflections of their original forms. Instead they often create monstrous distortions that render accurate reflections of flawed premises.

Method 1 – Electronic System

In Network Culture: Politics for the Information Age, Tiziana Terranova proposed a sinister scenario whereby the networking power of the Internet could be used to administer large scale ‘soft control’. 61 If people’s actions can be limited to simple binaries, a programmer could cause human populations to serve as organic computers, with each person being the equivalent of a diode switch. 62

She used reality competition television like Big Brother, Survivor or Pop Idol as examples because they trap participants into a competitive scenario where

61 Terranova, 127.
62 Ibid.
individuality is relinquished and both the public and their peers determine the length of their existence.\textsuperscript{63} This ensures that certain personality traits survive, while others are eliminated.\textsuperscript{64} This form of soft control relies on restricting participants into a binary structure of competition/collaboration.\textsuperscript{65}

Escaping this scenario means rejecting the conditions that enable the system.\textsuperscript{66} The only things stopping the subject from rebelling is the fear of the unknown, the possibilities outside of the system they are subject to (be it a reality television program or a social networking site) and the consequential transformations that are likely to follow.\textsuperscript{67}

To explore the dynamic between system users and their surveillance counterparts, I created an electronic system that responds to the actions of viewers within the gallery space. Titled \textit{Six cameras competing for dominance} (fig. 7) created real time video content of viewers that was distorted and manipulated by their own movements. Although viewers controlled the content displayed based on their movements, the perception of control was challenged since what they saw constantly changed in a seemingly random fashion—obscuring the fact that they were responsible for the results. If viewers become aware that they were in control, they may learn to manipulate the system, but, they would need to work out the system’s patterns and choreograph their movements in a manner that creates their desired results.

\textsuperscript{63} Ibid.
\textsuperscript{64} Ibid.
\textsuperscript{65} Ibid., 128.
\textsuperscript{66} Ibid.
\textsuperscript{67} Ibid.
The system used an Arduino control circuit that switched voltages fed to cameras based on triggers from motion sensors. This was then connected to six cameras which fed back to two screens. Each screen had three cameras fed into a single input. The camera with highest voltage at any given moment has greater dominance and displays with greater clarity. The images then swap and change as voltage varies to different cameras. Video image of participants warp and roll up and down the screen, twisting and combining with their surroundings. Sometimes there were extreme moments of clarity where one camera was truly dominant, but a slight movement would change this, distorting the video content. Most of the time images were distorted because the cameras were in a constant wrestling match as the odds weighed in and out of their favour, depending on viewers’ movements. Sometimes the apparent random combination of video created a beautiful, scrolling collage of the contents of the gallery.

Figure 7 Shane Nicholas, Six cameras competing for dominance, 2017, Electronic components, Dimensions variable.
The system cycles the voltage level to each camera sequentially beginning at 0 Volts through to 9 Volts. Each time a movement causes a sensor to trigger, the voltage goes up one step (0V-2V) until it cycles back to zero. There is no display indicating which voltage is being fed into each camera. In order to control the system, the subject would need to identify how each voltage appears when displayed which is complicated by multiple cameras being fed into each display. Although theoretically a person could purposely influence what is displayed, the effort it would take to work it out and choreograph movements that direct the system would be close to impossible because the sensors trigger at the slightest movement. This causes many changes to trigger simultaneously, obscuring any cause and effect relationship.

Although the system responds to its subjects systematically, the content display appears random. This was intended to metaphorically represent the apparently insurmountable obstacle of feeling some sense of control when using smart technologies. Theoretically a user could hack the system and have a greater influence on systems of surveillance that support these technologies, but most users have an insufficient knowledge of the system itself to do so and are already too bound in the system to go undetected.

**System test**

This system was tested on my peers in the Master of Fine Arts program at Victorian College of the Arts. It spurred a conversation surrounding the nature of the system and its abilities. Many thought the system intelligent and able to communicate and learn.
Initially, viewers of the work perceived the system as a threat. The bare circuitry and wires was reminiscent of cyborg impostors from 1980s science fiction films. However, after spending time with it, they not only perceived that the system had no way of recording or storing images, but they also began to recognise the vulnerability of a circuit laid bare before them, on the floor and exposed. Once the viewers of the work recognised that the system needed them in order to operate and the absence of movement caused the system to lay dormant, they kept repeating the phrase, “It needs us.”

It is noteworthy that viewers felt threatened by the possibility the device was capturing video but their anxiety was diffused when it was recognised that no drives or Internet connections were present that could record or transmit the video.

In 1976, Nam June Paik created an ongoing closed-circuit feedback loop of a Buddha statue observing himself through a television as a camera fed his image into the monitor in real time. Viewers also took more interest in the hardware than the video content created by the system. The viewers treated their experience of the artwork as an investigation, gathering evidence to understand the system in the room. Their distorted images merely served as information that the cameras were indeed capturing them as they circled the artwork.

Viewers also took more interest in the hardware than the video content created by the system. The viewers treated their experience of the artwork as an investigation, gathering evidence to understand the system in the room. Their distorted images merely served as information that the cameras were indeed capturing them as they circled the artwork.
The artwork was entitled *TV Buddha* (fig. 8) and directly compared material reality with the virtual reality of the screen-self. It played on the difference between three-dimensional reality that can be interacted with and a two-dimensional reproduction that exists within a screen. It also compared the static object with the constant movement and jitter of the video image. The physical presence of the hardware incorporated into the artwork became more important when viewing the work than the content of the screen because the screen was small and its content became predictable very quickly.

![Image removed for copyright reasons](image_url)


*Six cameras competing for dominance* (fig. 7) worked on a similar basis. Viewers of the work were confronted by their screen selves, a common

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68 *Nam June Paik, TV Buddha* 1976 installation, dimensions variable. Nam June Paik Estate.
occurrence in the 21st century. Users of social media potentially view themselves through an illuminated display more often than a mirror.

The work *Six cameras competing for dominance* (fig. 7) complicated this relationship. Within the screens display, viewers’ images were distorted and mixed with other angles, either of themselves or other objects or people in the room. The video streams produced were also always switching and changing, meaning that a viewer could receive a clear view of themselves in one instance and then it could immediately change to either a different image, a different view or their image could suddenly distort, stretch, contract or roll up and down the screen as other sensors were inadvertently triggered.

The third complication was the presence of the device itself. The screens and the circuit boards were only a small component of the system, with the connecting wires being the dominant form. The mass of stringy wires forced viewers to navigate around them due to concerns they could damage the artwork. The wires also caused the system to take on a bodily form, like a tentacled creature, that stretched into position and rested in waiting, like a predator waiting for prey. This caused the physicality of the system to take on a more dominant role than the screen content created by the system.

*Six cameras competing for dominance* (fig. 7) made viewers aware of their own image being displayed, distorted and amalgamated by a system they were entangled with. Through interaction and investigation, the vulnerabilities of the system became more pronounced. Not only does it rely on people being in the room in order to operate, it would also only take one misstep to potentially damage or kill the system.
Method 2 - Expanding Foam

As a method of physical data retrieval, I experimented with quick set expanding foam, using it to create loose moulds of objects within the studio. This involved employing a two-part foam mixture of equal portions, adding pigment while mixing to create coloured forms. Within minutes of mixing the two components, it swells, expands and hardens. The foam would also permanently fuse itself to any surface it came into contact with, apart from polypropylene plastic. To remedy this, parent forms were protected with plastic sheets which removed a layer of detail from the surfaces of the mannequins used create the moulds. Once the foam expanded and became rigid the parent form was removed, leaving a free standing, amorphous object in its place.

When viewed within the context of the studio and given clues to their origin, viewers could make sense of them as crude data recordings of some object. When the moulds were removed from the context of the studio, viewers observed them as standalone sculptural objects, making their parent forms inconsequential. This was a literal example of divorcing recorded data from process and context, where the record becomes the replacement for an unrecognisable parent form.

Pouring techniques

The initial method used for this process was more complicated and presented different connotations. It used a more accurate mould made from silicone or plaster of a parent form and the foam mixture was poured into it.

In this first method, the foam would erupt out of holes in the mould’s surface, as is evident in *Approximated boy* (fig. 9) causing the mould to buckle and the foam mixture to pool on the ground beneath until partially engulfing it. The plaster moulds fused with cured foam and became part of the sculpture. The moulded
material exceeded the boundaries of its container to create new forms, transforming the original. This spoke of the tendency for cybernetic theory to blur the boundaries between human/machine/animal. To quote Hayes (1999) “...cybernetics constructed humans as information-processing systems whose boundaries are determined by the flow of information.”

Figure 9  Shane Nicholas, *Approximated boy*, 2016, Plaster, pigmented polyurethane and epoxy resin, 72 x 60 x 106 cm.

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69 Hayles, 113.
The second method produced abstract forms that, although dependant on the original circumstances in which they were formed, took on forms of their own. Many viewers have seen these forms as bodily, like rough estimates of internal organs. This is partly due to the colours added to the mixture (rich pinks, blues and yellows) making them more akin to the plastic models of internal organs used for demonstration purposes in medical schools rather than actual organs.

The increased tendency towards abstraction of the second method spoke more to the content of this research because interpretation played a larger part in the viewers experience of the work. Viewers often compared the shapes produced by expanding foam to more recognizable objects. They might see a lung, a heart or parts of a sea creature, paralleling the activity of seeing shapes in clouds. This form of pattern recognition is pertinent in relation to Hito Steyerl’s article A Sea of Data: Apophenia and Pattern (Mis-)Recognition where she compared the mass of data generated through online surveillance to static fields where patterns are more likely to be projected onto the information rather than be read from them.70

In the work Polyurethane poured over boy mannequin, third attempt (fig. 10), a mannequin of a boy was entirely coated in plastic sheeting, before a large amount of polyurethane foam was poured over the form to the point where it pooled on the ground in three places. When the hardened foam was removed, the poured form was free-standing, the flow of data overtook the original form and became a new figure representing something very different from its parent form. Through an excess of material, a new monstrous form emerged that overtook and encapsulated the original. It could be compared to an overflow of dirty data that,

70 Steyerl, "A Sea of Data: Apophenia and Pattern (Mis-)Recognition."
by sheer mass, has not only masked its origins but has come to replace them. The new form is more akin to the abject native state of a shapeshifting alien than the boy mannequin that it emerged from.

Figure 10  Shane Nicholas, Polyurethane poured over boy mannequin, third attempt, 2016, Pigmented polyurethane and steel rods, 150 x 180 x 170 cm. Image credit: Brent Edwards.

The monstrous form of Polyurethane poured over boy mannequin, third attempt (fig. 10) combined with the amorphous, bodily forms of the other works
produced using this method such as *Pooled mass that resembles a heart* (fig. 11) are infused with a sense of the abject.

![Figure 11](image)

**Figure 11** Shane Nicholas, *Pooled mass that resembles a heart*, 2017, Pigmented polyurethane, 48 x 56 x 43 cm.
Frozen abject

Julia Kristeva, in *Powers of Horror: An Essay on Abjection* (1980), described the abject as the indefinable form that challenges the borders between the self and the other.

A “something” that I do not recognize as a thing. A weight of meaninglessness, about which there is nothing insignificant, and which crushes me. In the edge of non-existence and hallucination, of reality that, if I acknowledge it, annihilates me. There, abject and abjection are my safeguards. The primers of my culture… 71

It is thus not lack of cleanliness or health that causes abjection but what disturbs identity, system, order. What does not respect borders, positions, rules. The in-between, the ambiguous, the composite. 72

Rather than denying morality, the abject happily absorbs it. 73 It is “a terror that dissembles, a hatred that smiles.” 74 Through its ambiguity, abjection makes the subject feel like it is in perpetual danger. 75 Kristeva described the symptom of the abject as being a “non assimilable alien, a monster, a tumour because it has strayed outside the paths of desire.” 76

Mike Kelley described the slimy formless aliens that appeared in 1950s and 1960s science fiction films as psychosexual and relating to the abject because

72 Ibid., 4.
73 Ibid.
74 Ibid.
75 Ibid., 9.
76 Ibid., 11.
“they were genital stand-ins representing castration anxieties.” The undefinable enemy that could change form was especially threatening, when it was caught in between forms. He likened the witnessing such an event to walking in on his parents having sex.

The semi-formed nature of Polyurethane poured over boy mannequin, third attempt (fig. 10) is symptomatic of the process used to create it. The mould hardly represents the parent form it sprung from. Instead, amorphous distortions replaced crucial information, abandoning any resemblance to the original, causing a monstrous stand-in to become its replacement.

**Amorphous replacements**

The distinctive feature of the polyurethane forms is their ability to remain rigid once their armature is removed. *Crotch mould* (fig. 12) and *Stack of babies* (fig. 13) are good examples. Although the process of their creation depended on their parent forms, they hardly represent them. Their ability to stand alone, separate from their parent forms, makes them independent of their origins.

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78 Ibid.
Figure 12  Shane Nicholas, *Crotch mould*, 2016, Pigmented polyurethane, 52 cm x 431 cm x 19 cm.

Figure 13  Shane Nicholas, *Stack of babies*, 2017, Pigmented polyurethane, 90 x 46 x 44 cm. Image credit: Brent Edwards
If they served as replacements for their parent forms, it could only be in a world where knowledge of the parent forms is absent or half baked. There was a bronze fountain by Lynda Benglis that sat in The Irish Museum of Modern Art in Dublin, entitled *North South East West*, (fig. 15). The fountain heads were made up of four large, wavelike forms that squirt water at each other. They looked like four large, lunging amorphous aliens in conversation. The work invoked a world created by a computer program to be inhabited by humans, where large sweeping scans were taken of the human environment but where the system had trouble telling organic things apart. Therefore, the statues of humans look like large masses of organic tissue, arranged in the fashion of classical figurative narrative sculpture.

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Like amorphous replacements, the polyurethane forms in this project do not represent their parent forms and instead, present features of the abject in their indeterminate, tumorous appearance. Complicating this reading, they also feature attractive colours and smooth surfaces. Although mostly abject, they can also be attractive and alluring.

These forms were intended to represent the repressed anxieties of the Internet. They resemble the dirty data, the collected browsing that fails to serve the needs of its algorithmic overlords. So, this otherworldly mass of repressed human desire is locked away in a dungeon, deemed useless, dirty and meaningless. Like a mass of sub-conscious human desire, dirty data sits gurgling and hissing, repulsive by nature. Perhaps by approaching this amorphous mass, a reality could be found that exists outside the framework of liberal capitalism.
Method 3 – Photogrammetry, 3D scanning and 3D Printing

Scanning methods

Two different methods were employed to translate the human form from physical reality into a digital format: Photogrammetry and 3D Scanning using a Microsoft Kinect sensor. The initial method was photogrammetry software. As the name suggests, this is a technology that uses a series of photographs to capture every angle of an object which can then be loaded into software and processed using an algorithm to produce a 3D printable mesh.

The entire process can be completed using an average smart phone. The process is clumsy, however, so the 3D mesh is a distorted version of the original with details missing and random parts added in due to poor data interpretation. After 3D printing each scan was scanned again using the same application, which distorted the form further. Each iteration created further distortions created through erroneous data retrieval.

The photogrammetry software was extremely problematic and often hours of work would yield nothing. There appeared to be a fine line between error creation/retrieval and total shut down. Waiting to see if the program would allow work to proceed became a large proportion of the process. After doing some research into cheap alternative methods, I purchased a Microsoft Xbox Kinect sensor.

The Microsoft Xbox Kinect sensor (hereafter referred to as Kinect Scanner) was developed for skeletal tracking in video games but has since been widely adopted by amateur technicians for a myriad of uses, including 3D scanning. The Kinect Scanner projects an array of infrared dots and measures the amount of time for each dot to bounce back, calculating the distance between itself and objects in
front of it. The Kinect Scanner requires a fixed position while objects are rotated in front of it to enable scans at every angle.

This necessitated a rotating platform, which the subject must stand on while the scanner sat motionless, collecting data and building a mesh through processing software. The software imposed some limitations upon the process, an entire human body could not be scanned at one time and instead needed to be scanned in separate vertical sections. These sections were later combined into a whole. The scanner was accurate in some places but added and subtracted matter in other areas, making it difficult to discern which lumps and bumps belong to the subject and which were introduced through the process. Combining separate scans into one also produced a double-up of some features like hands and arms, but the inaccuracy of the system made it difficult to distinguish what types of extra body parts were added. As this exercise was a test to see what distortions would be introduced by the process, the scan was not cleaned up at all as is evident in the 3D mesh for *Scanned Figure with Arms Outstretched* (fig. 19).

Using this process to reproduce a representation of a subject, allowed the hardware and software to alter the subjects’ original form, adding erroneous data and subtracting some identifying data. The distortions caused by information gaps, combined with erroneous additions, created an inaccurate depiction of the subject, but also transformed the subject into an accurate representation of what the technology, in this case, was able to see. In this way, the work operates as a metaphor for the way data is fed back by imperfect data processing systems and reflects a warped version of what it records.
3D Printing

The 3D printing method for this project used a Fused Deposition Modelling (FDM) process. This heats plastic filament to melting point, then extrudes it in lines, building up connecting layers until a three-dimensional object is formed. As the system relies on having a previous layer to build upon, support structures need to be built for any areas that stick out horizontally. When rescanning the resulting 3D print, the automatically generated support structures were included, becoming another digital additive.

The initial prints were created using a standard FDM 3D printer which was limited in scale to a maximum printing volume of 200mm³. Later, a large format 3D printer was built, enabling much larger volumes of 400 millimetres wide and long, and 600 millimetres tall. Although these were sizable figures for FDM 3D prints, full scale life size prints were not possible without segmenting the form and reassembling it again later.

The initial experiments began by using the photogrammetry method to digitise a mannequin of a male child and employed a smartphone app. Immediately after retrieving the 3D mesh of the boy it was obvious that the figure of the child was already vastly different from the original. He had lost an arm in the process of being translated into digital content and his head was misshapen and lopsided. What was previously a naked figure, now appeared to wear a knee length skirt. The figure was reminiscent of Alberto Giacommetti’s *Standing Woman* (fig. 16)⁸⁰ eliciting thoughts of existential isolation.

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Figure 16  Alberto Giacometti, Standing Woman, 1959, Bronze, 686 x 140 x 270 mm, Tate London, Sourced: http://www.tate.org.uk/art/images/work/T/T00/T00776_10.jpg

Figure 17  Shane Nicholas, The first five iterations of photogrammetry experiment, 2016, Polylactide, Dimensions variable (each figure is around 15cm tall).
With each resulting edition, the figure lost definition and expanded in several directions. It appeared that the form would continue to lose definition until it became an undefined mass.

The distortions generally took on unpredictable additions and subtractions. The figure appeared to become more shapeless with every iteration, losing detail and becoming increasingly liquid in form. It appeared as though the process would keep filling in space until a cylinder resulted. Then, curiously, the sixth version grew horns in two places, causing a figure that was once reminiscent of the stripped down sculptural work of Giacometti to evoke Auguste Rodin’s *Balzac* (fig. 18).\(^8\) The figure had grown fat in the middle and appeared to have a protruding groin. Following this, the photogrammetry application failed and a more effective scanning method was adopted along with a less impersonal subject matter.

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\(^8\) Auguste Rodin, *Balzac, Modeled 1897, Cast by Alexis Rudier (1874-1952), 1925 (Bronze)*, 1897. Bridgeman Education.
To subvert the humanist tradition, the boy mannequin figure was abandoned and replaced with my own body. I posed my body with my hands simultaneously by my side and with arms outstretched in reference to Leonardo Davinci’s *Vitruvian Man*. The resulting figure was far from the ideal human form. The depth sensor could not keep up with the movement of the outstretched arms, so they appeared more like tentacles. My head moved slightly mid-scan so the figure had two distorted faces that were connected side by side. As the scan cut off before the hairline, the program added a random three-dimensional mass on top of the head of the figure like a large extravagant hairstyle.

![Figure 19 Shane Nicholas, Final 3D mesh for Scanned Figure with Arms Outstretched, 2017, Snapshot from STL file.](image)

To make the figure more human, it was printed life-size. This meant it needed to be segmented into eight sections and later put back together as the printer could
not print to that scale. Each section took around fifty hours of continuous printing and the entire figure used eight kilograms of plastic. Because each print would take so long, problems would occur in the printing. Due to a poorly mixed batch of filament and failing components in the 3D printer, the figure had obvious banding, with vertical bands displaying distinct contrasts in hue. It is not a perfect 3D print but as this work is about imperfect systems, I embraced the imperfections and chose not to replace the parts. The figure was printed in translucent magenta filament and no effort was taken to hide where each section begins and ends, making the process of fragmentation and reassembly a visible part of the work. The constructed figure was placed atop a large bulbous plinth of pink polyurethane foam, partly to unite it with the other work in this project and also to undermine the status assuming value of the plinth when attached to figurative sculpture.

Due to the scale of *Scanned Figure with Arms Outstretched* (fig. 20) the figure has an overbearing presence but is not intimidating. Blind and mute, part human, part mutant, the figure stands like a failed demigod atop its bulbous sinewy plinth. The bands across the figure, its polygonal appearance and the cross sections where the separate parts have been connected speak of the mechanical means of production, sitting in bold contrast to the organic shape and form of the figure and its plinth. The process of scanning and printing the human figure in this way makes the exalted icon of Vitruvian Man appear the equivalent to any other organic creature. It represents a failure of humanism where, despite the technological progress that allowed this work to be produced, the human does not appear distinctly human, instead it looks more like a failed, human/animal hybrid. It speaks of failures of science, like an ambitious experiment in gene splicing gone wrong.
Rodin’s fingerprints

Mike Kelley wrote that Rodin’s preoccupation with the fragment (rather than the whole) cemented his place in history as a proto-modernist. Rodin would sometimes make a figure, hack it to pieces, then put it back together, often interchanging parts from other figures. Because Rodin saw each fragment as a

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82 Kelley, 83.
83 Ibid.
whole, the act of fragmenting the figure was not considered violent but instead it was an extension of the form beyond narrative. Made up of fragments, Rodin’s *The Walking Man* (fig. 21) broke with the tradition of figurative sculpture by removing the head from the final form. This focused attention away from who the figure was and instead onto the bodily form of the figure.

![The Walking Man](image)

Figure 21  Auguste Rodin, *The Walking Man*, 1907, Bronze, 213.5 x 71.7 x 156.5 cm. Paris, musée Rodin, © musée Rodin - photo Christian Baraja.

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84 Ibid.
85 Auguste Rodin, *The Walking Man*, 1900. Bronze, 213.5x71.7x156.5cm. Musee Rodin.
In Russell Kelty’s essay *Raw matter: from Morceau to the readymade* (2017), he stated that Rodin had an obsession with the body and decontextualized fragments. Claude E. Shannon’s *A Mathematical Theory of Communication* (1948) decontextualized data and Donald Davies increased the speed of data transfer through the development of packet switching which fragmented information into separate packets of data upon sending to be automatically reassembled upon delivery. Both of these technologies underlie modern information processing systems including photogrammetry programs. So, by necessity, data is both decontextualized and fragmented in order to reconstruct a digitised three-dimensional mesh taken from the original form. In light of this, it then becomes understandable that the erroneous attributes created through these processes so often evoke reminders of Rodin.

However, the 3D scans created using the depth sensor of the Kinect scanner take on an a more fluid, organic abstract quality. As is visible in the work *Three different scans of the same figure* (fig. 22), the shape and form of the figure has taken on the quality of a natural formation like barnacles or coral. These figures only slightly resemble the human figure and appear as though they were once human but have been claimed back by the earth, particularly the sea. This evokes the writing of Donna Haraway:

> We are at stake to each other. Unlike the dominant dramas of Anthropocene and Capitalocene discourse, human beings are not the only important actors in the Chthulucene, with all other beings able simply to

87 Ibid., 71.
react. The order is reknitted: human beings are with and of the Earth, and the biotic and abiotic powers of this Earth are the main story.\textsuperscript{89}

Interestingly, both photogrammetry and depth scanning technologies appear to amalgamate organic matter, making no distinction between human, animal, microbe or plant. Comparing the two technologies, there is a clear aesthetic difference between them, but rather than being an extension of the human hand, they are instead an extension of the human mind.

This marks the nature of the fingerprint as the key difference between Rodin and algorithmic scanning technologies. In \textit{The Gates of Hell} (fig. 23),\textsuperscript{90} Rodin’s finger marks are clearly present, to the extent that another person can insert their own fingers to feel a connection to the artist. This creates a connection between past and present, and a human connection to Rodin. In contrast, there are no

\begin{flushleft}
\textsuperscript{89} Haraway, ”Anthropocene, Capitalocene, Plantationocene, Chthulucene: Making Kin.”
\textsuperscript{90} Auguste Rodin, \textit{The Gates of Hell}, 1880-1917. Bronze, 600x 400x100cm. Kunsthaus.
\end{flushleft}
finger prints created through scanning technologies. Rather than the distinctive and empowering finger marks of a great artist, there are now no finger marks at all and what once were the fingers of a man, have now become a tentacular mass.

Figure 23  August Rodin, Detail: *The Gates of Hell*, 1880-1917, Bronze, Rodin's fingerprints (left of centre).
Chapter 3 – Conclusion: The Culmination of three systems

Common threads

Creating Boy mannequin and five babies – variation 1 & 2 (fig. 25), began with posing a mannequin of a male child and attaching five baby mannequins to it. The arrangement was then draped in plastic wrap before polyurethane foam was poured over it. After the foam hardened, the figures and plastic sheeting were removed, leaving only the poured forms behind.

Figure 24    Shane Nicholas, Progress images for Boy mannequin and five babies – variation 1 & 2, 2017.
The foam mixture drizzled down the mannequins, finding pathways amongst the bumps and crevices until it ran out or pooled on the floor. The candy coloured forms spoke of expansion, retraction and gravity. Frozen in situ but not dormant, there was no hint of the mannequins that initially filled the space. Instead, a new reality was created that was slightly disturbing, but also attractive, abstract and tentacular.

Similarly, the wires of *Six cameras competing for dominance* (fig. 7) lay stretched out across the room, like an arachnid or an octopus, waiting for prey. The arms in *Scanned Figure with Arms Outstretched* (fig. 20), are like strange tentacles. The face of the following scan, *Second scan of standing figure* (fig. 26)
also appears to be covered in drooping tentacles. The following scans, *Three different scans of the same figure* (fig. 22), feature pits and crevices eroded by data loss and organic growths where data gaps have been bridged causing the figure to appear like a man-coral hybrid. The power of gravity and the appearance of tentacles and coral formations are recurring features of these works.

Figure 26  Shane Nicholas, *Second scan of standing figure*, 2017, Polylactide, 150 x 60 x 60 cm. Image credit: Vivian Cooper Smith.
Evocations of tentacles and coral reefs mark a common thread that unites the three methods, but another important consideration is the intense hues imbued in both the polyurethane and the 3D printed models. The splitting of the video signal in *Six cameras competing for dominance* (fig. 7) at times also caused concentrated hues of the RGB system to be displayed before new movements chopped and changed the image displayed on the screen. Indeed, chopping, fragmenting and dismemberment is another common thread throughout the three works—either implied through the organ like quality of the works as in *Pooled mass that resembles a heart* (fig. 11) or vital to the process in the work *Scanned Figure with Arms Outstretched* (fig. 20).

**Colour, Dismemberment and Spaces In-between**

Intense, artificial hues of imbued colour feature heavily in the works for this project. Mike Kelley described the use of colour in art as sitting uncomfortably “between sign and signified.” Because the materiality of artworks belies their function as a representation, colour has become “one of the most loaded signs of the quotidian.”91 Kelley cited a general aversion to colour in figurative sculpture that occurred between the entire nineteenth century, which the essentialism of Modernism did little to change.92 Kelley argued that the general perception of painting figurative sculptures was that it was perverse, because it served deception.93 He also believed the (then current) sculptures of Bruce Nauman and

92 Ibid., 79.
93 Ibid., 81-82.
Jasper Johns re-examined those tensions through their use of monochrome colouration.\textsuperscript{94}

There are parallels that can be drawn between the work of Bruce Nauman and the series of work produced in this project. Nauman made a series of works based on negative space. He made casts of the space in-between objects, one example is \textit{A Caste of the Space Under My Chair} (fig. 27)\textsuperscript{95}. Cast in concrete, a heavy, inflexible material filled a rarely considered space that would have expanded and contracted between the artist and the ground as he shuffled in his chair. Filling this non-space created an object that was descriptive of the objects surrounding it (the shape of the chair). It was also not recognisable without the title and could have been mistaken for a ponderous minimalist sculpture. Light hearted but physically heavy, instead of being conceived aesthetically, it was a decontextualized measure of space. This makes it have more in common with my polyurethane moulds than the fallen painting series by of Lynda Benglis although her wave sculptures are comparable, which she described as “a frozen, kind of, liquid form.”\textsuperscript{96}

\textsuperscript{94} Ibid. p.82.
\textsuperscript{95} Bruce Nauman, \textit{A Cast of the Space under My Chair}, 1965 - 1968. Concrete, 45 x 39 x 37 cm. Kröller-Müller Museum.
\textsuperscript{96} Ian Forster, "Lynda Benglis Reunites with a Lost Fountain," \textit{Art 21 Magazine}, September 1 2015.
Five Pink Heads in the Corner (fig. 28) produced more parallels.\(^7\) Five bright pink cast heads were stacked on top of each other in the corner of a gallery. On first appearance, it could be an absurd gathering of severed heads, clambering on top of each other in an effort to lick the wall. Upon further inspection, it becomes clear that what looks like tongues are in fact, the tube used to allow the model to breath during the casting process, left in along with the nose plugs. Factors used in the creation of the work that would normally be removed have intentionally been left in to alter the reading of the work. The join lines and other

lumps and bumps caused by the casting process also remain. The work is informed by process and arrangement. The process of creating the casts gave character to the forms, it also gave the arrangement life, to campy, comical effect.

Figure 28  Bruce Nauman, *Five Pink Heads in the Corner*, 1990, Epoxy Resin and Fibreglass, 127 x 21.5 x 19 cm, Friedrich Christian Flick Collection, Hamburger Bahnhof, Berlin, Source: Phaiden Press Limited.

Like Nauman, the process of creating my work informs its presentation. The 3D printed works are a record of process where errors in scanning and printing are left in place to inform the reading of the work. Another major factor is the use of
colour, although pink does refer to the colour of skin from Anglo European descent, the hue of pink in *Five Pink Heads in the Corner* (fig. 28) is so intense that it loudly evokes its own artificiality. The colour is also monochrome, more like a puppet or doll than the skin of a human. Though the colours are not the natural colours of the materials, they are also not an epidermis. The colour is imbued during the process of creating the material and its colourisation is no less natural than the material itself. Though the materiality of Nauman’s heads contribute largely to their reading, their main evocation is of dismemberment.

When discussing Bruce Nauman’s cast heads, Kelley wrote:

> Everyone knows how the body is organized and how many of each part he or she has; this is a given and is never thought about. To become aware of these particulars, one must imagine oneself unwhole, cut into parts-deformed or dead.  

Dismemberment is echoed constantly through the works of this project. Through necessity, the traditional boundaries of the human body were transgressed multiple times and in several different ways. Bodies were sliced, dismembered, mutated and infiltrated, exposing its most vulnerable parts.

New technologies make internal organs more accessible than before. Doctors can now use a CT scan to reproduce 3D printed copies of our organs. Granted access to the correct files, a hobbyist could print copies of their own organs and adorn their house or give them as gifts. Like the artist, Rokudenashiko who distributed 3D printable files of her own vagina. The boundaries between the internal body

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98 Kelley, 82.
and the external world have shifted. In response to this, I created the work *Variations of the Artists Skull* (fig. 29), which begun with a 3d print made from CT scan of my head, with subsequent variations produced using the Microsoft Kinect scanner.

![Image of Variations of the Artists Skull](image)

*Figure 29*  Shane Nicholas, *Variations of the Artists Skull*, 2017, Polylactide, dimensions variable (skulls life size).
In Donna Haraway’s *Cyborg Manifesto*, she argued that the ideological boundaries assumed through humanism could no longer apply.\(^{100}\) There is no longer a clear distinction between man/animal/machine/object.\(^{101}\)

The breaking of physical boundaries usually involves either penetration or eruption, but those boundaries are inconsequential to information theory.

No objects, spaces or bodies are sacred in themselves; any component can be interfaced with any other if the proper standard, the proper code, can be constructed for processing signals in common language.\(^{102}\)

While, these penetrations of boundaries are merely virtual, it does call for an adjustment in how boundaries are perceived. Bodies are now more fragmented and less sacred than they were before information theory.

Despite the evocations of dismemberment in my work, its obvious artificiality undermines any comparison that could be made to actual reality. Although, these fragmented figures and amorphous shapes inhabit actual space, they are models drawn from reality using systems of model creation. Like the algorithms used to filter data sets, they create models based on collected data. A model is only a representation and it is a filtered reality because the entire reality contains too much noise to produce anything useful.\(^{103}\) These models interrogate the borders between the virtual and the actual, the collected and the dispersed and they do so by employing automated methods of abstraction that distort and fragment the human form.


\(^{101}\) Ibid.

\(^{102}\) Ibid.

\(^{103}\) Pepperell, 46.
Scale, Theatricality and the Tableau

Due to the tendency for viewers to project inventive interpretations onto poured polyurethane works like *Pooled mass that resembles a heart* (fig. 11) and *Boy mannequin and five babies – variation 1 & 2* (fig. 25), projecting visions of organs, elephants, gutted animals and various sea creatures or alien critters; a level of theatricality is inevitably implied. To embrace the theatrical presence of these works, a suitable arrangement would suggest an invasion or an occupied space. This approach created an impression of science fiction or B-grade splatter films. Embracing the theatrical and the tableau makes viewers more aware they are entering an artificial/crafted environment, evoking an alternative reality.

Ralph Rugoff, in his essay for the exhibition *The Human Factor: The Figure in Contemporary Sculpture* (2014) wrote:

> The theatrical ‘presence’ of figurative sculpture, of course, derives in large part from the way that it mirrors our own physical form and solicits our irresistible anthropomorphic impulse to project aspects of our mental life onto any object in which we discern a semblance of human features.¹⁰⁴

Rugoff argued that contemporary sculpture often plays on the use of theatricality to “contaminate” the viewers experience of the gallery to bring attention to the *scripted role* viewers play when observing artwork.¹⁰⁵

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¹⁰⁵ Ibid.
Two recent examples of a successful use of theatrical presentation were Katja Novitskova’s and Roberto Cuoghi’s exhibitions in the Venice Biennale (2017). Exploring concepts surrounding data driven perceptions and problems in reproducing the human, both artists opted away from a traditional presentation to one that draws from the tableau.

Katja Novitskova’s exhibition entitled *If only you could see what I’ve seen with your eyes* (2017) addressed “the relationship between the domain of seeing, big data-driven-industries, and ecology in times of biotic crisis.” The exhibition featured several rooms filled with electronics, large scale two-dimensional cut-outs of CT Scans and insect larvae, combined with dramatic lighting and wire strewn about, connecting the works. Viewers of the works were forced to negotiate around the objects, wires and electronics as though visiting but never belonging to a space inhabited and dominated by the artworks.

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Figure 30  Katja Novitskova, *If Only You Could See What I've Seen with Your Eyes*, Installation views, Estonian Pavilion, Venice Biennale 2017.
Roberto Cuoghi’s *Imitation di Cristo* (2017) turned the exhibition space into a factory for reproducing figures of Christ. Coughi injected organic material into a mould and then transferred the sculptures into various chambers designed to halt their inevitable decay. Viewers could enter the chambers and witness the distorted figures in their various states only to be eventually confronted by figures of the most advanced state of decay, crucified to a wall at the end of the space. The figures appeared alien, but their form and scale was clearly human; witnessing the process of reproduction became a violent, haunting experience like entering the laboratory of a mad scientist. In both of these cases, scale, theatricality and the tableau were central to carrying ideas across to viewers.
Figure 31  Roberto Cuoghi, *Imitation di Cristo*, Installation views, Italian Pavilion, Arsenale, Venice Biennale 2017.
In the catalogue essay for the exhibition *The Uncanny* (1993), Mike Kelley argued that smaller than life size figures “invite the viewer to project onto” them. Like a child playing with a doll, “the doll becomes simply an object to provoke daydreams, its objecthood fades into the background.” In contrast, people can empathise with life size figures because they can relate to their physical scale. Rugoff, when explaining the choice to only include human scale figurative sculpture in the *Human Factor* exhibition stated: “Their human size imbues these objects with a ‘presence’ that seems to mirror our own; it gives them the capacity to theatrically confront us, even spook us.”

The scale of the 3D prints in this series was intended to cause viewers to identify with and project onto the distorted figures. The largest 3D printed figure present in the exhibition *Scanned Figure with Arms Outstretched* (fig. 20) towers over the other works on its tumorous pink plinth. The most human like and the clearest reference to humanism was therefore the figure viewers could empathise with the most. Further iterations scanned from it were smaller scale, more like models, intended as figures that the viewers can project their imaginations onto.

Also at adult human scale was *Polyurethane poured over female mannequin* (2017), which is a pink, four legged, tentacular, formless, oozing creature with a gaping mouth, challenging feelings of empathy with evocations of the abject shape-shifting monster. The other foam blobs and refuse that surround the space have artificial meanings and narratives projected onto them while *Polyurethane poured over boy mannequin, third attempt* (fig. 10) sits disturbingly in-between, extending evocations of the abject. *Six cameras competing for dominance* (fig. 7)

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107 Kelley, 75.
108 Ibid.
109 Ibid.
110 Rugoff, 9.
layed on the floor to ensnare viewers into the work, transferring their twisted and fragmented representations onto its screens as viewers were forced to step around it.

The artificiality of the brightly coloured forms that filled the space presented an alternative reality. A world that emerged from common reality but has distorted, becoming a monstrous dimension of filtered truths and warped perceptions.

**Sacrificing control to yield more meaningful results**

The artworks produced in this project have been born from processes of calculated risk. The results contain a vitality derived from this approach. As mentioned in the introduction, in a previous project entitled *Mutations* (2015), I attempted to tackle similar concepts through painting and figurative sculpture. The idea was to interfere with traditional approaches to figurative painting at the fundamental level, either through a loose approach to the grisaille layer or by using distorted source imagery. The results were intended to be more potent through an undermined process. The process, however was too conscientious to properly allow the results to signify these interferences. For example, in *Skater* (fig. 32), it was not evident that the distortions in the subject matter resulted from the abovementioned interventions but could simply be aesthetic choices made at any time.
Understanding that process driven distortion was not conveyed well through the paintings, I developed the beginnings of the poured polyurethane method of this project, creating semi-moulded, semi abstracted figures like *GamerGate 1.4* (fig. 33). This approach introduced unforeseen elements, mixing truthful depiction with random abstraction.
There was also a brief attempt to use painting to engage the subject of this research, introducing further, different complications at fundamental stages but again, the results did not convey the process. Instead, it became evident that systems based, sculptural work was the required means of researching this topic. By using systems that create the artwork at arm’s length or with minimal intervention by the artist, the distortions in the subject began to inform rather than reflect the analysis of improper data treatment.

By allowing methods of data treatment to be the mechanism that drove the alterations in the forms, figures emerged that were more evocative than a mere illustration. As each method produced different results due to the way data was handled, the figures demonstrated how a system’s filter and processing methods produce a model that displays different characteristics than its origin.

The key to this process was to sacrifice significant levels of control. Though I had a broad semblance of control over the works and final choice over what was displayed, the details were largely left up to chance. Most works were planned, but improvisation was inevitably employed as what resulted could not match what was initially sketched. Working this way did at times result in wasting time and materials, but more often than not, it yielded exciting results that could otherwise not have been achieved.

This marks a new direction for my work, with expansive opportunities. By taking a step back and allowing mechanisms to determine the details, the voice of the artworks was not buried under interventions by the artist. The most provocative parts of this series therefore emerged from the elements I could not predict. This injected a vitality into the subject matter derived from a process of constant discovery.
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Appendix

List of works presented for the final exhibition

Second scan of standing figure, 2017, Polylactide, 150 x 60 x 60

Six cameras competing for dominance, 2017, Electronic components, Dimensions variable

Boy mannequin and five babies – variation 1 & 2, 2017, Pigmented polyurethane, dimensions variable

Scanned Figure with Arms Outstretched, 2017, Polylactide and pigmented polyurethane, 230 x 180 x 130 cm

Polyurethane poured over boy mannequin, third attempt, 2016, Pigmented polyurethane and steel rods, 150 x 180 x 170 cm

Two poured objects entwined, pigmented polyurethane

Pooled mass that resembles a heart, pigmented polyurethane

Crotch mould, 2016, Pigmented polyurethane, 52 cm x 431 cm x 19 cm

Pooled mass that resembles a heart, 2017, Pigmented polyurethane, 48 x 56 x 43 cm

Three different scans of the same figure, 2017, Polylactide, Dimensions variable (each figure is 60cm tall)

Stack of babies, 2017, Pigmented polyurethane, 90 x 46 x 44 cm. Image credit: Brent Edwards
Polyurethane poured over figure above stairwell, pigmented polyurethane

Variations of the Artists Skull, 2017, Polylactide, dimensions variable (skulls life size)

Figure 34  Two poured objects entwined, pigmented polyurethane Image credit: Brent Edwards
Figure 35  Polyurethane poured over female mannequin, pigmented polyurethane Image credit: Brent Edwards
Figure 36  Polyurethane poured over figure above stairwell, pigmented polyurethane. Image credit: Brent Edwards
**Installation shots**

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Image credit: Brent Edwards
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