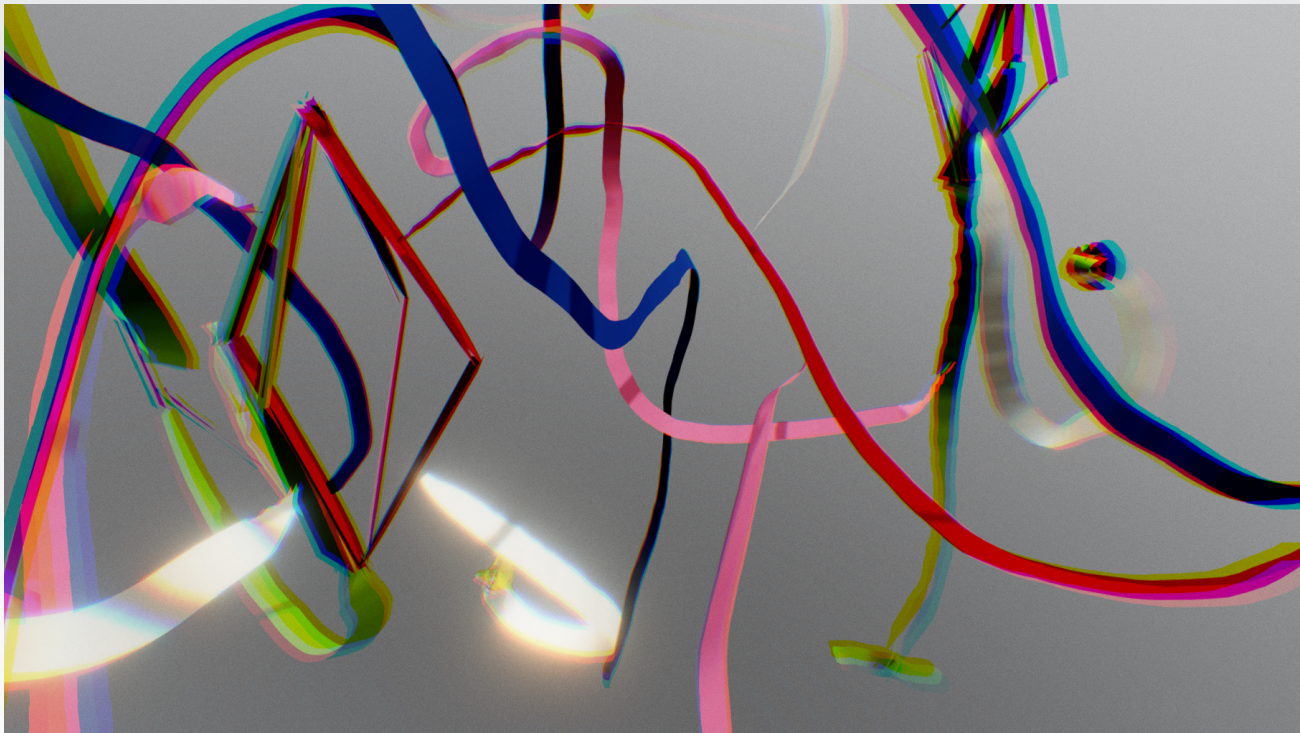


Design Fables

reconfiguring emerging
technology narratives



Holly Grover

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fulfilment of the requirements for the degree of Master of Design

Abstract

The purpose of this interdisciplinary project is to investigate how a design-led approach could generate critical and creative narratives about emerging technologies. This provocation led to the creation of a *design fables* methodology and a small collection of cosmologically situated stories that take the form of prototypical artefacts, these are contextualised by fable-like stories.

The contextual review identifies dominant Silicon Valley narratives as technological solutionism, computational thinking, and considerations of technology as innately neutral. A performative, new materialist understanding of how narrative forms is used to identify approaches for ethical subversion of these narratives. Reflective design practice is employed to test and inform the contextual discussion, and this oscillating process led to metaphorical new materialist concepts and practices becoming both literal and material. The design process uses playful and attentive mediation practices to find spaces for creative reworking of technology narratives. World-building practices are then used to make space for the repositioning of technological discussion in social and cultural worlds, aided by the narrative elements of fable and fairy tales. Informed by the position of the researcher-practitioner, the fables apply an anti-colonial relationality as a guiding cosmological principle for the design of this fictional world. The resulting stories work in this situated space to materially and structurally reconfigure emerging technology narratives both ethically and mythologically.

The contributions of this research arise from its transversal interdisciplinarity. Through the methodological construction of design fables, the research explores how generating and working in the cosmology-led medium of fables and folklore can create rich opportunities for affirmative and deeply situated critical design practice. Within this research, this process applied new materialist understandings both theoretically and materially to explore this further. The project exemplifies how new materialism can ethico-onto-epistemologically offer directive opportunities for practice-led research.

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Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the Acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

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Introduction

Design that has any hope of effecting change manipulates the organization as well as the narrative that attends it. How else can design exploit the powers of giant macro-organization strata with moves that are potentially sneakier or more politically agile? ... It may be a narrative that makes something contagious or that generates a Teflon surface of its own. It may have an emotional message that renders some power more vulnerable. Or it may have a surprising cultural bounce because of its irrationality, outrageousness, cuteness or violence.

Keller Easterling, architect, and writer, describing 'Medium Design' (2018)

This project investigates how practice-based research can generate critical and creative narratives about emerging technologies. Emerging technologies and stories about them are becoming increasingly ubiquitous in our lives and popular consciousness, especially the “Big Four” (Rao, 2017): Virtual and Augmented Reality (VR/AR), Artificial Intelligence (AI) and Machine Learning (ML), the Internet of Things (IoT), and Blockchain (particularly cryptocurrency applications).⁴ Commentators from academia, industry and government alike are concerned with how to not only discuss the impact of these technologies but how to potentially redirect development and use in a way that minimises harm and benefits society - and the planet (AI Forum, 2018; Monboit, 2017; The RSA, 2017).

Now is a particularly malleable, relevant and important time to be creating stories about technology. However, this is also a subject which has no shortage of existing stories, and the contribution of new stories alone may not be helpful. Therefore, this project aims to contribute to this conversation through the creation of narratives and a suitable methodology, with the well-established understanding that design as research - as an act of making and working through problems in practice - can reveal new insights and is a learning experience in itself (Mäkelä, 2005; McNamara, 2012; Muratovski, 2016).

As Easterling suggests, effective design must aim to influence both the medium and the narrative formed within, perhaps resulting in “surprising cultural bounce” - much like a story set in a fairy tale world, told and retold across generations and worlds. Fables and fairy tales inspire the eventual forms of this research, which has two key outcomes: Firstly, the development and demonstration of a *design fables* methodology as a frame for constructing situated stories about emerging technologies. Secondly, the creation of a small collection of design fables, a prototypical series of narrativised artefacts that are moralising and aetiological; which, like all stories, are open for interpretation and re-working. This study involved an interdisciplinary investigation,

⁴ With the arguable addition of cyborg-like advances in biotechnologies (Harari, 2016).

bringing together perspectives from digital and popular cultures, critical humanities, design research, communication strategies, as well as literary discussion of fables and fairy tales. The exegesis elucidates how this methodology and practice was developed, using a semi-linear form.

The exegesis begins by outlining an important meta-method for the research and then positions the researcher in relation to emerging technologies and the surrounding discussion. The contextual review then narrows the scope of the problem through providing frameworks for understanding the research problem and way forward. This is followed by further situating the research and researcher. The next section introduces a *design fables* methodology and its corresponding methods. Finally, the discussion of practice shows how a small collection of design fables are made as a critical and creative response to the research problem. The learnings from the practice are then evaluated and analysed to outline the outcomes and insights gained from this research.

Due to the constraints of a 15,000-word exegesis, the discussion is limited to core arguments, supported by limited yet specific examples. Further examples and understandings are interrogated within and through the practice itself. The thesis scope is focused on the creation of the methodology and practice-based responses to the research problem, and excludes the measurement or assessment of outputs, such as audience testing and promotion of the work. Emerging technologies are often referred to in sources and within this exegesis simply as ‘technology’ or the vernacular ‘tech’. These umbrella terms are used to describe new digital technologies and how they integrate both into older technologies and our lives – i.e. the increasing use of machine learning algorithms in healthcare, justice, and employment (Bogost, 2015; Elish & boyd, 2018).

Meta–Method: Transversal Mapping

Transversal mapping as a method is outlined at the beginning of the exegesis because it applies to the contextual review as well as the practice. As will be shown throughout the exegesis, mapping practices are crucial to the thesis. Mapping is enacted through both language and diagram in the contextual review, thereby demonstrating how the research problem could be strategically approached from a design perspective informed by interdisciplinary insights. This includes situating the researcher in relation to the research problem. Philosopher Rosi Braidotti (2018), a leader in the theoretical/philosophical field of new materialism,⁵ uses the term “transversal”⁶ to describe a method of affirmative creation found and generated in interdisciplinary studies. Metaphorically “a transversal line cuts diagonally through previously separated parallel lines” (Palmer & Panayotov, 2016). The resulting disintegration of barriers between areas of study does not assimilate differences, but rather creates new possibilities. This is highly applicable to the critical and creative aims of this research. Additional new materialist concepts and methodological tools will be transversally woven into the exegesis.

Visual and diagrammatic representations of research processes elucidate and provide direction and shape to the practice. As a working tool, the maps presented in the exegesis are of varying detail, style, and quality, as they are primarily intended to progress the research rather than present it. Finally, a more prosaic mapping and formatting of the research process has been used to capture, group, and reflect on prototypes, provide an account of the research itself in linear time, and thematically group and take notes on readings. This has mainly been done through Trello, an online app, as seen in the screenshots of Figure 2 and 3.

³ New materialism can be broadly understood as a move to re-prioritise and recognise the ‘matter’ or the ‘material’ of the world that is argued to be either neglected or subservient in the hegemonic philosophies of linguistic representationalism and idealism, and the techno-political system of neoliberal surveillance capitalism (Dolphijn & van der Tuin, 2012; Morozov, 2019). As a philosophy that seeks to reinstate the socio-political importance of the material, it has been fruitful for the arts and humanities.

² A term Braidotti adopted from philosophers Jacques Deleuze and Felix Guattari.

Contextual Review process

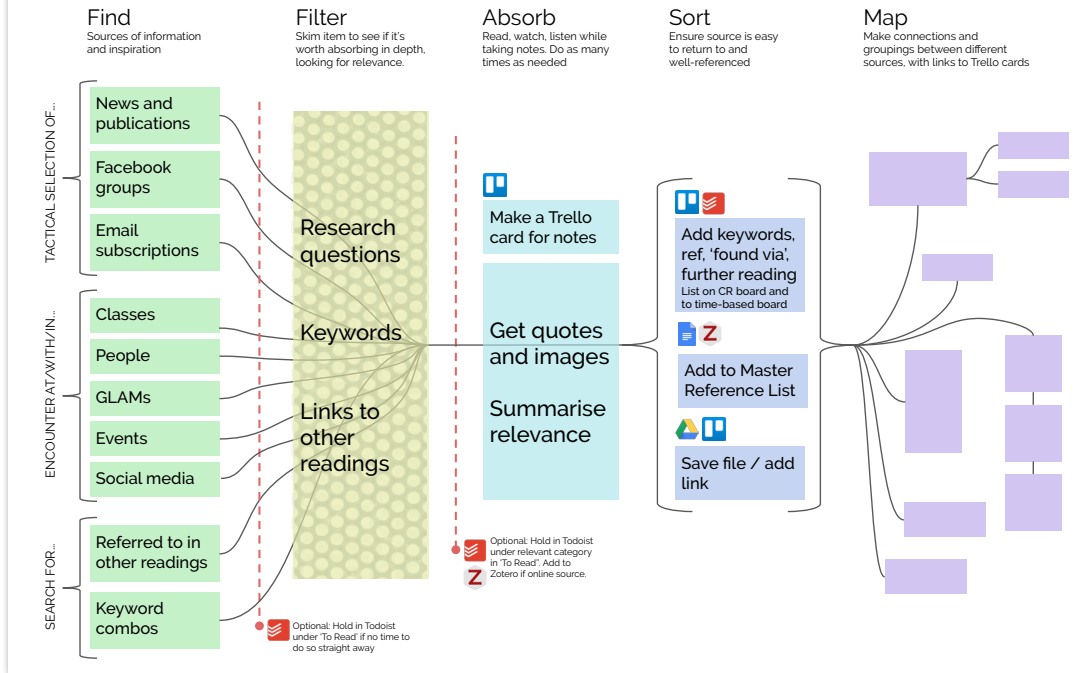


Figure 1. Contextual Review process. Initial diagram. Grover, H. (2018).

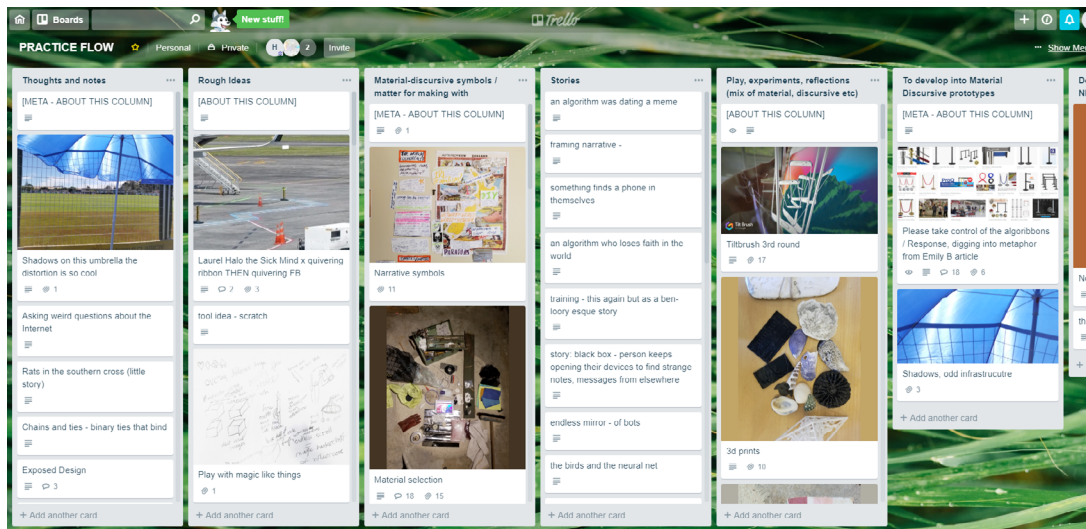


Figure 2. PRACTICE FLOW Trello board (screenshot). Grover, H. (2019).

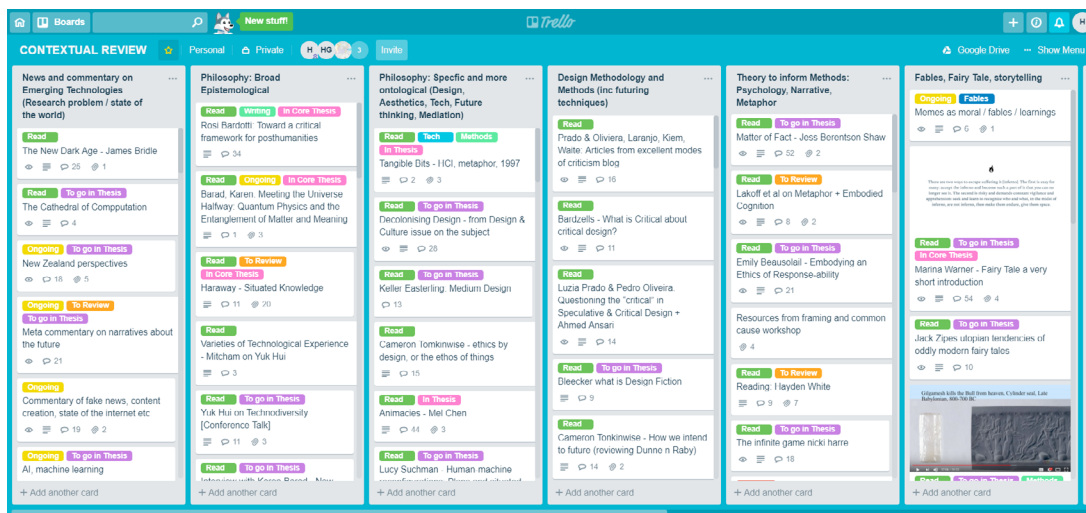


Figure 3. CONTEXTUAL REVIEW Trello board (screenshot). Grover, H. (2019).

Situating the Researcher

Technology has long been a part of my life, and I've watched with fascination as its stories have changed and certain ideas have become pervasive. I am a young(-ish), female, Pākehā New Zealander living in Wellington, my hometown. I grew up alongside the internet and networked globalisation. I am just old enough to remember the isolation of living on islands in the South Pacific, yet young and fortunate enough to have this geographical isolation dilute thanks to increasingly fast internet connections and neo-liberal free trade agreements, among many other phenomena. I moved from landline to dumb phone to smartphone. Although I have the privilege of not thinking about it in my everyday life, I am materially connected to developers in Silicon Valley, child cobalt miners in Congo, factory workers in Shenzhen, and the critters residing in e-waste landfills. I am not an innocent observer, rather, as Braidotti describes “immanent to the very conditions we are trying to change” (2018, p. 12).

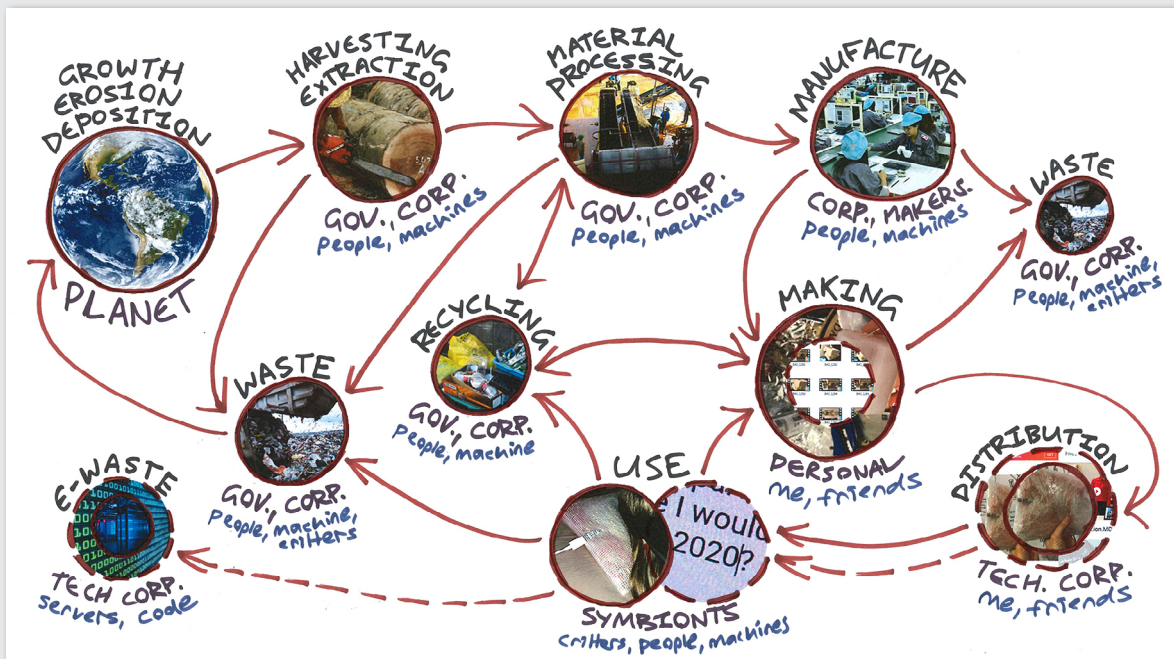


Figure 4. A simplified version of a complex chain of technology-based practice. Grover, H. (2017). Absent are phenomena such as global trade mechanisms, the histories and ongoing consequences of colonisation, the neo-colonial nature of technological extraction (Parikka, 2016) and the uneven impact of climate change.

Furthermore, I've made my living working explicitly in and with technology and “digital”, often contributing to and attempting to accelerate technological narratives – i.e. marketing the ‘disruptive’ idea of ‘the cloud’ or filling social media with tactical ‘content’. The roles I have held mean that I have frequently engaged with emerging technologies as they arise (albeit as much as one can from within Aotearoa New Zealand). This includes testing and spending time in VR and AR environments, using tools such as 3D scanners and printers; attending industry discussions and conferences; having conversations with software developers, data scientists, researchers, and technology ‘evangelists’. Being part of this world often meant getting swept up in its stories - both cynically and sincerely.

It is from this embedded position that I began to approach and relate to the research problem; a situatedness that is cosmologically elaborated on following the contextual review.



Figure 5. Being a ‘glasshole’. Trialling Google Glass (AR). Grover, H. (2014).



Figure 6. Trialling Microsoft HoloLens (Mixed Reality). Pokel, N. (2017). From “Holographic Lava-bombs: An Exploration Into Mixed Reality Education,” by N. Pokel, 2017 (<http://www.aucklandmuseum.com/discover/stories/blog/2017/holographic-lava-bombs>). Copyright 2017 by Nils Pokel. Reprinted with permission.

Contextual review

Introduction to the Research Problem

“Face recognition in our supermarkets, algorithms pinpointing our varsity dropouts and robots taking our jobs: artificial intelligence is on the rise in our news.”

Colin Peacock, Aotearoa New Zealand media commentator (2018)

“The internet is the new public square. And it’s flowing with raw sewage.”

Leroy Beckett, Campaigner with Action Station (2019)

“I thought once everybody could speak freely and exchange information and ideas, the world is automatically going to be a better place. I was wrong about that.”

Evan Williams, cofounder Twitter & Blogger (Streitfeld, 2017)

This research aims to investigate how practice-based research can generate critical and creative narratives about emerging technologies. This can be broken into two sub-problems that require contextualisation. The first is how technology is currently discussed and understood in popular consciousness. The second is how this research can engage with that discussion critically and creatively. These two aspects are centralised throughout this contextual review.

Emerging technologies are framed as inevitable, consequential, addictive, disruptive, destructive; paradoxically being both the solution and problem, slightly or strongly deterministic, a mechanism for hegemonic control or a value-neutral tool, possessing agency or being incapable of it (so far). Few deny the sheer presence of these technologies and their influence on humanity, and this cacophony of discussion positions our present and near future as anywhere from a utopia to an impending doom (AI Forum, 2018; Bregman, 2017; Peacock, 2018; Rao, 2018). Finally, much of the discussion is anthropocentric, focussing on technology’s use by or impact on select groups of humans.⁴

⁴ Technology’s production, consumption, and waste processes can be seen as part of the uneven violence of the Anthropocene, with destructive impacts on non-human species, waterways, soils, as well as the communities who depend on and tend to these environments (Demos, 2018; Parikka, 2016; Solnit, 2015).



Figure 7. Collected screenshots of emerging technology stories from 2015 - 2019. Grover, H. (2019).

Unsurprisingly, the stories told about emerging technologies depend upon on who is telling them. The explanations for technology's influence and impact tend to be rooted in ideology and fundamental beliefs pertaining to how both technology and the world works ('Byron Reese - The Fourth Age', 2018). Aotearoa New Zealand policy and communications researcher Jess Berentson-Shaw (2018, p. 132) explains that:

Given the complex nature of values and beliefs there may be many different stories or narratives told in a society to explain specific issues. Some, however, will be more dominant. Understanding these narratives is key to helping create the conditions for people to see a new or less dominant story.

Therefore, while acknowledging the range of narratives, sub-narratives, and ideological standpoints, this contextual review begins by mapping out a connected series of stories that have been dominant in the West, particularly in Silicon Valley: the physical or at least ideological home of those who make, fund, and design the dominant technology platforms and systems⁵ (in particular, Facebook, Google, Apple, Microsoft, and Amazon, often referred to as the 'big five'). Following this discussion, a case study is used to show the strength and weaknesses of narrative itself (showing many other stories and artist responses in the process) and introduce a performative understanding of the research problem. Based on this contextual analysis, the final section of the contextual review paradoxically narrows and expands the aims of the research, showing the positions from which the practice can operate. Given the research is about the way people - as citizens, users, creators, designers, commentators, lawmakers - talk about technology, the contextual review draws upon a range of sources from industry, media, government, the arts, and academia.

5 Of course, it is not only technology companies that are driving the development and penetration of emerging technologies, as evidenced by the Chinese government's social credit system (Horsley, 2018), and the government-led, military origins of the Internet itself (Tarnoff, 2016).

Dominant Narratives

Of all the myths that solidified American hegemony over the past three decades, the myth of technology proved the most potent. It recast technology as a natural, neutral force that could erase power imbalances between countries. Technology was not something to be tinkered with or redirected; one could only adapt to it – much like one would adapt to the vagaries of the market, but with far less resistance.

Evgeny Morozov (2018)

In the Silicon Valley story, technological progress is inevitable, natural, apolitical and most of all, good (A. Beckett, 2017; Leetaru, 2018; Morozov, 2019; Tufekci, 2018). Technology is seen as a value-neutral tool (Mickens as cited in USENIX, 2018; Weissman, 2017) yet somewhat paradoxically a “force for good in democracy” (Zuckerberg, 2017, para. 10). In this instrumental view, the designer or maker of technology has no ethical responsibility, because they are merely doing the inevitable; codifying the existing world into an instrument or tool (Chan, 2016; Tonkinwise, 2013). Negative consequences such as job losses are necessary and temporary side effects of disruption, and technology will solve these growing pains in the steps towards a better world (Demos, 2018; Peacock, 2018). This is exemplified by the Singularity movement and its fringe cousin, Accelerationism. These libertarian concepts are evoked by those on the political left and right (A. Beckett, 2017; Taylor, 2017), who believe we need to accelerate technological disruption (the computation of everything, including biology) to the inevitable point where humans become integrated with AI (the singularity), creating super-intelligent, near-immortal beings (Bogost, 2015; Harari, 2016; Kurzweil, 2005). Art historian and cultural critic T.J. Demos (2018, para. 17) describes the central figure of this narrative, the anthropos, as:

... [the] ultimate self-creator, for whom no challenge—climate change, agricultural failure, artificial intelligence, planetary hunger, even death and extinction—will be beyond technological overcoming.

Joichi Ito, MIT Media Lab Director, labels Singularity as a “new religion” (2017, para. 6), in which the underlying belief is that “the world is ‘knowable’ and computationally simulatable” (2017, para. 8) - a belief that he and others argue has a theological hold on technology creators in Silicon Valley (Ito, 2017).⁶ This theological framing is echoed by others who argue that even outside of Singularity thinking, there is a widely held ‘faith’ that technology, technology companies, and computation will solve the world’s problems (Bogost, 2015; Naughton, 2017; Postman, 1992). This collection of beliefs forms a cohesive narrative, outlined on the following page, and visualised in Figure 8.

6 Some commentators accept the premise of computational thinking but have less rosy views of the consequences. Historian Yuval Noah Harari (2016) argues that our biotechnologies risk the creation of an Übermensch-like second species, resulting in an actual biological superiority between the haves and have-nots: in this case, the Luddites, who refuse technological development; or worse, those who cannot afford biological enhancement.

A Case Study in Narrative Collapse

Are America's technology companies serving as instruments of freedom or instruments of control?

Kevin McCarthy, Republican Representative of California, questioning Google CEO Sundar Pichai (as cited in Wakabayashi & Kang, 2019)

The strengths and weakness of narrative are illustrated through a case study about the concept of technology as a neutral tool, which demonstrates how this narrative shifts from dominant to recessive, changing the public perceptions of tech companies in the process (Hill, 2019; Streitfeld, 2018). Until recently, tech companies used the myth of platform neutrality as an excuse for not addressing issues of data privacy, fake news, addictive services, and hate speech (Newton, 2016; Thompson, 2017; Weissman, 2017; York, 2016). Issues with technology were problems with tech use and abuse, not the technology itself. They argued that to restrict content on their platform (beyond the likes of pornography) was to impose their view on users, restricting freedom of speech (Newton, 2016), evoking another powerful American and Western ideal (Morozov, 2018). This was further backed up by techno-utopian beliefs framing “the internet as a force of personal empowerment” (Cohen, 2018 para. 3). Geopolitical events from 2016 onwards have, however, rendered this story increasingly hard to believe. Shortly after the election of Donald Trump, it was revealed that user data from Facebook was illegally obtained (the exact details are disputed) by political data firm Cambridge Analytica, who then used Facebook’s hyper-targeted advertising tools to disseminate divisive political ads for both the Trump and Brexit Leave campaigns (Hern, 2018; RNZ, 2018). Furthermore, it was revealed that non-Americans, from Macedonian teenagers to Russian agents, were using tech platforms to create, disseminate, and profit from fake news and political propaganda concerning the American election (Frenkel, Confessore, Kang, Rosenberg, & Nicas, 2019; Isaac & Wakabayashi, 2017; Silverman & Alexander, 2016). These groups and individuals leveraged the algorithmic rewards for polarising content (Bridle, 2018; Horning, 2019; Streitfeld, 2018) and even organised protests via Facebook events to incite hate and confusion (Seetharaman, 2017).

The hands-off, ‘neutral’ approach of technology platforms backfired, implicating the associated companies in a worldwide undermining of democracy (L. Beckett, 2019; Hern, 2017; Pegg, 2019). This illustrated how “the techno-utopian idea of a neutral platform can sometimes create a dystopia for others” (Weissman, 2017, para. 10). Extensive criticism and inquiries from governments, citizens, and the media has resulted. Tech giants and their technologies have been pulled into the middle of highly politicised debates; perceptions of neutrality have crumbled (Naughton, 2017; Tufekci, 2018; York, 2016). As theorist Donna Haraway (as cited in Kunzru, 1997, para. 31) has long maintained:

Technology is not neutral. We’re inside of what we make, and it’s inside of us. We’re living in a world of connections — and it matters which ones get made and unmade.

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Figure 9. A simple but effective object showing Facebook as a weapon. Galle, T., Sanabria, M., & Davis, A. (2017). *Facebook Crowbar*. From “Corp Gear - Tom Galle”, n.d. (<http://tomgalle.online/Corp-Gear>). Copyright 2017 by Tom Galle.

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Figure 10. Facebook hell. Patiño, D. (2018). [Untitled]. From “The Facebook Armageddon” by M. Ingram, 2018 (https://www.cjr.org/special_report/facebook-media-buzzfeed.php). Copyright 2018 Colombia Journalism Review.

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Figure 11. Surveillance ears. New Organs. (n.d.). [Screenshot of Webpage]. Retrieved July 14, 2018 from www.neworgans.net. The project is “a collection of stories about living under surveillance capitalism” (Brain, n.d.).

A substantive gap in the coherence of the hegemonic technology narrative appeared in popular consciousness, and the floodgates remain open. Privacy concerns have swelled into legislation such as the European GDPR (Solon, 2018; Ting-Edwards, 2019) and critical neologisms are spawning from unusual sources (Morozov, 2019) such as Harvard Business School Professor Shoshana Zuboff’s description of “Surveillance Capitalism” (Zuboff, 2019). Anger has been directed at tech companies for “Orwellian” social experiments (Hern, 2017; Leetaru, 2018; Meyer, 2014) and for designing biased and racist tools that exacerbate inequality (O’Neil, 2017; Wachter-Boettcher, 2017). In Aotearoa New Zealand, companies have come under fire for not paying their share of taxes (Greive, 2019; Moutter, 2016), contributing to rental crises (Flahive, 2018; Kino, 2018), damaging local journalism (Coughlan, 2018; Greive, 2018), enabling hate and harassment (Beckett, 2019), and flagrantly breaking local laws (Manhire, 2018). To be clear, these problems and stories existed before 2016, and technology does not exist in isolation. As commentators noted, there was more to this phenomenon than Facebook; “a backlash against globalism, secularism, and coastal elitism” (Zito, 2018), the opioid crisis, the ongoing repercussions of the 2008 financial collapse, and a growing distrust of government institutions and the mainstream media have all contributed (Tufekci, 2018). However, the shift in narrative is significant. As investigative journalist Kashmir Hill describes “the world is flawed, and, fairly or not, the tech titans are increasingly being blamed” (2019). Critical theorist Evgeny Morozov (2018) argues we are seeing the fall of American techno-hegemony, and with it, a growing recognition that it matters who designs, owns, uses, and tells dominant stories about technology.

A Performative Understanding

There's no outside to the complexity we find ourselves enmeshed in, no exterior point of view that we can all share on the situation. The network that brings us knowledge wraps around us, refracting our perspective into a million points of view, simultaneously illuminating and disorientating us.

James Bridle (2018, p. 206)

The story of technology as powerful, flawed, and pervasive is also the story that convinces us that we must somehow have a say in the development of technology, and possess some control over consequences: the ability to create our own world-forming stories. As Haraway describes, “it matters what stories make worlds, what worlds make stories” (2013, para. 4). For many, the logical step is to argue for a better understanding of how technology works, to illuminate the black box so ‘we’ can make ‘better’ decisions (Peacock, 2018; The RSA, 2017). However, artist and theorist James Bridle describes our current conditions - the interwoven technological, cultural, ecological systems which have come into being - as “the network” (2018, p. 206), an entity that is becoming increasingly difficult to comprehend. Speaking in regard to his own work and design fiction more broadly (as will be discussed later), Bridle argues that artistic practices that aim to illuminate the ‘black box’ or “generate debate” are not sufficient (as cited in Near Future Laboratory, 2014). For Bridle, it is essential that we understand and accept the inextricable complexity of our current and developing socio-technological environments. No single story can explain everything, no AI can compute everything, no tech company or nation-state can control everything (Bridle, 2018; Parikka, 2016). Instead, our narratives must make sense of these technologies from *a position within* this growing entanglement of networked humans, machines, physical and digital matter, and social and material behaviours (Bridle, 2018; Haraway, 2016).

Physicist and philosopher Karen Barad’s theory of *agential realism* (2007) outlines a means of understanding and working within this complexity. This can be demonstrated in part by expanding upon the previous subchapter. Journalist Sarah Perez argues that Facebook “has become an outsize player in crafting our understanding of the events that take place around us” (2017, para. 3). Following the 2016 US election, Facebook CEO Mark Zuckerberg dismissed Facebook’s role in the election, even calling attention to the use of narrative itself, arguing that the stories blaming Facebook were about people “trying to understand the result of the election” (as cited in Zuckerberg & Kirkpatrick, 2016, para. 31). The arguments of Perez and Zuckerberg are meta-demonstrations of a representationalist, Cartesian epistemology, and highlight two important issues that agential realism seeks to redress. Firstly, “a belief in the power of words to mirror preexisting things” (Barad, 2007, p. 133), the idea that linguistic representations are accurate because they sit ‘outside’ of what they are representing; and secondly, the power of

narrative and more broadly, discourse⁷, in determining what ‘happened’. With agential realism the stories and practices of Facebook designers, the technology itself, political actors, and citizen-users can be viewed not as separate or linear activities, but as an entanglement of *intra-actions*. The latter are Barad’s alternate to interaction, which signal being “within and part of” (2007, p. 88) and iteratively define the boundaries of what Barad calls an apparatus; in this instance, the possibilities for what can or cannot be done as part of a technology platform. Not only human and technological actors are a part of an apparatus. To quote Barad:

Apparatuses are material-discursive practices - causal intra-actions through which matter is iteratively and differentially articulated, reconfiguring the material-discursive field of possibilities and impossibilities in the ongoing dynamics of intra-activity that is agency. Apparatuses are not bounded objects or structures; they are open ended practices ... importantly, apparatuses themselves are phenomena (2007, p. 170).

Facebook’s practices - such as algorithmic ordering and agential cutting of digital matter⁸ - are “causal intra-actions” (Barad, 2007, p. 149) in both an ontic and semantic sense. Facebook, in other words, has a very real, ethical “response-ability” (Barad, 2007, p. 88) in forming phenomena like ‘the 2016 election’, not just objectively, neutrally representing, or reflecting it from afar. Zuckerberg was correct to point to broader and historical socio-economic events, but phenomena is made and constantly reconfigured in *spacetime-matter* (Barad, 2007, describing the dynamic intra-actions of spatiality, temporality, and matter). Facebook is accountable and has a response-ability; an opportunity to reduce the possibilities of election meddling, to minimise their part in it, to make exclusionary and inclusionary “agential cuts” (Barad, 2007, p. 175) which change the boundaries of what is possible at any one moment. Zuckerberg envisages narrative as trying to represent the event from the outside, rather than recognising that narrative, as well as himself as CEO and Facebook as a platform, were part of an “entanglement of intra-acting agencies” (Barad, 2007, p. 139) which iteratively enacted the material-discursive phenomena of the 2016 election. Narrative as a practice is not a reflection or representation of what happens, rather, it can be viewed as performative “understanding, thinking, observing, and theorising as practices of engagement with and as part of, the world in which we have our being” (Barad, 2007, p. 133). The matter of technology matters, the stories of technology matter and *are* matter: they cannot be separated from the worlds in which they are iteratively formed.

On the surface, agential realism appears to undermine or complicate a research project about narratives. It is not that language and culture don’t matter; rather, it is a case of reinstating the understanding that *matter* matters. Research is a performative understanding constituted by material-discursive practices that are not separate from the research subject, but in this case,

7 Defined as “not what is said; it is that which constrains and enables what can be said” (Barad, 2007, p. 146)

8 For this research, digital matter is defined as ‘bits’ and physical matter as ‘atoms’ (Ishii & Ullmer, 1997). Both matter and are matter. These matters intra-act and leak into and onto each other, as Ishii and Ullmer describe, “streams of bits leak out of cyberspace through a myriad of rectangular screens into the physical world as photon beams” (p. 1).

an iterative engagement with the reconfiguration of emerging technology narratives. In each iteration, some possibilities define the type and impact of intra-action available, like subversion, resistance, opposition, closing, opening, affirmation and expansion. The limits and possibilities of research practice depend on the inclusionary or exclusionary boundaries that have been drawn, are being drawn, and will be redrawn, as part of always-becoming phenomena. This ethico-onto-epistemological understanding contextualises the research question and frames how it has been addressed as practice-based research.



Figure 12. A guard horse? Encountered while the researcher was on *The Southern Cross Cable: A Tour*. Grover, H. (2018). Artist Bronwyn Holloway-Smith calls attention to the materiality of the internet by creating a physical tour of the landing points of the Southern Cross internet cable.



Figure 13. Tour beginning and booklet. Holloway-Smith, B. (2018). *The Southern Cross Cable: A Tour*. From “The Southern Cross Cable: A Tour (2018) | Bronwyn Holloway-Smith”, by B. Holloway Smith, 2018 (<http://bronwyn.co.nz/projects/the-southern-cross-cable-a-tour-2018/>). CC BY-NC-ND 2018 Bronwyn Holloway-Smith.

The Moral of the Story

*The problem today is that technology has become the ground of cultural development ...
is it possible to resituate tech in the broader reality?*

Yuk Hui, computer scientist, philosopher (as cited in mappingfestival, 2018)

This discussion has shown that although there are dominant narratives and ideals about technology (i.e. computational thinking and technological solutionism), these narratives are not, as evidenced by the now recessive ‘technology is neutral’ discourse, disconnected from the matter of the world. It is imperative to critique and challenge emerging technology narratives; equally, it matters who is telling these stories. Therefore, the problem requires a multitude of situated responses: the creation of many new narratives, from diverse places. Yet it is also clear that narrative itself has both power and severe limitations and can’t be expected to neatly explain an increasingly complex, networked world.

Karen Barad’s ethico-onto-epistemological approach provides a framework for performative understanding and ethical engagement with emerging technologies and their entangled narratives. Narratives about emerging technologies, and technologies themselves are part of a wider set of material-discursive phenomena and these phenomena are constantly reconfigured by everything in it; including the researcher and research. The researcher-practitioner has a response-ability, and therefore a means of creating new possibilities, of making agential cuts. The effectiveness of such cuts vary in scale and impact and by nature are not able to single-handedly “solve” the research problem. However, questions remain about where and how to make these cuts, where to attempt to resituate technological discussion. To this end, Yuk Hui (2017) offers an instructive perspective:

Technology is not anthropologically universal; it is enabled and constrained by particular cosmologies, which go beyond mere functionality or utility. Therefore, there is no one single technology, but rather multiple cosmotechnics.

Hui’s neologism *cosmotechnics* “is the unification of the cosmos and the moral through technical activities, whether craft-making or art-making” (Hui, 2017). He argues that technology must be taken out of the singular and be reformed by different epistemologies. On a narrative level, this suggests that the route forward is to resituate technological stories as embedded in and formed by a broader range of specific cosmologies. This could perhaps help realise a cosmotechnics. Rather than remain focussed on technology itself, paradoxically, a subversive engagement with technology narratives could be most effective by showing, or leading with, the social and cultural: a different *ethos* (or even *mythos*). Berentson-Shaw (2018) alludes to a similar need for culture-led stories, arguing that criticism of current narratives and worlds is only effective if it can offer new stories which speak to our values. Considering these theoretical underpinnings,

9 Hui’s argument is formed through going beyond Heidegger and reconsidering his lecture ‘*The Question of Technology*’, a theory also transversed by new materialist thinkers (Barla, 2018).

this research aims to contribute a small series of narratives: humble yet bold attempts that transversally “refuse this homogeneous technological future” (Hui, 2017) and suggest that a cosmotechnics is necessary.¹⁰ This adds another question that must be addressed in detail: from what cosmologies are the stories in this research being told? Therefore, the next section situates the researcher once again by introducing the concept of situated knowledges and discussing transversal cosmological relations, using a polyvocal mix of “first-person testimony” and “third-person exposition” (Hamilton, 2011, n.p.).

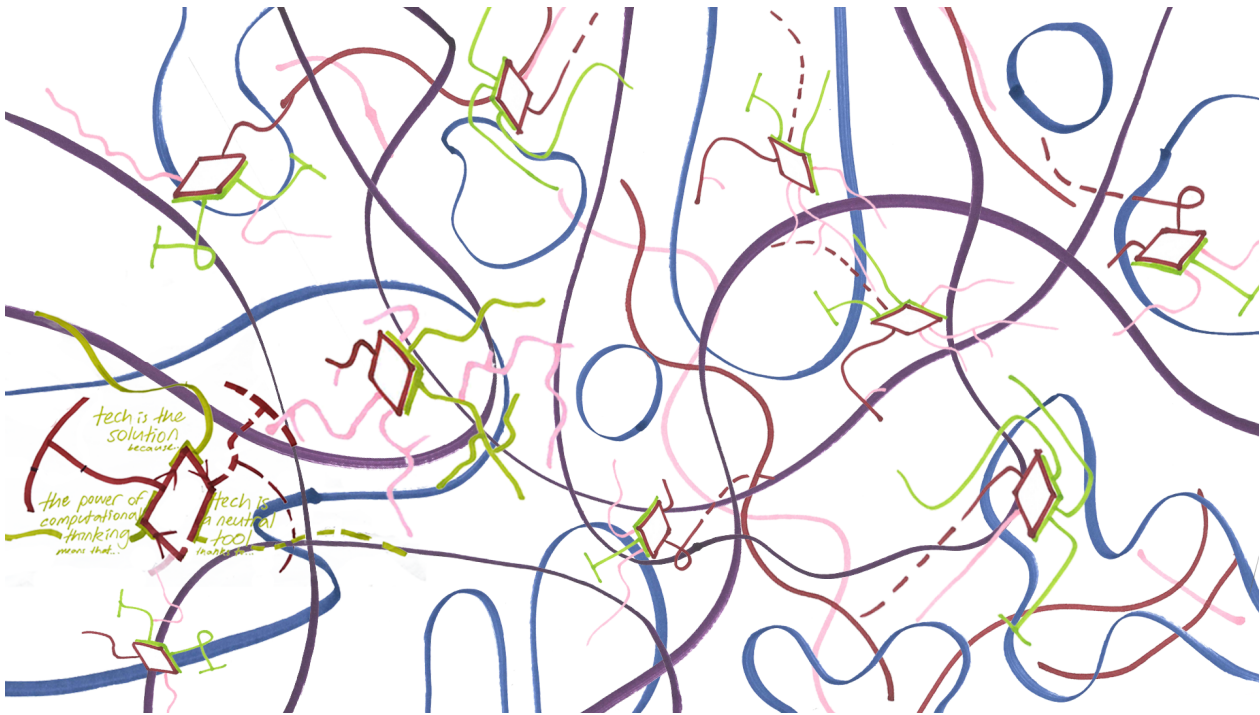


Figure 14. A messy reconfiguration. Decentralising and resituating the Silicon Valley narrative among a cosmotechnics. Grover, H. (2019).

10 The realising of a cosmotechnics is a task infinitely beyond the scope of one person.

Cosmologically situating the research/er

The contextual review has shown that it is necessary to situate the researcher and research practice as “embedded and embodied, relational and affective” (Braidotti, 2018, p. 12) in order to create critical and affirmative narratives around emerging technologies. The transversal, intra-active ethics of new materialism draws on Haraway’s idea of feminist objectivity or situated knowledges. This is a concept crucial to this research practice. Situated knowledges was originally a feminist response to the Cartesian view of science and knowing, in which the dualist separation of mind and matter makes the researcher a separate, objective knower who looked down on everything from a privileged position, enlightening *his* subject with God’s eye (Haraway, 1988). Instead, Haraway describes the researcher as a “split and contradictory self” (1988, p. 586) never whole or complete - and this is a strength, rather than a weakness. They are “therefore able to join with another, to see together without claiming to be another” (1988, p. 586). This is an attempt to overcome the dichotomies of the (Cis, Heterosexual, White) Man-everyone else divide and the parallel nature-culture-technology divide (Braidotti, 2018). Instead, situated knowledges are posthuman and post-anthropocentric in that humans are neither in charge nor at the centre of the world, a recognition “‘we’ – the dwellers of this planet at this point in time – are interconnected” (Braidotti, 2018, p. 23).¹¹ Rather, the researcher is non-innocent, accountable, and entering into a conversation with their subject. As with Barad’s material-discursive apparatuses, “boundaries materialize in social interaction” (Haraway, 1988, p. 598). Paradoxically, this boundary creation allows for true objectivity. Therefore, situated research must take account of material-discursive (Barad) or material-semiotic (Haraway) relations which span *spacetime*. Braidotti (2018) describes this joining as “transversal relations” (p. 19), which “allows us to think across previously segregated species, categories and domains” (p. 12).

¹¹ It is crucial to point out the primarily European and North American origins of new materialism and situated knowledges, and recognise that multiple indigenous and Eastern worldviews present entirely different conceptions of the relations between humans, nature, and technology and have done so for centuries.

Aotearoa is a place in which these complex transversal relationships are enacted in obvious and purposeful ways. For over 30 years (my entire life), the country has been in a state of *explicit* negotiation across cosmologies, through the Treaty of Waitangi Tribunal. One example highlights the possibilities and risks of this work. In March 2017 - after 160 years of theft, disrespect, protest, and negotiation - the Whanganui River was granted the legal status of a person (Haunui-Thompson, 2017; Salmond, 2017). The decision, made as part of Treaty negotiations, recognised the spiritual relationship that Whanganui iwi have with the river as an ancestor, a relationship exemplified by the whakatauki “Ko au te awa, ko te awa ko au” – “I am the river, and the river is me” (Haunui-Thompson, 2017). Anthropologist Dame Anne Salmond suggests that while this agreement is “still constrained in many ways by power relations, and legislative frameworks” it shows that “creative jurisprudence and experimental practice are possible” (2017, p. 314). Salmond (2017) argues that these cosmologically transversal practices are both unpredictable and enlivening, and tentatively suggests that it may be beneficial to “experiment ‘across worlds’” (p. 314). Salmond also refers to Jane Bennett (a theorist often described as new materialist) as an example of the kind of ontological philosophy that would be helpful for these experiments, one “in which matter has never been dead or separated from people” (2018, p. 414). Salmond (2017, p. 414) juxtaposes Bennett with nineteenth-century Māori philosopher Nepia Pohuhu, who said:

All things unfold their nature [tupu], live [ora], have form [āhua], whether trees, stones, birds, reptiles, fish, quadrupeds or human beings.

Pohuhu’s notion of unfolding is an example of resonances between matauranga Māori and relational ideas in the Western tradition (Salmond, 2017). Salmond argues that these philosophical resonances - such as “justice and tika, honour and mana” - have historically “allowed alliances to be forged between Māori and pākehā” (Salmond, 2017, p. 410). However, Salmond (2017, p. 315) is deeply attentive to both the risks and opportunities of this approach:

Like the Treaty of Waitangi itself, with its two texts in Māori and English, such approaches might juxtapose rather than try to assimilate different ways of being different, contributing to a ‘planetary conversation on human possibilities’.

Salmond’s arguments, together with the various, ongoing phenomena of Aotearoa New Zealand, illuminate why I am drawn to new materialism as a research-practitioner precisely because I am situated in a place where such practices - although troubled and imperfect in their transversality - already exist. This also offers a way forward for this research. Technology is often described as neocolonial (Hui, 2017; Parikka, 2016): based on a technoscientific *rationality* which at once separates, subsumes and engulfs and reductively codifies differences - be it ‘rating’ everything or the universalism of a ‘singularity’. This colonial “rationality”, Salmond argues, stems from the false idea of a ‘Great Chain of Being’, a hierarchical Enlightenment idea which involved the world being mapped, doctored, and cut up into a “grid” for the benefit and consumption of Europeans at ‘the top’ of the chain (Salmond as cited in ‘2014 Rutherford Lectures’, 2014). To counteract the privileges that I, as a Pākehā with ancestral connections to the United Kingdom and Germany, have experienced stemming from a pervasive and ongoing history of colonial practices, I must be *anti-colonial*. From my situated position, it is imperative that the reconfiguration of technological

narratives refuses and replaces universalising rationality as a cosmological organising principle. Instead, drawing on new materialist thought and with attention to my own juxtaposition within Aotearoa, the work of this thesis cosmologically centres *relationality*. As new materialism posits, differences are not assimilated, nor set up in dualisms as the ‘Other’. Instead, relations are understood as affirmative, transversal, and diffractive. To work, read, or experience diffractively is to be conscious of and attentive to difference, recognising that this process itself is inherently creative and meaning-making; creating “patterns of difference that make a difference” (Barad, 2007, p. 72).¹²

I am situated across *spacetime*, here in Aotearoa, as a Pākehā who is part of a larger group of tangata Tiriti (people of the treaty), here in this place in partnership with tangata whenua (people of the land). This relationship has defined and made possible my very existence. Here, it is not just possible but often necessary to intra-act, with care, across cosmologies. Furthermore, Salmond’s mention of a “planetary conversation” acknowledges that, while local cosmologies are crucial and generative, they do not exist outside of the global. Vast undersea cables and satellites orbiting the globe transfer digital matter to and from this land, much of which is out of our control and certainly out of any *one* person’s control. To practise in this environment, currently, is to practise constantly holding tensions and possibilities between the local and global, to show humility and a critical awareness of my partiality and relations in a complex, shifting entanglement. Never can I assume a total knowledge, nor hope to find a “solution” to a problem which intersects so many material-discursive phenomena. Instead, effective design could involve finding the local within the global, to refuse and subvert hegemonic narratives through the creation of our own specific transversal stories. Design historian Ahmed Ansari argues for the decolonisation of design, requiring “many diverse forms of design practice in the world – each specific to its region and its biosphere, each rooted in the cosmologies and mythos of its culture” (2018, para. 9). So, the philosophical positioning of new materialism (Haraway, Barad, and Braidotti) along with Hui’s call for cosmotechnics has provided a contextual framework for investigating the research problem and practice. However, it is my cosmologically situated place in Aotearoa that informs the deeper *mythos* of what I have created and the particular material-discursive ways I have worked with this understanding. These strategies are outlined in the following chapter, which introduces design fables as a situated methodological approach for both nuanced critique and diffractive creation.

12 The concept of diffraction is used literally by Barad and figuratively by Haraway. Unlike reflection trying to understand something from afar, diffraction involves “the entanglement of meaning and matter” (Barad, 2007). Intra-action in Barad’s material-discursive apparatuses is a diffractive process.

Methodology

This exegesis has so far outlined the transversal mapping and contextualising research that worked to strategically narrow and position the research question, as well as situate the practice. This section completes this essential groundwork and answers half of the research question - *how* to design critical and creative narratives - by outlining a methodology for situated, ethico-onto-epistemological *design fables*.

New materialism offers the ethico-onto-epistemological framework for the methodology (as well transversal mapping acting as a core method). However, one of the criticisms of new materialism is that it is too theoretical - often speaking in abstractions that seem far from the matter it centralises, failing to transverse the dualism between theory and practice (Hallam & Ingold, 2014; Kato, 2015). Design presents an opportunity to truly bring together theory and practice: to investigate through making and working with the matter itself (Ingold, 2013; Mäkelä, 2005; McNamara, 2012). Therefore, this section enacts a performative transversal of new materialism, design fiction, medium design, and fables and fairy tales. The discussion begins by explaining key elements of this transversal and how it creates a strategy for practice-based research. The introduction and discussion of methods expands the strategies of this methodology and examples from practice are referenced throughout. The situated application and demonstration of the design fables methodology is then addressed in the discussion of practice.

Design fables: An ethico- onto-epistemological methodology for research by design

Design that has any hope of effecting change manipulates the organization as well as the narrative that attends it. How else can design exploit the powers of giant macro-organization strata with moves that are potentially sneakier or more politically agile? That narrative may not be about the rational explanation of the design and its problem-solving capacities in the mode of elevator pitches and TED talks. Instead, it may be a dissonant story that, however non-physical, has physical consequences. It may be a narrative that makes something contagious or that generates a Teflon surface of its own. It may have an emotional message that renders some power more vulnerable. Or it may have a surprising cultural bounce because of its irrationality, outrageousness, cuteness or violence.

Keller Easterling, architect, and writer (2018)

Design fiction creates imaginative conversations about possible future worlds.

Julian Bleecker, designer (2009, p. 8)

The fairytale repertory of fantastic possibilities continues to provide writers and others with a fine scalpel to probe and test the conditions of daily survival, and then imagine alternatives and redress.

Marina Warner, writer, and literary theorist (2018, p. 120)

Keller Easterling describes the coupling of physical and narrative matter as crucial for “design that has any hope of effecting change” (2018, n.p.). In her notion of “medium design” (2018), Easterling suggests design-led approaches that echo new materialist methods and offer rich, practice-rooted imagery and making potential. She describes medium design as “less like making a thing and more like having your hands on the faders and toggles of organization” (2018, n.p.). Easterling argues that medium design could involve a range of artefacts and documents being produced, and that it is essential that narrative accompanies these artefacts in making change.¹³ Similarly, design fiction aims to generate discussion through creating an assemblage of material artefacts and media (Bleecker, 2009; Hales, 2013), creating “both the concept and the context” (Lindley & Coulton, 2015, p. 210). The concept is called the diegetic prototype - a neologism coined by film theorist David Kirby (2010) in his discussion of science fiction films. Often, it is not a fully functional or polished object, but a prototype.

13 However, Easterling also talks on a scale that is out of scope for this thesis: changing organisations, governments, and systems.

The context is the media that accompanies the object, often a film showing use of the object in everyday life (Bosch, 2012; Lindley & Coulton, 2015). However, design fiction focuses on technology and the future, leaving the boundaries of social change untested or subjugated to that technological development.

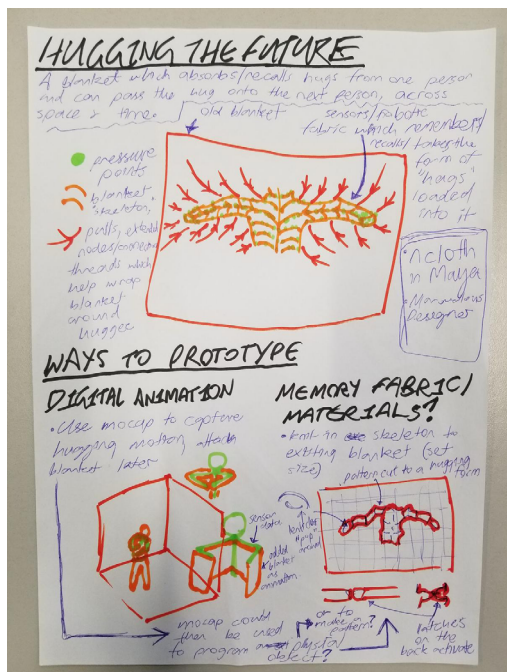


Figure 15. Hugging the future sketch. Grover, H. (2018).

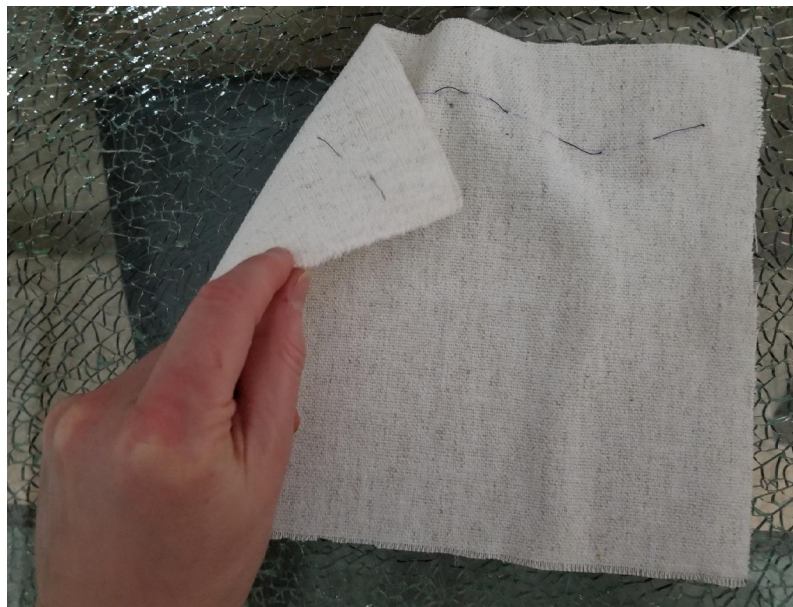


Figure 16. Small scale prototype using muscle wire. Grover, H. (2018). Well-intentioned, yet more design fiction than design fable.

This research needed to operate at a manageable level, while still attempting to make humble, social-led contributions to emerging technology narratives. Therefore, the final element and key connective threads of this transversal are fables and folklore. Fables are generally considered to be a sub-genre of fairy tales or folklore more broadly (the terms are used interchangeably in this research) and have roots in oral storytelling and literary genre. In terms of methods and output, this is a generative shift in the genealogy of design fiction, away from science fiction to a genre that innately focuses on the social and ethical (Warner, 2018). As medium design, the scale is that of a storyworld or fictional cosmology, one that sits adjacent to and part of the wider material apparatuses it seeks to critique. Design fiction's concept and context become a series of prototypical artefacts and accompanying stories or design fables.

It is important to briefly elaborate on the nature of fables and fairy tales and how they apply to the research practice. Fables constrain and open the research practice in three key ways: they offer explanations for the world, highlight morality, and are pluriversal. Fables can be aetiological in the sense that they tell fictional stories to explain how the real worlds work (Ashliman, 2003). This is suitable considering that an aspect of the research problem is to increase critical understandings of emerging technology use and narrativisation. Like design fiction, fables are often vignettes, micro-stories that show worlds. Unlike design fiction, fables often explicitly suggest what to do in those worlds, or at least present each situation as a moral dilemma or choice. Labelling the practice as a series of design *fables* signals a need to be ethically alert to

what is presented. This is not an absolute ethics: when fables are presented as a collection the many *epimythia* or ‘morals of the story’ do not always constitute an *ethos*, or single ethical way of being (Ashliman, 2003). Each story outlines a situation where characters must use wit, cunning, and intuition to find the ‘right’ thing to do (Warner, 2018). Fables are not only situational but pluriversal, coming from different storytellers and different times, be they Aesop, Šahrzād of One Thousand and One Nights, the Brothers Grimm, or the aetiological stories of early Māori. By creating design fables, the research is speaking from a situated somewhere, recognising the limits of doing so, and constructing a medium or a cosmology to think within; while at the same time not claiming a universal interpretation *by genre*. Finally, working in a fable-like cosmology could demonstrate, on a small and fictional scale, the merging of morality and cosmology in the formation of a cosmotechnic.

Methods

The transversal of new materialism, fables, design fiction, and medium design created a methodology which led to strong collection of methods, developed in tandem with practice in a process of testing and refinement. Therefore, the methods for this research are: subversive play, fairy tale mediations, paradoxical reconfigurations, diffracted and situated sharing, and transversal mapping (as discussed on page 3). In Figure 17, the methods are presented as a design ‘diamond’ of exploratory conceptual work and tests aimed at finding spaces, followed by the process of selectively narrowing down the research into outputs that make spaces. Also visible in this diagram is the use of reflection as part of the design process; a means of contextualising and determining next steps throughout the practice.

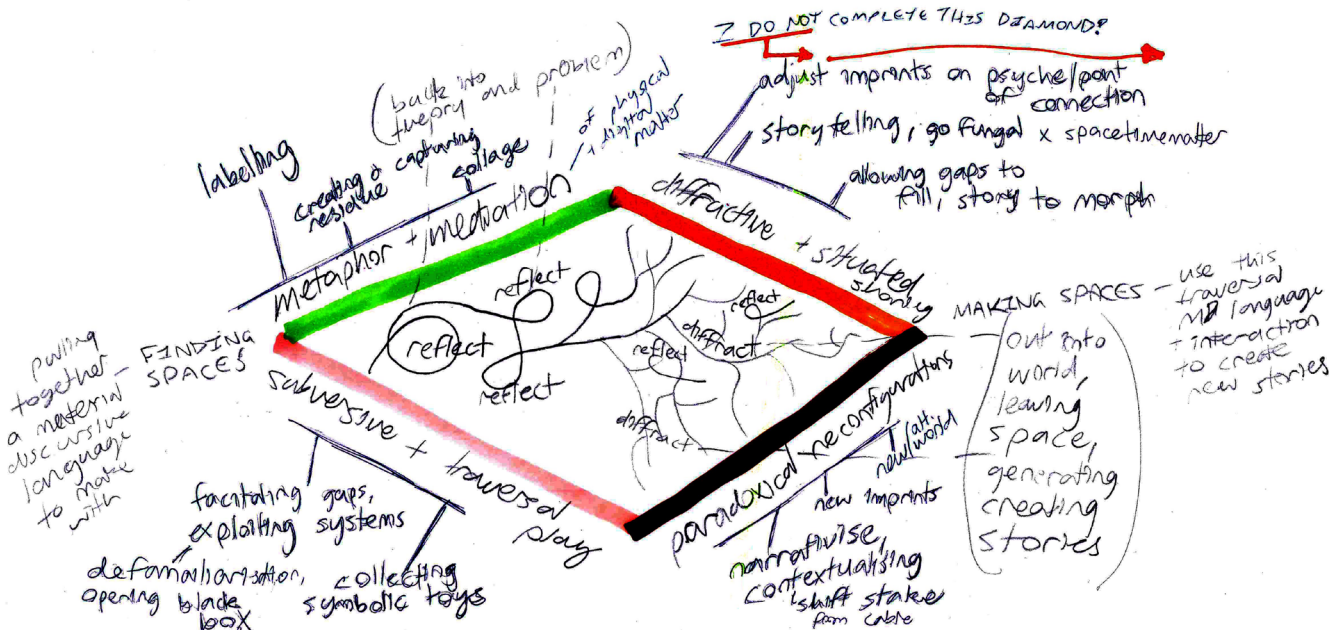


Figure 17. Early methods diagrammed as an exploratory design process. Grover, H. (2018).

Subversive play

The symbolism comes alive and communicates meaning through imagery of strong contrasts and sensations, evoking simple, sensuous phenomena that glint and sparkle, pierce and flourish, by these means striking recognition in the reader's or listener's body at a visceral depth.

Warner (2018, p. xxvi)

Braidotti argues that new materialist methods could involve a “strategy of de-familiarization” (p. 16, 2018). This has been helpful in the creation of design fables. Emerging technologies seek to compute the world and encode us within it, ‘helping’ us by finishing our sentences, giving us algorithmic directions from afar, folding situated choices into the universal and through decentralised rating systems. In contrast, fables offer cosmologically-situated “satire and practical wisdom” (Warner, 2018, p. 21), often where the protagonist lacks power but can get their way through wit, observation, and keen assessment of the situation: fables are ‘bottom up’, soft power. Fables are a way of figuring out and demonstrating what can be done in the face of computational complexity.

The “effervescent cunning and high spirits” (Warner, 2018, p. 21) of fables and fairy tales are enacted and embodied by taking technology’s faux-magic and turn it back on itself by hacking, changing the settings of the app(aratus/lication), logging off, #metoo, and pouncing on subversive opportunities to re-narrate what it means to live in the 21st century. As a method, this has involved sketching out or manipulating materials and imagining potential contexts; asking ‘what if’ during active attempts to de-familiarise, subvert, materialise, and reconstruct all that is used to support dominant technology narratives. This was incorporated into the research methodology as a design decision to include the openness and improvisation found in play where the playthings are technology’s gestures, interfaces, physical materials, sounds, user interface (UI) phrases, metaphors, and dichotomies. This material-discursive disassembly makes spaces and provides raw, yet vaguely recognisable materials, ready to be reconfigured as characters, motifs, and symbols in the creation of design fables.

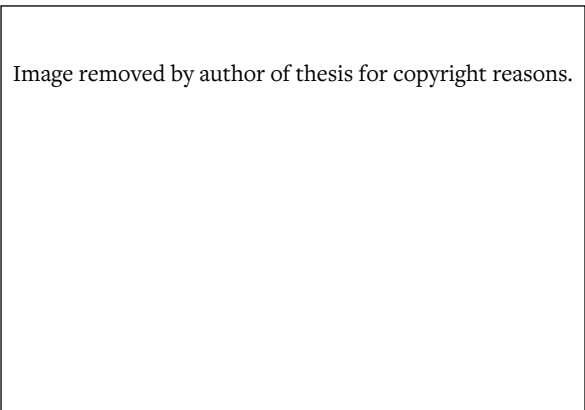


Figure 18. Distracted boyfriend meme base image. Guillem, A. (2015). *Disloyal man with his girlfriend looking at another girl*. From “The ‘Distracted Boyfriend’ Meme’s Photographer Explains All” by B. Barrett, 2017 (<https://www.wired.com/story/distracted-boyfriend-meme-photographer-interview/>). Copyright 2015 Antonio Guillem.

Figure 19. Meme roller prototype. Grover, H. (2018).

Figure 20. Meme roller test. Grover, H. (2018). Are memes modern fables? Distracted boyfriend meme 3D modelled and printed as a roller which imprints base meme image onto non-digital surfaces.

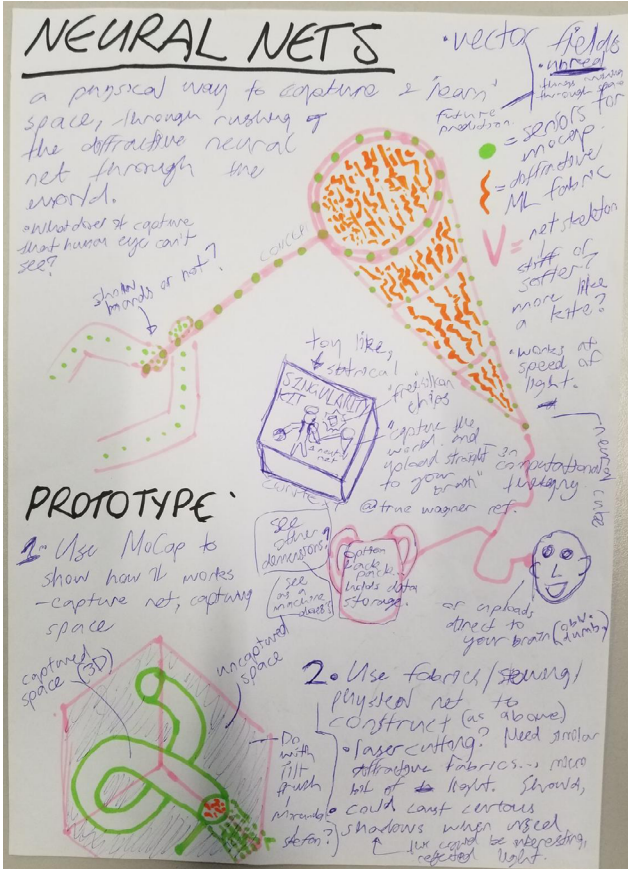


Figure 21. Neural net contextualising sketch. Grover, H. (2018).



Figure 22. Neutral net prototype. Grover, H. (2018). Reworking the ‘network’ and ‘net’ metaphor as a DIY, physical neural net used to capture and compute our everyday environments. Extrapolation of a scientific study that created a neural network which processes inputs “using light diffracted through numerous plates instead of electrons” (Kennedy, 2018, n.p.).

Fairy tale mediations

I could be the noise in the night

Instead of the child scared in the dark

Jessica Shoemaker (as cited in Loory, 2017, n.p.)

If subversive play creates materials to use, this method then works to emphasise the ways materials can become symbols and guides in a story setting, remediated through anthropomorphisation, metamorphosis, and metaphor. Historically, fairy tales reflect the cultural and psychological ideas of their times and these lessons are often understood through analogies and metamorphoses as veiled symbolic and narrative elements aimed at civilising, criticising, illuminating, and offering hope and direction for the reader and society (Warner, 2018; Zipes, 2006). Stories in their totality can be strongly allegorical. In the context of both fables and existing technology narratives, analogical elements such as metaphor operate at a structural and symbolic level. These can obfuscate and illuminate how something works or should be used (e.g. cloud, windows, desktops). Metaphors help us understand abstract concepts by relating them to the physical world (Lakoff & Johnson, 2003) as “language makes direct use of the same brain structures used in perception and action” (Gallesse & Lakoff, 2005, p. 473). These understandings double as directive opportunities for practice. Design fables can construct new metaphors - or manipulate current technology metaphors that have an aetiological function - by using language and physical interaction with artefacts to expand and subvert ways of understanding and interacting with new technologies.

Metamorphosis, while holding a similar symbolic potential, is also a formative narrative event, often used as punishment or the basis for a redemptive, restorative quest (Warner, 2018). Metamorphosis is an important technique for this research practice and for fairy tales in general, as it suggests the possibility of transformations and alternate worlds (Zipes, 2010, p. 4). It also provides a means for repositioning characters and ideas, to take away and grant power as the result of un/ethical actions. Metamorphosis traps characters in other bodies, enabling and disabling ways of doing and being (e.g. humans who become bots). Anthropomorphisation and animism are also ways to “endow inert objects with active power” (Warner, 2018, p. 22). For instance, the fable world takes the raw materials of technology and turns them into anthropomorphised characters that interact within a social world, calling attention to the existing relations we have with these materials. Importantly, the context of a fairy tale provides an opportunity to give nonhuman and nontechnological actors a greater voice.

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When he got home, the boy searched YouTube to find a lock picking video. After a few hours, he picked the lock and wedged open the toolbox... A large spider zoomed out as he lifted the lid. "Ugh!!" yelled the boy, jumping back and attempting to stomp on it, but it slipped out of sight. "Hey! Leave me alone, you little thief!" yelled the spider. "Whatever" said the boy, "get outta my sight before I crush you!" The spider sulked away, muttering. The boy lifted the lid entirely, revealing the toolbox.

--

"It's really quite a joke that you humans say you invented 'the web'." said the spider. "And even more mystifying that you spend half your time trapped in someone else's web."



Figure 23. Toolbox prototype and draft contextualising media. Grover, H. (2018). Working with a pregnant daddy-long-legs spider above a desk, imagining what wisdom it might offer or stories it might tell as the original builder of the 'web'.



Figure 24. The difficulties of determining dichotomies. Grover, H. (2018).



Figure 25. Living with paradox. Grover, H. (2018).

Paradoxical reconfigurations

The language is beguilingly simple; the stories — ‘fables and tales’ — are not. They often end with a metaphorical exclamation point — a surprising, yet appropriate, paradox. ‘The end of a story should feel like a birth’, Loory says, ‘painful and hopeful; frightening but inescapably right.’

David Updike, author, on the writing of Ben Loory (2013, para. 5)

The outputs of subversive play and fairy tale mediations require additional narrative elements to be reconfigured into new stories and a corresponding cosmology. The practice follows fairy tale structures. The narrative often takes the form of a quest, that is; a problem to solve, something to seek, a person to rescue, a metamorphosis to complete or undo. Common universal themes emerge throughout the genre: overcoming adversity, maturing through undergoing challenges, finding a way to determine one’s destiny in a rough world, and the struggles and necessities of love and relationships. The protagonist writhes through the journey, often with magic or fortune intervening along the way, resulting in an ending that is not always happy but is at least hopeful in that it shows problems can be overcome (Warner, 2018; Zipes, 2010). Warner notes that “sometimes the plot follows emotional or psychological logic” (p. 27), but much of the fairy tale world and what happens is not explained. It is dream-like. Beginnings, endings, actions, and events are not clear or rational. The mystery of it all is what gives fairy tales their impact, or, to use Easterling’s phrase, “surprising cultural bounce” (2018, n.p.) - a narrative quality argued for in medium design. As a collection, the design fables suggest an alternative cosmology with “a flair for paradoxes” (Braidotti, 2018, p. 16), where matter and beings live and happen together in unexpected ways. As individual fables, the stories suggest ethical and creative approaches to framing and working with emerging technologies.

Diffraction and situated sharing

On an unconscious level, [French critic Georges] Jean believes that the most startling fairy tales bring together subjective and assimilatory impulses with objective intimations of a social setting that intrigue readers and allow for different interpretations according to one’s ideology and belief.

Zipes (2010, p. 10)

These design fables do not have an explicit moral or *epimythium*, and instead are open to diffraction intra-action and meaning-making by and with the audience. Most fables and

fairy tales, although loaded with directive symbolism, leave it to the reader to decide what the story means to them. The design fables aim to open a space for the audience, one that allows for new emerging technology narratives to take form, potentially not straight away, but as the audience carries the experience with them into the material-discursive apparatuses they are a part of. The story itself begins to transform, as fairy tales do. Therefore, this final method is not so much one the researcher-practitioner enacts, but one they hope to enable the audience to do. The audience intra-actively brings their experiences and ideologies to the gallery in which the design fables are displayed. They may feel a sense of strange recognition during and after the gallery experience, a sense that the world and stories might not be so far-fetched after all.

The ideal setting for the final fables would be to have them integrated into the audience's lives, appearing as strange but familiar objects in the everyday world. Another possible presentation setting was during Techweek 2019, where the design fables would be listed as an event as part of a week of wider technology discussion. However due to the timing of Techweek, budget constraints, and administrative requirements, the research will be presented in a plain gallery setting. This is not ideal, as it means the work could be interpreted as installation art. It also means the audience for the design fables will be limited to those in Auckland, Aotearoa New Zealand, who go to the exhibition. Access to artefacts is an issue for design fiction, and one gets around this partially through contextual media. It will be possible to share the written stories, images and videos online to reach wider audiences. For practical and temporal reasons, this is outside the scope of the thesis, as is formal audience testing. It is also possible and desirable that the local audience feel compelled enough to take photos and share their experiences and interpretations of the exhibition, making their agential cuts as part of the wider diffractive process.

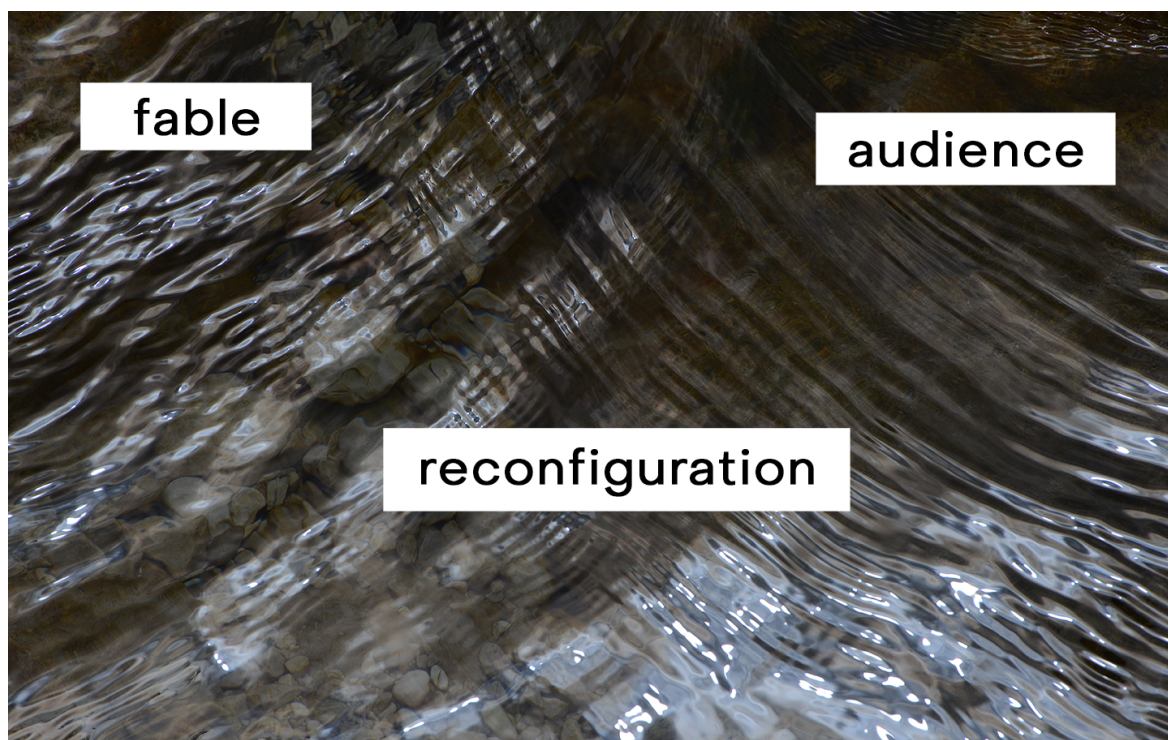


Figure 26. Diffraction pattern in pond, labelled to show design fables process. Grover, H. (2019). Adapted from "Water Interference," by Daniela_deGol, 2017 (https://commons.wikimedia.org/wiki/File:Water_Interference.jpg) CC-BY Daniela_deGol.

Discussion of Practice

This section discusses how the practice addresses the two interconnected aspects of the research problem. Firstly, the application and methodological development of ethno-onto-epistemological design fables as a practice-led means of exploring a complex problem is introduced. Secondly, how this methodology addresses the research specifically by generating critical and creative narratives about emerging technologies that foreground the social and cultural, and which works to challenge and subvert dominant technology narratives. Therefore, this chapter takes a slightly linear form. The discussion begins by briefly exploring the initial making process, particularly the methods of subversive and transversal play and fairy tale mediations. The challenges and insights gained from this iterative making are highlighted, followed by a discussion of the creation of a storyworld and the design fables as a collection. Finally, four design fables are discussed individually. References are made to the theory and contextualising frameworks discussed throughout the exegesis.

Early attempts and insights

Initial attempts to address the research problem were made in tandem with readings and theoretical thinking that contextualised the problem. This oscillation between practice and theory illuminated the complexity of the research problem and the difficulties of creating in response to it. On reflection, early objects, sketches and stories fell into the trap of taking technology apart only to reconstruct tech-led stories. Even prototypes that seemed clever and effective at the time fell into the same traps. For example, one concept and small-scale prototype was a ‘hugging blanket’, which took on the ‘hug’ of one person, and materially ‘saved’ it within the blanket to then give to another person in a separate space and place (pictured in Figures 15 & 16, p. 23). Although this demonstrated an ethic of care and love, it was still a product of computational thinking. It didn’t challenge dominant narratives but acted as a tech-based, affirmative band-aid to wider problems of isolation, loneliness, and globalising forces that separate families and communities. This reflects the ubiquity of dominant technology narratives

and the impossibility of creating completely outside of existing material-discursive apparatuses. It also shows how conscious a practitioner must be to make gaps and cuts for new, transversal ideas to flourish. To refer to Easterling, there was little sense of medium design or world-building; instead, the work occurred within existing media and narratives. It fell into the dichotomous trap that new materialism seeks to avoid, reinforcing what is criticised by speaking directly about it. There was also a co-opting of natural materials to the will of the designer and technology, rather than working alongside the innate function of these materials in natural spaces. For example, an engagement with an Amazon Alexa voice assistant resulted in cases made of natural materials and objects.



Figure 27. Useful failures: Wrapping technology in natural materials to make a ‘wolf in sheep’s clothing’. Grover, H. (2018). The seaweed, strong when wet, became brittle when dry and cracked when fitted onto the Amazon Alexa. Aside from the overly Anthropocentric act of moulding nature to fit and disguise technology, directly using other stories proved cosmologically confusing.

Due to the unsatisfactory outcomes that arose from these initial attempts, a decision was made to pare back the conceptualisation and creation of prototypes and instead shift to simply ‘gathering toys’ for subversive play and mediation. In practice, this became a form of hyper-attention to the daily experience of being situated in various material-discursive phenomena and noticing and experimenting with small details, clashes, and glitches. Sounds and visual elements from common UIs were broken down, warped, and left to float. One example arose from the researcher noticing a glitch in the Facebook newsfeed where UI elements began to shake. This was screen-recorded and combined with a video of a similar infrastructural quivering noticed at Auckland airport. This showed the potential for highlighting the emblematic nature of details, in this case of wider uncertainties and instabilities in the physical and digital matter of the network.

[This page features videos, click to play.]

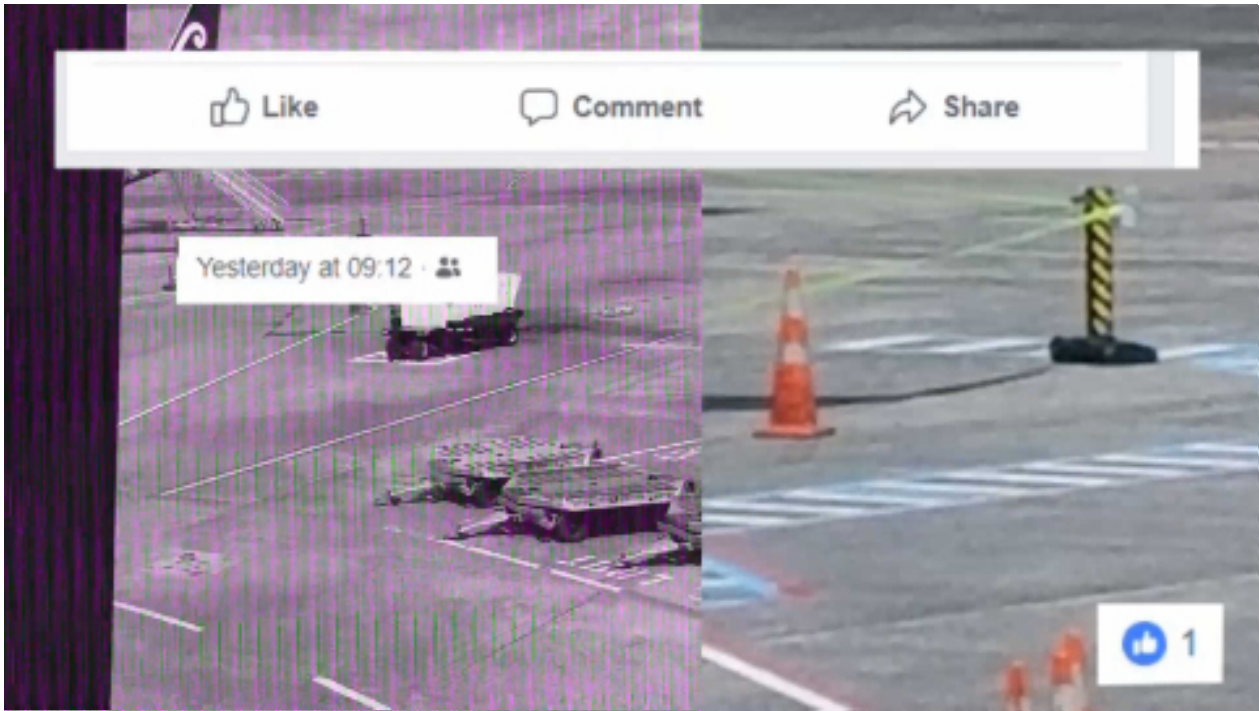


Figure 28. Combination of quivering videos, suitably addled by a codec issue caused by a webcam installation. Grover, H. (2018).

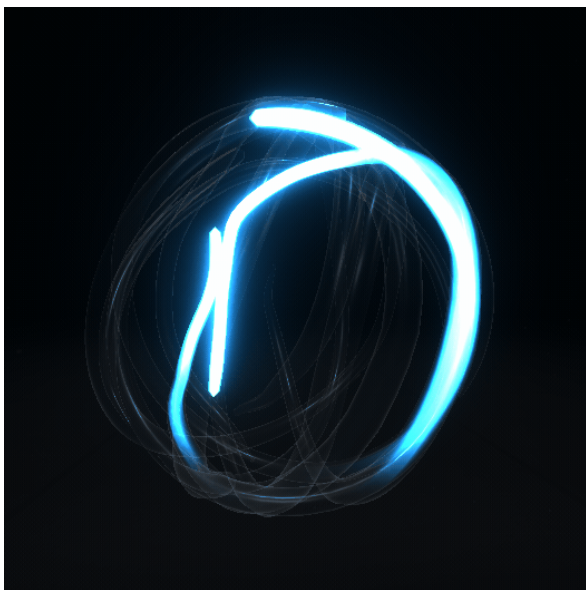


Figure 29. A frantic spinning neon wheel based off the neatness of Amazon Alexa [GIF]. Grover, H. (2018).

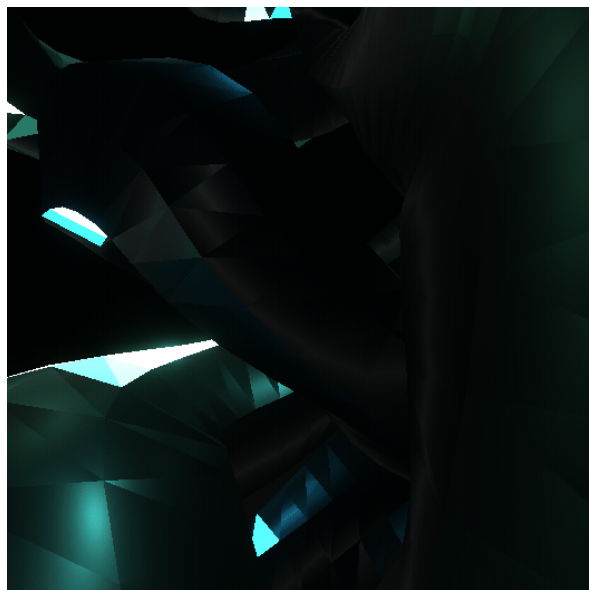


Figure 30. Tiltbrush drawing of a monster's insides [GIF]. Grover, H. (2018). Later explorations with user interfaces and digital matter (using Tiltbrush) aimed at creating a monster's insides: alive, weirdly captivating, yet grotesque and imperfect. These are messy and convoluted as opposed to the usual simplified, straight-lined or neatly-curved images of a network. This is aetiological as it shows that there isn't some neat vision of the network out there that everyone or anyone can easily comprehend.

The tradition of oral storytelling in folklore was also explored, combined with improvisation as well as purposeful and practical engagement with voice assistants. A true story (told to the researcher in a bar) was later 'told to' then retold by, several technologies that 'speak' and 'listen' (Amazon Alexa, Google Voice Typing, and Microsoft Word). The eventual story was completely different, showing on one hand how narrative changes with storytellers and how unreliable technological 'storytellers' accelerate and obfuscate this process, warping the narrative into something that no longer makes (human) sense.

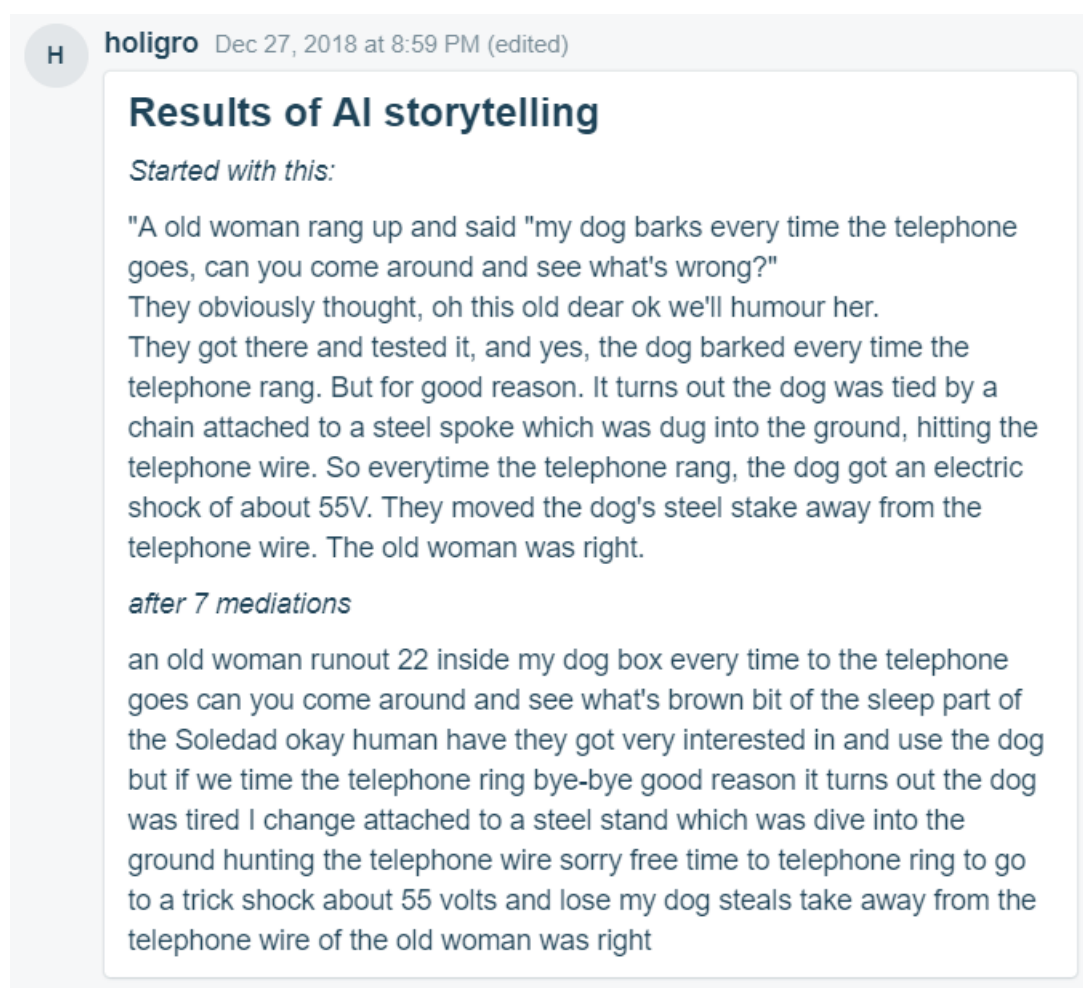


Figure 31. Storytelling with AI (Trello card screenshot). Grover, H. (2018). Epimythium: The old woman is always right?

Stories were improvised off the back of experiences, such as speaking - from a first-person perspective and as if to a news reporter - about a woman and her AI assistant who had signed up for te reo Māori lessons. This was prompted in part from a situation at a party where a Google Home could not understand the correctly pronounced song request for 'Poi E', as well as trips taken using Google Maps, with place names being mispronounced to the point of illegibility. As a problem relating to an international company's computational mispronunciation of te reo Māori, a language specific to Aotearoa New Zealand, this is an example of a situated response. This spoken, improvisational play extended to imaginative switches in perspective, such as verbally role-playing a dog who realised his owner was sharing embarrassing photos of him online. This conscious anthropomorphising of both animals and technology pieces, such as

memes, helped create a shift from human-centred design as recorded in the researcher’s design notes at the time:

Also, a whole world opened up for me when I started using animals in my stories.. like just the shift in perspective I required.

Figure 32. Research reflection (Trello card screenshot). Grover, H. (2018). The improvisational play and scenario building were also precursors to the world-building discussed in the next section.

These stronger early prototypes and tests tended to stop at reconfiguration or making sense, and instead involved a kind of unresolved play or mediation, with the intention of ratcheting matter open in attempts to find and hold space and allow for diffractive juxtaposition. This was possible through practising situated and attentive objectivity that took advantage of the researcher-practitioner’s multiple positions inside of technological and cultural phenomena, and then by using defamiliarising practices to expose problematic gaps and linkages, and opportunities for agential cuts. From a new materialist perspective, this was an attempt to overcome dualisms and practice as ‘both/and’ (a transversal of ‘and/or’).

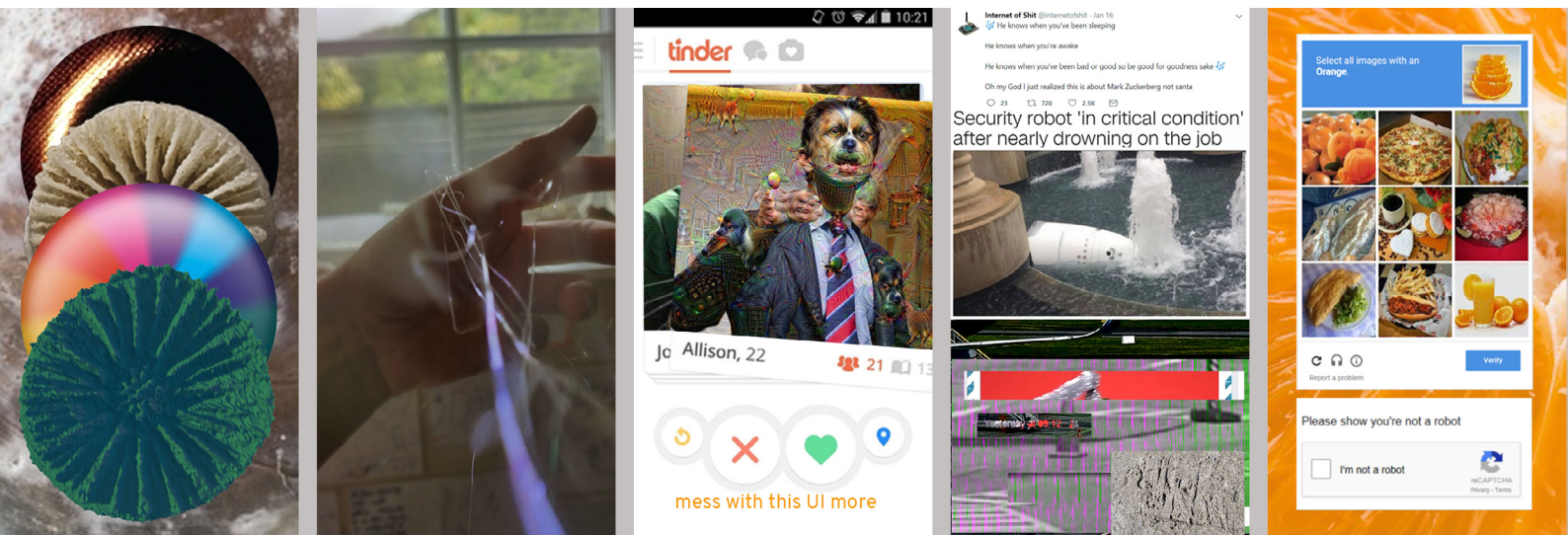


Figure 33. Rough work-in-progress storyboard juxtaposing physical and digital matter and interactions. Grover, H. (2019).

Another useful aspect of early making was the mediation of technology parts and concepts to create artefacts that were technically wrong, yet metaphorically right. An example is the recreation of neural net diagrams (themselves an attempt to compute intelligence) in VR, using Tiltbrush drawings to connect photographs of material dichotomies and virtual ‘paint’ to link objects together. These iterations were purposeful misinterpretations or literal interpretations of technological metaphors, conflating VR technologies and apparatuses with machine learning principles to create strange mixtures of digital-physical matter.

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Figure 34. 3D neural network developed using micron-sized beads. From “Building 3-D Neural Networks with Beads” by Berkeley Lab, 2008 (<https://newscenter.lbl.gov/2008/08/04/building-3-d-neural-networks-with-beads/>). Copyright 2008 Berkeley Lab.

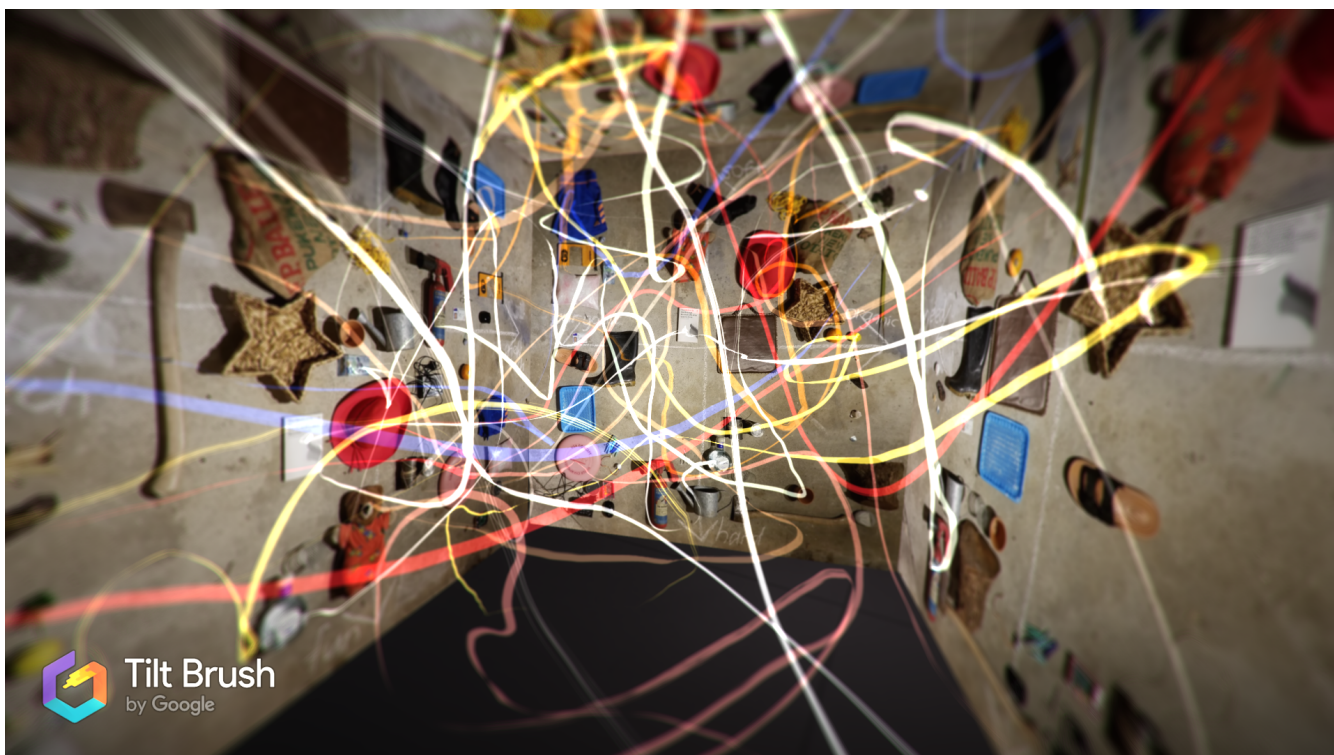


Figure 35. Imitation of neural network visualisation made in Tiltbrush. Grover, H. (2018).



Figure 36. Close up of imitation neural network. Grover, H. (2018).

Figure 37. Diffractive deep network. From “3D-printed Deep Learning neural network uses light instead of electrons” by M. Kennedy, 2018 (<https://newatlas.com/diffractive-deep-neural-network-uses-light-to-learn/55718/>). Copyright 2018 Ozcan Research Group/UCLA.

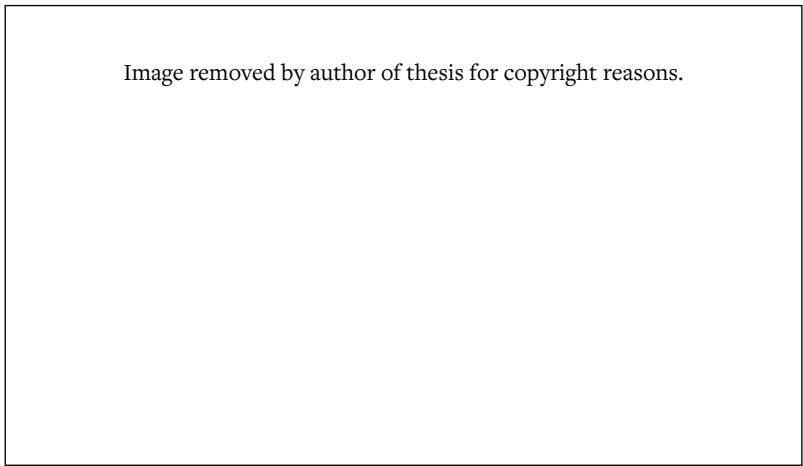


Figure 38. Imitation of diffractive neural network made in Tiltbrush. Grover, H. (2018).

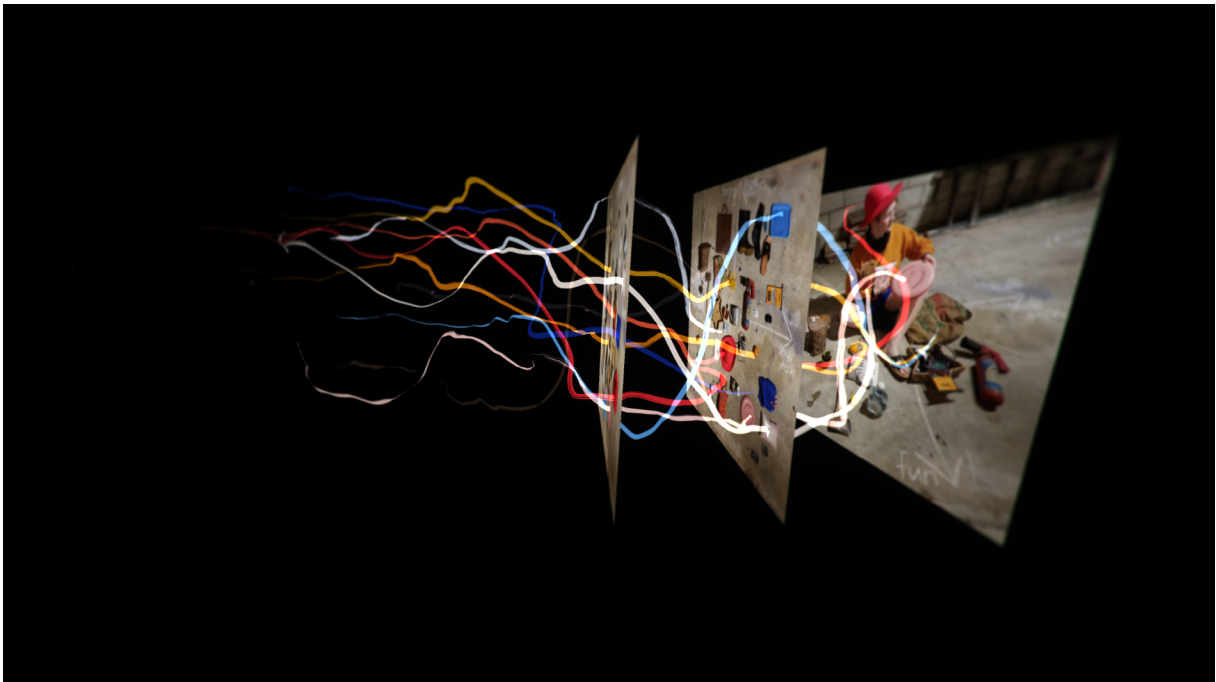


Figure 39. Side view. Grover, H. (2018). The 2D photographs disappear from view at different angles in the 3D environment.

From a practitioner perspective, this work in VR ironically helped to engender dissociation and a replacement of deep-set ideas that had proven difficult to break from. For instance, Yuk Hui's statement that "technology is not the ground" (as cited in mappingfestival, 2018) had been a critical idea to the research, yet it took an embodied metaphorical experience for realisation in practice, as noted in the self-reflection in Figure 40.

I've kind of realised that I have subconsciously been thinking and practicing like technology was the ground... like I understood how etiological this metaphor was it just hadn't set in. But by spending time in Tiltbrush, the technological "ground" is literally shifting and glitching beneath me. There was a literal disconnect between the tech ground, and the true ground I felt under my feet.

Figure 40. Researcher self-reflection (Trello card screenshot). Grover, H. (2018).

There were three key learnings and insights from these early explorations. Firstly, design fables must begin by deconstructing the matter of technology into raw materials. However, this subversive play must be suggestive, not conclusive, as any attempts to prematurely reconfigure and narrate these materials risks remaining located in the dominant cosmology. Secondly, a purposeful shift, a fairy mediation - such as metaphor, anthropomorphisation, or metamorphosis - must be enacted as an agential cut by both the maker and materials to ratchet matter away from existing narratives. This can be done by shifting and subverting materials and language. Finally, the practitioner must do the work to resituate themselves into a world where technology is no longer the ground. The next step, discussed in the following section, is the creation of a space, a medium, a cosmology for a fable-like world. Crucially, this phase enabled the researcher to resituate both herself and the practice.

Creating a storyworld

While fairy tale mediations and subversive play provided the raw narrative elements for the production of design fables, the practice was missing overarching narrative structures, and a fictional world or setting for these stories to unfold in. Each fable had to stand alone, and equally, the physical, digital, linguistic, and thematic matter of the fables had to be cohesive enough to be experienced as a situated collection. The creation of this world involved mapping out existing narrative elements, and working to fill the gaps, often referring to fairy tale literature as a guide. Elements were loosely grouped into:

- Structure plot, form, language
- Themes
- Symbols, motifs
- The World / Cosmology
- Feeling / Affect
- Character

This initial work is exhibited in Appendix A. The following discussion is a summary of the overall materiality, aesthetics, world-building, and affect. Character and specific material choices are discussed in relation to each fable.

Materiality and Aesthetics

The materiality and aesthetics of the world work to do three key things: authentically and materially situate the fables within an Aotearoa New Zealand context; show a temporal mingling which makes it difficult to place the story world in time; and undo dualisms between physical and digital matter and practices. The collection of research materials imitates the situated collection of fable-like stories - things and objects encountered, handed down, found, as well as more purposefully sought out, purchased, and made by the researcher. The resultant mix of materials were both old and new, locally, and globally made, natural and synthetic, digital, and physical. The combination of patina, grit, softness, and shine made it unclear whether this was a future, a present, or a past, suggesting it could be the product of an alternative world altogether. It was also important to not venture into a stereotypical sci-fi or fantasy aesthetic, and this is partially achieved through using real objects with ingrained and recognisable material histories. For the audience, these materials will be variably and diffractively relatable, and will also reveal some of the researcher's material culture. This also materially situates the researcher-practitioner in relation to the real world and audience.



Figure 41. Initial studies into the materiality, colours (1). Grover, H. (2019). [Appendix A].

COLOURS



Figure 42. Initial studies into the materiality, colours (2). Grover, H. (2019). [Appendix A].

The materials and their use had broad, collective symbolism, with specific motifs refined for individual fables (as discussed in the following section). Materials were constructed into bricolage objects, referencing a ‘DIY’ (Do-It-Yourself) aesthetic of cobbled together, semi-polished and imperfect, yet apparently functioning artefacts. Slick aesthetics were less important than evidence of ‘ingenuity’ and making use of what was available. While on the one hand this played into a popular Aotearoa New Zealand belief in DIY, it also aimed to shift this in subtle ways and reframe who is (perceived to be) capable of DIY and what types of making constitute or are possible to ‘do yourself’. For instance, the softer, more malleable number 12 wire was used instead of the mythological number 8, partially because the researcher was told in a hardware store “you won’t be able to bend Number 8... it’s what farmers use in their fencing” (Mitre 10 Mega Employee, Personal Communication, Dec 21, 2018). Such exclusive, patriarchal mythologies are rejected both materially and through the stories.

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Figure 43. Mitre 10 “DIY. It’s in our DNA.” advertising slogan appearing in television advertisement. From “New Zealand v Aussie kids -Mitre 10 hardware shop TV advert” by drmiggins2006, 2008 (<https://www.youtube.com/watch?v=UT6oZqYij8U>). Copyright 2008 Mitre 10.

Furthermore, authentic and situated objects are used to frame, contain, and structure the forms of digital or pixel-born matter, such as 3D prints. This in itself is a purposeful rejection of a distinction, frequently made on the internet, between ‘IRL’ (in real life) and the online world, a dualism which falsely implies the internet is not ‘real life’ (this framing acts as an excuse for online actions and platforms, which are inescapably part of ‘real life’ material-discursive apparatuses). The remediation and mixing of digital matter into/with physical matter; as an IRL, DIY bricolage, aims to transverse this dualism.

World-building and themes

The designing of the fictional cosmology helped address some challenges in practice (and is indebted to the transversal mapping done earlier in the research). One of the most difficult aspects to resolve was how to tell stories about technology without using dominant technology narratives and how to make it possible for the audience to experience the fables in this way too. To achieve this, a shift in the ‘laws of the land’ was made through the construction of a world that ‘works’ like a fairy tale under the principles and an ethos of an Aotearoa yet temporally un-placeable in its juxtaposition of multiple ways of seeing and being in the world. This constructed world is not overtly defined, as the intention is to make space for the audience to diffractively complete the world-building. Instead, it presents a strong but open position, informed by the contextualisation and situatedness of the research/er. The fictional world disregards universalising *rationality*, replacing it with dynamic *relationality*, enacted by a posthuman cast of characters. Optical metaphors complicate ideas of vision, and diffraction replaces reflection. The richness and possibilities of this world are found through “experiments across worlds” (Salmond, 2017, n.p.) and the enacting of “transversal relations” (Braidotti, 2018, p.19). The central metaphor is a network, but a messy one in which relations are not dictated by computational manipulation, organisation, and definition. To use internet terminology, the world is both ‘extremely online’ and ‘IRL’. In this created world, problems are created by the weaknesses in computational thinking and misplaced technological solutions, solved through affirmative actions that are relational, emotional, material and a little bit magical. Technology is not opposed, just problematised and subsumed into the relations of the world. Importantly, this subjugation of technological narratives operates not at a ‘systems-level’ but rather, at a cosmology level, suggesting that alternative systems or framings were not only possible but inevitable.

THE WORLD

The context is an uncanny Aotearoa in a deeply connected world, full of paradoxes, accepting of animism, a time of many times where an anthropomorphised cast of oddly familiar characters take strange turns as they attempt to walk backwards into the future, in search of a home.

Key elements of this world are:

- Aesthetically, the world mixes digital matter with physical, creating a kind of IRL, DIY, bricolage, linked together by complementary materials, colours, and surfaces with patina, grit, and shine
- Paradoxical and tricky situations, which characters often have to realise to get themselves out of traps
- Shifting temporalities - it's hard to place 'when' this world 'is', time can shift forward in lifetime-sized chunks
- Technological processes are not magic - however, wit, magic and animism are used to subvert them
- "Magic is used paradoxically not to deceive us but to enlighten us" (Zipes, p. 171, 2007)
- Like both fairy tales worlds and the internet itself, things pop up, characters find themselves in strange places, yet aren't too surprised about this, and act intuitively if sometimes 'irrationally'
- But this is NOT the matrix, or falling into the internet itself - it is clearly set in a physical/digital world, it is neither dystopia nor utopia
- Unlike science fiction or fantasy, there is no hint at an overarching explanation or fixed logic in this world, actions and logic and rationally is situated and shifted



"The symbolism comes alive and communicates meaning through imagery of strong contrasts and sensations, evoking simple, sensuous phenomena that glint and sparkle, pierce and flour, by these means striking recognition in the reader's or listener's body at a visceral depth"
- Marina Warner

Figure 44. Working out the key elements of a fictional world. Grover, H. (2019). From a prosaic standpoint, it was useful to have a single page - and not overly thorough - outline of a world to refer to while making.

Another challenge was determining what each fable should be *about*, how the characters acted and reacted, and – again - how to include technology. This was partially resolved through methods such as employing fairy tale mediations as triggers, repositioning tools, and plot twists; and the narrative elements and traditional themes of fairy tales (as outlined in the discussion of paradoxical reconfigurations). A decision was made to ground narratives around certain themes and ideas that worked to individually and collectively subvert or enable and encourage the subversion of dominant technology narratives. A mix of fairy tale themes and contextual understandings of the research problem were used. These included subversive and hopeful journeys, intra-active responsibility, finding safety and place in the network, and expanded and diffractive vision. By structuring and theming stories in this way, the fables could include technological characters and processes. This allowed for the realisation of aetiological and ethical understandings of technology while ensuring that the most important and affecting aspects of story were centred on the social and cultural.

Feeling and affect

The design fables, as a collection, were designed to have an overarching theme or experience. This was determined while creating and examining the themes of individual fables, stepping back at times to try and comprehend the message in its totality and understand what was missing as an experience and as a response to the research problem.¹⁴ However, and likely through subconscious awareness of fairy tale theory, the overall purpose of the design fables turned out to be deeply in line with fairy tale tradition. As outlined in Figure 45, this journey is essentially one of “Humans & their technologies growing up and find their place in the world, and realising an ethical, situated, posthuman way of being”.

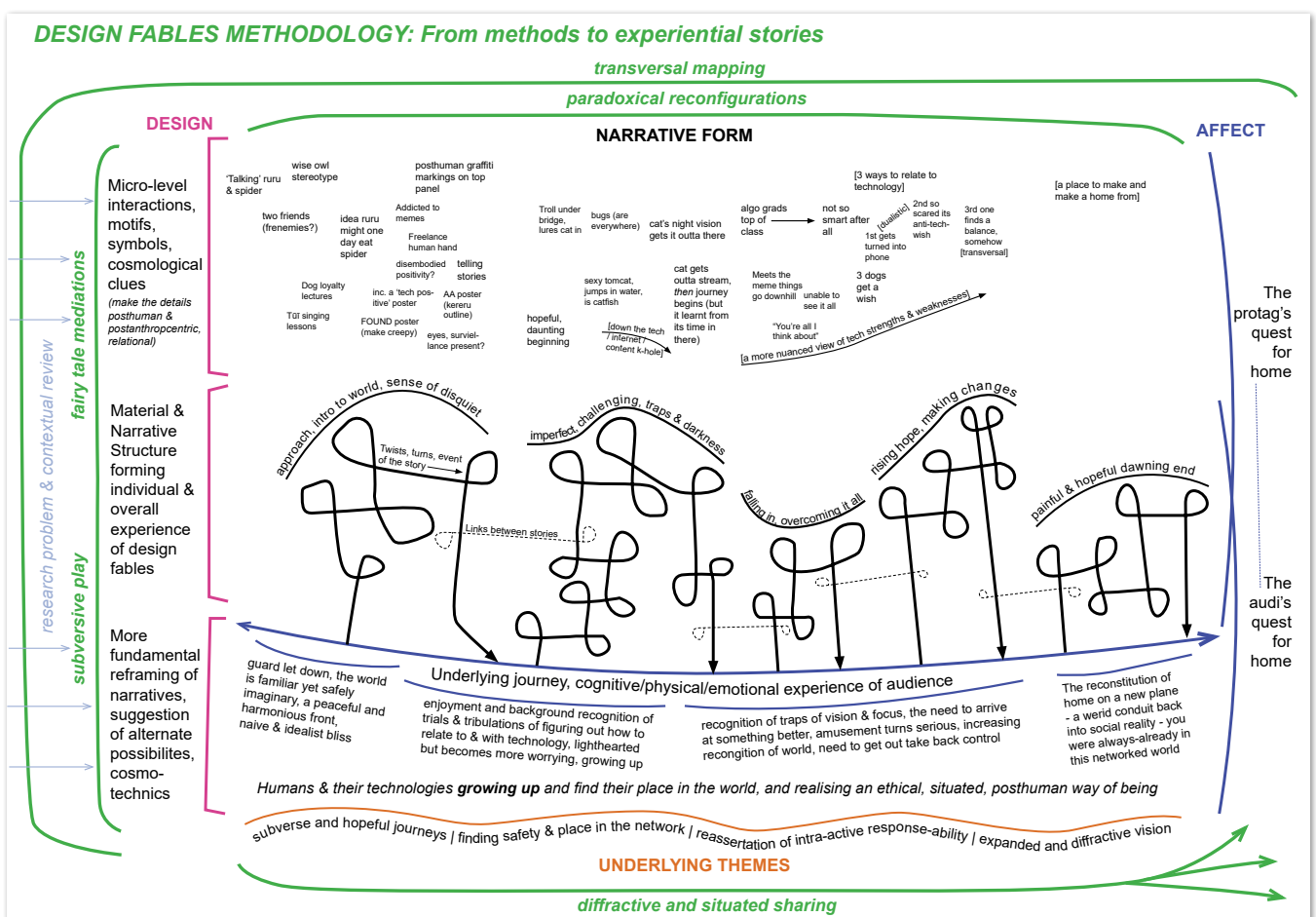


Figure 45. Working map for overall structure. Grover, H. (2019).

14 The particular ‘moment of truth’ came when formulating the slime story, realising that it was a story of growing up and learning to fight your way through tempestuous content, and that this was perhaps only part of the wider story and learning to find one’s place in the world.

The narrative and experience are designed as an agential cut to the dominant narratives of technology. The purpose was not to explicitly dictate new narratives to the audience but to make space for the diffractive creation of alternative narratives, spurred by a suggestive and cunning reframing of a situated relationship with technology. Namely, the fables rework tech as something that is deeply political and entangled; powerful yet open to situated control and wrangling. The aim is not to explain or illuminate how the network functioned as a totality, but to show what responsibility and accountability might look like within it, as well as how to intra-act ethically with the phenomena of which we are inextricably a part. Each fable acted as an example of cunning and subversive intra-actions in this inescapable network. The fables therefore had a dual function: creative responses to the research problem and making a space for the audience to do the same. Materially, the suggestion of a situated home is signalled by sheepskin rugs, cut then used as markers and guides for journeys through the fables towards home.

This ‘making space’ was possible through the evocation of culturally pervasive fairy motifs and structures. The intention is for the audience to feel like they could ‘let their guard down’ by recognising that this was an imaginary world where things didn’t function as they usually do. Usual analysis, logic and rationality do not apply here. However, the themes, struggles, materiality and content of this world are recognisable enough. For example, at times characters act as expected, following their stereotypical ‘nature’ yet non-stereotypical situations, such as a jumping spider who caught (computational) bugs. This suggests, in the posthuman sense, that we have much to learn from diverse ways of living and could use our existing skills in fundamentally different ways, thereby pushing technological development to different outcomes. Through the course of reading and experiencing the fables, this defamiliarisation makes way for a “reconstitution of home on a new plane” (Zipes, 2010, p. 14) and the realisation that this world is closer and more possible than we think. Design fables are not intended to show a dystopia or utopia; they are paradoxical reconfigurations of a situated reality that, with audience contact, diffract into entangled material-discursive phenomena.

There were valuable insights from the world-building aspect of the practice, particularly relating to the second part of the research problem; the demonstration and development of the design fable methodology. Namely, the creation and working in a fictional cosmology showed how design fables could be viewed as a form of medium design, which is paradoxically both humble and epic. It was situated, yet ambitious in scale, employing the veil of fiction and fairy tale devices to discuss, satirise, and make spaces for stories that resituate technology. The penultimate section will outline key decisions made regarding the design of the final fables,¹⁵ addressing the first part of the research problem: creating critical and creative narratives about emerging technologies.

15 At the time of writing, some prototypes were more developed than others therefore have greater detail.

Individual fables

The Ruru and the Jumping Spider

The first story of the collection acted as an introductory framing narrative and was especially important as an introduction to the materiality and posthuman characterisation of the story world. A framing narrative is sometimes used in collections of fairy tales to set the scene and explain who is telling the stories that follow. This story introduced two narrators: a ruru, and a black-headed jumping spider (shortened to ‘the spider’), both animals native and relatively common to Aotearoa New Zealand, seen and heard in suburban areas as well as forests.¹⁶ These were chosen as a means of instantly situating the collection through the metaphoric potential of their specific attributes and their mythological qualities across cultures. Owls have a cross-cultural reputation for ‘wisdom’ (for example, the Aesop fable ‘The Owl and the Birds’), and in Māori tradition, ruru are viewed as “a watchful guardian” (Department of Conservation, n.d.), as kaitiaki. Their call is seen as a good sign, whereas their cry is considered ominous. The jumping spider was chosen for its localised, attentive 360° vision, and ability to pounce on bugs (Nelson, n.d.; Sirvid, n.d.). This is perhaps a better or additional method for dealing with problems online than the web-building spiders’ reliance on sensing vibrations across their ‘web’ (Sirvid, n.d.).



Figure 46. A striking, dark, fable-like photo of the ruru in Maungatautari, Waikato. Maungatautari Ecological Island Trust. (2006). *N. novaeseelandiae*, *Maungatautari Mountain*. From “Morkpork - Wikipedia” (<https://en.wikipedia.org/wiki/Morepork>). In the public domain.



Figure 47. Black-headed jumping spider. Howard, T. (2005). *The jumping spider Trite planiceps*, *Photograph taken in Lower Hutt, New Zealand*. From “Trite Planiceps - Wikipedia” (https://en.wikipedia.org/wiki/Trite_planiceps). CC-BY 2005 Thomas Howard.

16 Ruru is a species of owl, *Ninox novaeseelandiae*, also known as morepork or kōkōu.

The image of a ruru in Figure 46 was initially found via Wikipedia. The image is in the public domain and was taken in Maungatautari. Further research revealed that Maungatautari is the location of a fenced nature sanctuary, the result of a years-long conservation project driven by a collaboration between local iwi, farmers, and conservation groups. Anthropologist Michael Harms (2015) documented this process, noting successes, difficulties, and most importantly careful cultural learning and assertion of mana whenua rights and knowledges. It was, as Salmond might describe, an example of a collision of cosmologies, a process this ruru may have ‘witnessed’, making the bird an appropriate narrator for design fables aiming to propose a similar attentiveness to difference and transversal possibilities. It is tika (correct, just, proper) to point out that the researcher has no affiliation with Maungatautari, and as such acknowledge the iwi who have mana whenua over Maungatautari and the critters in it. Tēnei te mihi ki ngā mana whenua o Maungatautari: ko Ngāti Koroki Kahukura, ko Ngāti Haua, ko Ngāti Wairere. These fables, characters, and stories are imaginary and not intended as specific and accurate representations or portrayals (even with anthropomorphisations). Nonetheless, acknowledgement of whakapapa connections is crucial.

This framing narrative took the form of a sign-like object that operates like a community noticeboard, map, discussion board, and social network profile page. The ruru and spider pair appear to be kaitiaki of this object and corresponding community. The ‘notices’ or ‘messages’ were essentially posthumanist versions of community noticeboards from places where the researcher lived and worked, tweaked to emphasise and elucidate the values and nature of this imaginary community.

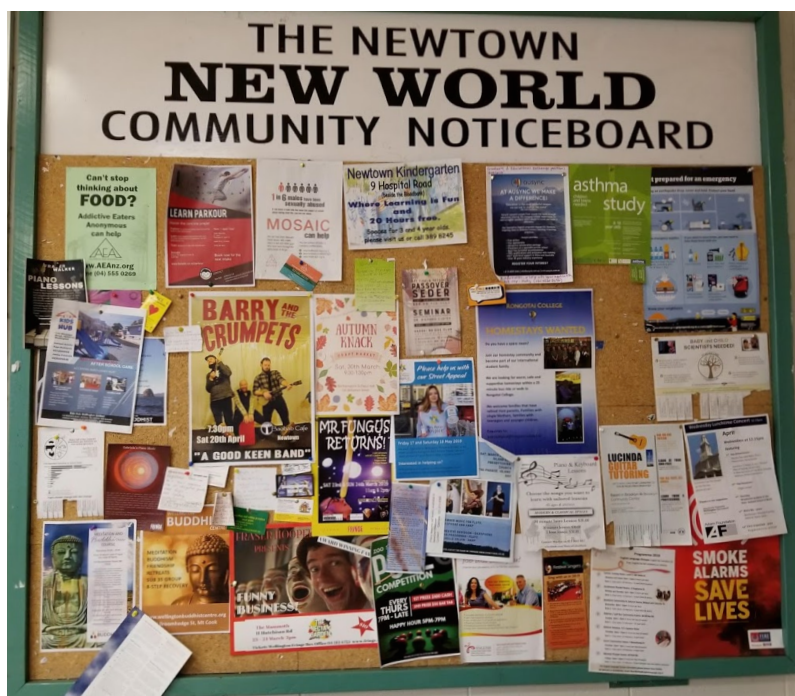


Figure 48. The Newtown New World Community Noticeboard. Grover, H. (2019).



Figure 49. One corner of the pinboard in the Eastbourne Four Square. Grover, H. (2019).

Messages are posted from a mix of overtly nonhuman characters, with each revealing something about their nature (such as a dog giving a talk on loyalty). Berentson-Shaw (2018) describes this as “value-priming”, a communication technique supported by research. By setting the scene with certain intrinsic values such as love, care for the environment, responsibility, and honesty, the audience is likely to view and experience the upcoming stories through the lens of those values. This holds even if people usually prioritise different or even opposing values. The noticeboard also hints at the stories which will follow. Importantly, it also suggests there are many more stories to be told beyond what is presented in the exhibition and booklet.

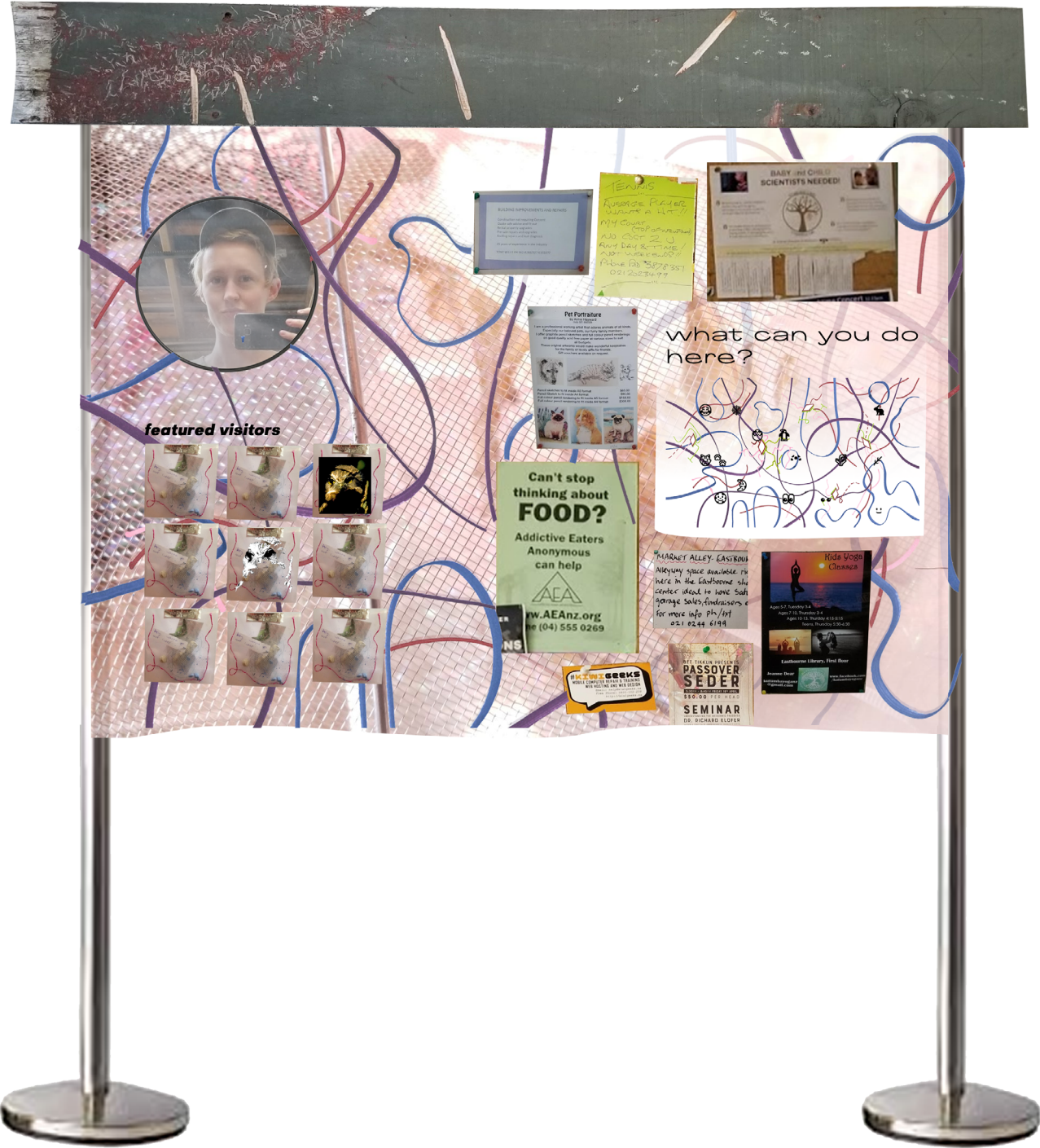


Figure 50. Initial digital mock-up of ‘community noticeboard’. Grover, H. (2019).

The Treasure Trough / Slime Stream

The treasure trough story was initially generated by juxtaposing a feeding trough originally used for farm animals, and the metaphorical use of ‘feed’ as the space where content is delivered and ordered on technology platforms (e.g. Facebook’s Newsfeed). This wordplay evolved into that of a treasure trough, suggesting a magical or rewarding feed of riches lusted after as part of a quest. To this end, the wannabe-cool-cat protagonist was fooled into thinking they could acquire gold from the feed, only to end up as a bot-like content producer on a content ‘farm’. This building of wordplay calls the audience’s attention to the marketed prosumer, who both creates content and is the product of platforms, their identity reduced to data, ready to mould and be moulded for advertisements.

Materially, the object was intended to appear at once magical and captivating, but ultimately sad as the elements of formulaic content, trends, and design more broadly were unceremoniously gathered in the trough-like swill, held together by slime (a long-standing subculture/trend which is both extremely tactile and ‘extremely online’). It teased the audience by suggesting that they too may have fallen victim to the allure of performing for and eating from this (now literal and farm-like) feed. This is not due to faults in character. Found amid the slush are the addictive parts of user interfaces, the hormones of the feed: ‘likes’, ‘comments’, ‘@’s, hashtags, red badges, and scandalous ‘DMs’ (direct messages).

However, a logistical issue prevented the realisation of this story for the exhibition, as the trough itself, made of concrete, is too heavy to transport. Therefore, the story was reformulated as a ‘Slime Stream’, part of a coming-of-age quest.



Figure 51. The feeding trough for use in the fable, with a patina showing a life of its own. Grover, H. (2019).



Figure 52. Material juxtapositions of 3d prints and found shells. Grover, H. (2019).

An Algorithm Dating a Meme

This aetiology uses a story of a failed and manipulative relationship in an anthropomorphised setting where algorithms and memes inhabit the same world they operate in, apparently with other beings (“the colleagues”). After an initial flirtation and period of getting together, the meme begins to act like a needy and jealous partner who (virally) infects and overwhelms the algorithm’s life, abusing and exploiting the nature of the algorithm. The story’s aetiological function lies in explaining how algorithmic vision can be manipulated by nefarious actors, for instance, the “data voids” (Golebiewski & boyd, 2018, para. 4) exploited by alt-right groups to make their ideas easy to find. This anthropomorphisation shows how algorithms are flawed, just like the humans who create them. The meme is an equally though perhaps less surprisingly flawed character, using its insecurity to manipulate another. Although not a good character in this story, the meme, as a cultural being, shows how culture can expose computational thinking as vulnerable, susceptible, and almost naive.



Figure 53. Machine learning algorithms in offline test environments vs. online. Grover, H. (2019).

While neither character is perfect in their actions, the story takes an ethical stance exposing the meme’s actions as harmful and undesirable, thereby perhaps suggesting that no single cultural idea should take over an algorithm’s computational world. The characters are purposefully not assigned a gender or sex. As well as being posthumanist, this decision was diffractive and inclusive in that it allowed audiences, regardless of their orientations, to relate the characters and events to their lives, or the lives and relationships of those around them. This diffraction was perhaps the strongest driver of how the story could be perceived, and how, in turn, perceptions of algorithmic technology may shift.



Figure 54. Original table and tissue box used for the story. Grover, H. (2019).

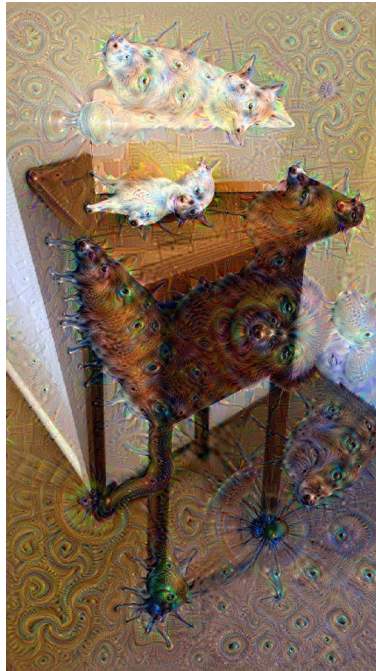


Figure 55. Image filtered using Deep Dream Generator online tool. Grover, H. (2019).



Figure 56. Image filtered using Psychic VR Lab deep dream web interface. Grover, H. (2019).

The story was generated transversally over time, by oscillating between story, theory, and material explorations. It began with an initial exploration of memes making imprints on the physical world (Figures 18-20, p. 26) and was inspired by deepmind images and the idea that algorithms ‘see’ the world differently. Object forms were chosen for their familiarity: a side table as an everyday item of household furniture, and the tissue box as an object associated with the end of a relationship. Originally, the intention was to use plaster to imprint memes on the surface. Melting 3D printed memes around the side table was tested as an alternative, inspired by a failed experiment where the 3D printed meme roller had warped in hot wax. This resulted in an effect closer to deep mind imagery, while the replicability of 3D printing as a technique and the lightness and pervasiveness of plastic better suited the nature of memes. Although originally intended to show algorithmic vision, a side effect of the meme imprinting was a physical representation of inevitable thinking (for better or worse) about a current or former partner.

Diffraction Selfie / Mirror

The final fable acts as a bookend, and hopefully a moment of realisation: the arrival home, the recognition that this fictional world is much closer to reality than it seemed to be. The written story was less conclusive than the others, leaving the audience to interpret and interact with the material object to reach variable conclusions. This story focuses on two characters who encounter each other and edge towards an outcome that is painful and hopeful. One option was to encourage a very purposeful, playful, and everyday interaction: taking a selfie through a hanging ensemble of diffractive grating and lights. A second option was to present a framed mirror made out of see-through diffraction grating rather than reflective glass. Both offer

opportunities for relational intra-action, viewing people and mediating technology through a diffractive process. The use of diffraction grating as a material enfolds the audience into the story world through intra-actions with light, paradoxically emitting from the story itself, and the world it is in. The practice is diffracted out into the world and the world into the practice. It also evokes the wonder and mythology of rainbows, however not the semi-circle type which appear to have beginning and endings. Like narratives in this complex time, the rainbow diffraction patterns change depending on atmospheric conditions and audience positions. The materiality also acts as a physical filter (filters being common feature in photography-based apps), suggesting, through a strong visual and embodied metaphor, that the self does not need to be singular nor occupy and think in a singular space. The narrative of the story suggests that this is an alternative way of looking, thinking, and interacting with technology: that a diffractive and transversal way of being in the world could open possibilities for agential cuts. We cannot escape this network that we are part of. We do, however, have a daunting yet exciting task: to make our own, situated stories about emerging technologies, and to reconstruct, reconfigure, and exercise some subversive control over how these technologies are made, designed, and introduced in the first place.

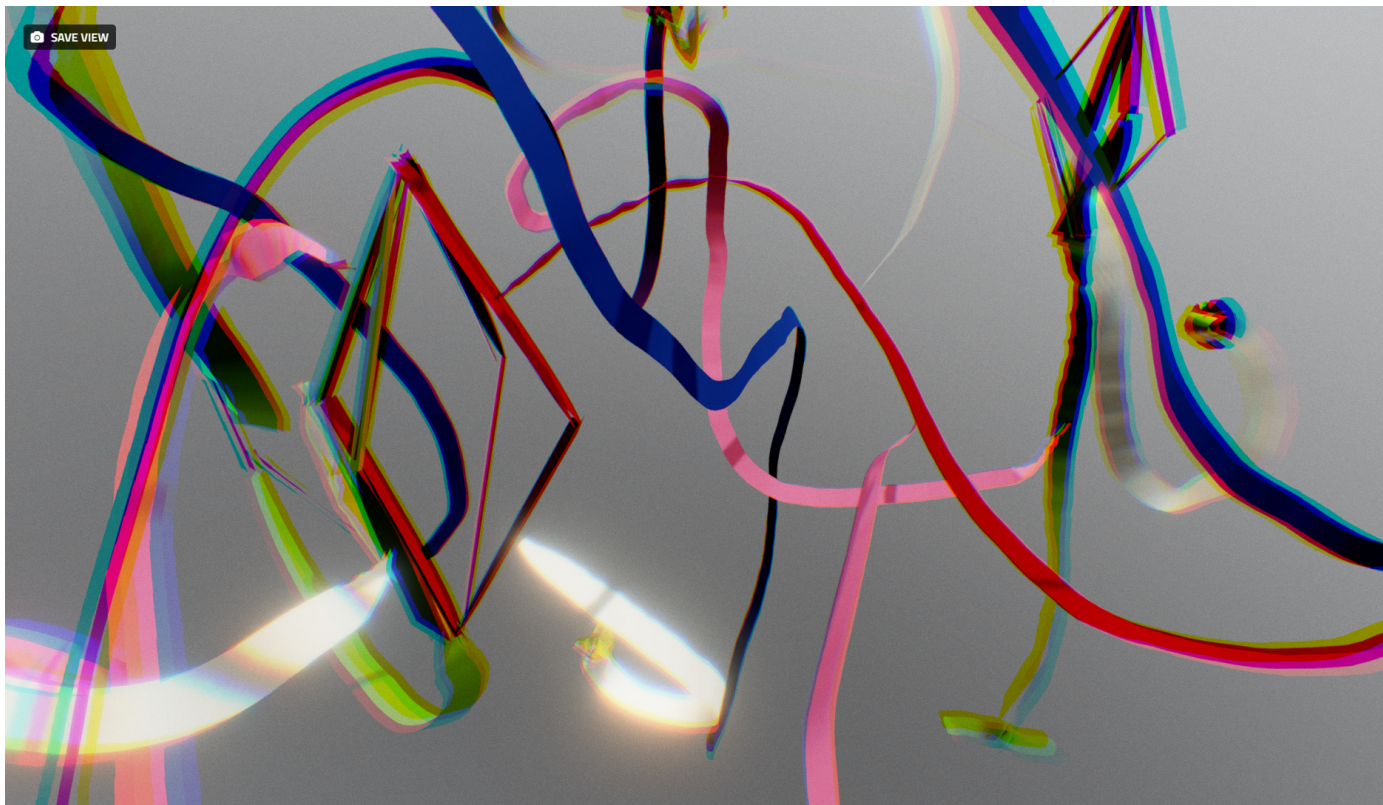


Figure 57. Image from early practice, adding Tiltbrush network/narrative drawings to Sketchfab, playing with diffractive chromatic filters. Grover, H. (2019).

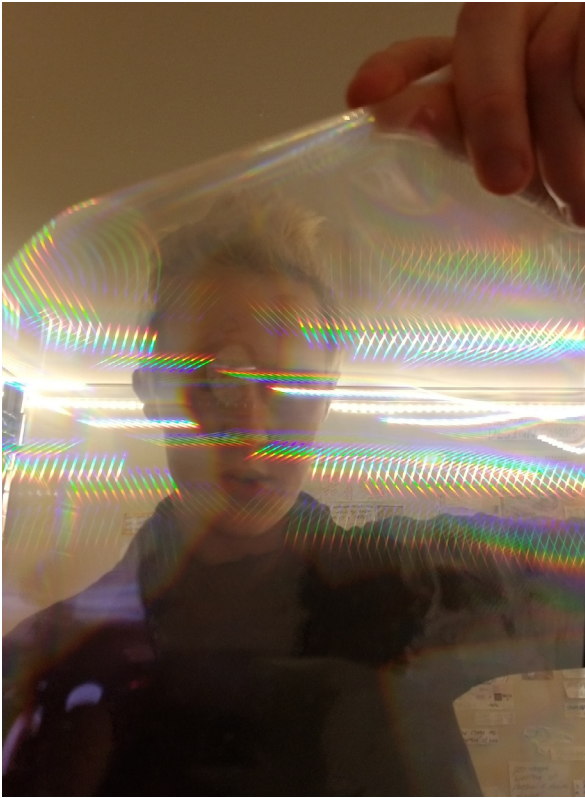


Figure 58. Diffractive selfie test - a form of IRL filters and/or DIY AR? Grover, H. (2019).

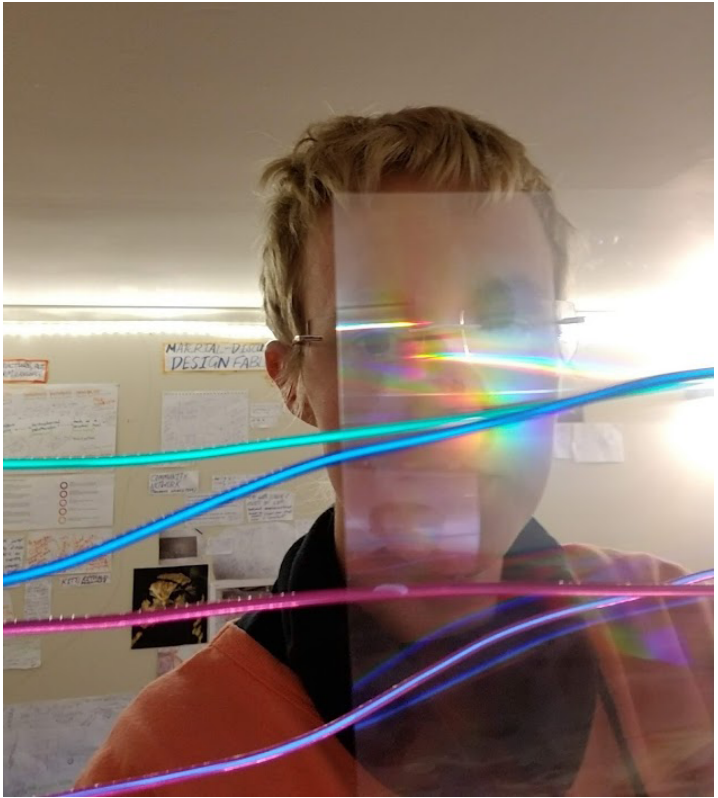


Figure 59. Diffractive selfie test with EL wire. Grover, H. (2019). Similarities with the network diagram were evident, especially when combined with EL wire.

Conclusion

Now is a crucial and malleable time for new stories about emerging technologies. Within this context, this research questions, how might a design-led approach generate critical and creative narratives around emerging technologies? This project responds to this provocation in two key ways: creating a selection of new stories and formulating a design methodology for doing so. Finding the space and place to design involved a new materialist mapping of the context; cosmological situating of the research and researcher; and design prototyping practices. These performative understandings are further embedded and applied to the research as part of a generative transversal, which included fables, new materialism, and critical design practices. The outputs are the ethico-onto-epistemological *design fables* methodology and a small series of prototypical objects and accompanying stories. By necessity and by design this research has been an ambitious, interdisciplinary project spanning digital and popular culture, critical design, and a contemporary interpretation of the fairy tale genre. This arguably makes the thesis an example of the critical posthumanities that Braidotti asserts are essential for our times (2018). Therefore, this project contributes to wider research through demonstrating an entanglement of new materialist theory and design practice, and in doing so, generating situated insights into the research problem.

Early practical work and methodological development show how new materialist theory has been integrated into design practice both theoretically and through materiality, and the insights this has generated. Practices of deconstruction, defamiliarisation, and subversive and transversal play are enacted from within dominant material-discursive apparatuses, whittling matter and language down to raw materials that became ready for reworking. As the experiences documented throughout this research experience demonstrate, care must be taken not to reconfigure matter prematurely, as this can lead to problems of recreating in the same space and playing to dominant narratives. Instead, this matter can be ratcheted out of hegemonic worlds through fairy tale mediations: metaphor, metamorphosis, and anthropomorphisation. Finally, to truly step (always partially) outside requires a cosmological construction: not a utopia or dystopia, but an alternate home. This world acts a form of Keller Easterling's medium design (2018), working on a fictional scale that is both humble and epic. Through reconfiguring narratives in a different cosmological space, it is possible to talk about technology without centring it or assuming it is 'the ground'. The research makes an important contribution to debates surrounding design fiction (and speculative design), by showing how a genealogical switch to fables and fairy tales can result in situated work that leads with social and cultural referents.

Furthermore, the Baradian recognition that ethics are inseparable from material-discursive practices impacted the practice both critically and creatively. While the design fables purposefully do not have *epimythia*, they do take a strong ethical position through acknowledging the situatedness of the researcher as a Pākehā design researcher in Aotearoa New Zealand. The design fables as narratives suggest the construction of a situated cosmotechnics must involve replacing colonial rationality with anti-colonial relationality as a cosmological principle that enables transversal relations. As the algorithm and meme fable explains, computational rationality is naïve when faced with the intricacies and situational troubles of relating to one another. Furthermore, as is signalled by the journey from a reflective mirror at the beginning to a diffractive mirror at the end, optical reflection and representation are limited ways of seeing and creating, showing us only what we are or what we can generate in our own image. Diffraction, alternatively, expands our vision and attention to different perspectives and positions. In the final presentation of artefacts, the patterns of diffraction shift depending on the viewing position, as well as the time, the weather, the presence of and relation to others, and the devices we use to see through. Technology not universal or singular; it is impossible to see or solve or neutrally compute from one position in spacetime. Instead, it is the iterative holding of many unique positions that offer the best opportunities for the development of expansive *cosmotechnics*. These are directive and ethical reconfigurations, agential cuts into universalising technology narratives.

Finally, the use of diffraction grating shows literally, figuratively, and *materially* how the fable-world and research are in a constant process of intra-action with the phenomena of which it is a part. Like fables as a genre, the design fables methodology and stories are highly situated, contextually dependent, and historically provocative. Multiple collections of design fables could guide and provoke the discussion of emerging technologies in ethical and situated terms. Like fables from a certain time, the research originates from a situated position and reveals the cosmology and perceived limitations of the research and researcher. And that these limitations can also be strengths. This leads to the reiteration of what has been emphasised throughout the practice and discussion: the reconfiguration of emerging technology narratives demands multiple perspectives and multiple, situated responses. The specific stories and methodology of this project are a humble yet hopeful and wily contribution to this monumental task.



Figure 60. Morning light over Te Whanganui-a-Tara, Wellington Harbour, as seen through diffraction grating. Grover, H. (2019).

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Appendices

Appendix A: Storyworld /Cosmology/ Materiality

OVERVIEW

The World itself

The context is an uncanny Aotearoa in a deeply connected world, full of paradoxes, accepting of animism, a time of many times where an anthropomorphised cast of oddly familiar characters take strange turns as they attempt to walk backwards into the future, in search of a home.

Key elements of this world are:

- Lots of paradoxes, which characters often have to realise to get themselves out of traps
- Shifting temporalities - it's hard to place 'when' this world 'is', time can shift forward in lifetime-sized chunks
- Technological processes are not magic - however, wit, magic and animism are used to subvert them
- Like both fairy tales worlds and the internet itself, things pop up, characters find themselves in strange places, yet aren't too surprised about this, and act intuitively if sometimes 'irrationally'
- But this is NOT the matrix, or falling into the internet itself - it is clearly set in a physical/digital world
- Aesthetically, the world mixes digital matter with physical, creating a kind of IRL, DIY, collage bricolage, linked together by complementary materials, colour, and textures, and interfaces which are echoed throughout all of the stories
- Unlike science fiction or fantasy, there is no hint at an overarching explanation or fixed logic in this world, actions and logic and rationality is situated and shifted

Story structure

The stories are introduced with a frame narrative, a narrative in which a situation and world is introduced, and ends with a protagonist/antagonist being told a series of stories. The frame narrative also introduces elements of magic and anthropomorphisation, like talking spiders. This sets the scene for the possibilities in the stories which unfold.

From there, most of the core stories revolve around the following narrative structure:

- An apparition, a quest, a problem to solve, a thing to seek. This could involve minimal preamble, the story might begin in an odd situation / odd world
- Sets character off on a journey (mental, physical, spiritual, emotional)
- Something gets in the way
- A stroke of good fortune + the use of wit and cunning helps the character overcome (or perhaps embrace) the situation
- It ends with a birth, a surprising outcome: painful, hopeful, yet inescapably right

Some stories show characters as emerging from interia (or at times falling in), released from states of entrapment (such as the lifting of curses), and with this release comes a lesson. However there are not explicit morals of the story, these are left open for the reader to interpret

Character

- Nothing appears to be able to rule or control the world, but all characters are trying to find a place within its complexity. While characters are foolish enough to attempt to rule the world, or think they already do, they get foiled along the way
- Characters are not overly surprised at their state, however they might face criticism from others about being outside of the norm, on a silly quest
- In saying, some actors have more power and agency than others, however this is temporary and contingent, and underdogs often win out
- Characters generally act or are expected to act in a way which fits with innate traits, but with some anthropisation. This also goes the other way - the possibility of metamorphosis traps characters in others' bodies, and ways of doing and being (eg humans becoming a bot)
- Characters often act on intuition, and there is evidence of thinking or decision making, but generally they seem trapped or limited by their own - very-human, very-bot - way of thinking
- The use of anthropomorphisation and metamorphosis switches up ideas of subject and object

*"I could be the noise in the night
Instead of the child scared in the dark"*
- Jessica Shoemaker

Figure 61. Storyworld/Cosmology/Materiality slide 1 (Google Slides Document). Grover, H. (2019).

THE WORLD

The context is an uncanny Aotearoa in a deeply connected world, full of paradoxes, accepting of animism, a time of many times where an anthropomorphised cast of oddly familiar characters take strange turns as they attempt to walk backwards into the future, in search of a home.

Key elements of this world are:

- Aesthetically, the world mixes digital matter with physical, creating a kind of IRL, DIY, bricolage, linked together by complementary materials, colours, and surfaces with patina, grit, and shine
- Paradoxical and tricky situations, which characters often have to realise to get themselves out of traps
- Shifting temporalities - it's hard to place 'when' this world 'is', time can shift forward in lifetime-sized chunks
- Technological processes are not magic - however, wit, magic and animism are used to subvert them
- "Magic is used paradoxically not to deceive us but to enlighten us" (Zipes, p. 171, 2007)
- Like both fairy tales worlds and the internet itself, things pop up, characters find themselves in strange places, yet aren't too surprised about this, and act intuitively if sometimes 'irrationally'
- But this is NOT the matrix, or falling into the internet itself - it is clearly set in a physical/digital world, it is neither dystopia nor utopia
- Unlike science fiction or fantasy, there is no hint at an overarching explanation or fixed logic in this world, actions and logic and rationality is situated and shifted



"The symbolism comes alive and communicates meaning through imagery of strong contrasts and sensations, evoking simple, sensuous phenomena that glisten and sparkle, pierce and flow, by these means asking recognition in the reader's or listener's body at a visceral depth"
- Marina Warner

Figure 62. Storyworld/Cosmology/ Materiality slide 2 (Google Slides Document). Grover, H. (2019).

THE WORLD: SYMBOLIC MATERIALITY

The world is enforced and told through it's materiality. The hard part will be not being overly prescriptive, 'representative', or dualistic. ie tech/plastics as evil, nature as good. I think it's the roles, subjects, objects etc and what these materials do in the worlds I create that is going to symbolically place them for people. So it might not be helpful to over prescribe what each material does prior to it's use and reconfiguration... BUT, I need something to begin with, and I should work with the ideas materials might trigger for people, so if I'm overly contradictory or coy it could make it confusing.

So generally speaking:

- nets are about the capturing, being in a local-global network
- shiny string and silver represents not so much technology, but its seductive powers
- natural materials represent a real richness or perhaps deeper wisdom, but a wisdom which is relational to everything else
- digital matter and sound I think shows a speeding up and slowing down of time, and a fleetingness
- mirrors and mirrored surfaces show maybe the problems with reflection, with diffraction grating used over top as a replacement optical metaphor for seeing and interacting
- I am and have been generally thinking of softer material and knitting as a feminine touch
- no material trumps another globally as they each have their different quantities, its their mixing which brings richness and opportunities



Figure 63. Storyworld/Cosmology/Materiality slide 3 (Google Slides Document). Grover, H. (2019).

THE WORLD: MATERIALITY - GENERAL COMMENTS

- The world / exhibition in general is a bricolage, with materials that, when placed together, become hard to place in a particular temporality - there is a sense of time intermingling.
- The bricolage is also a gathering of available materials, in this sense it is materially situated. Like fables, many objects have also been inherited/handed down. Perhaps there is an opportunity to think about the privilege / opportunities some of these materials hold.
- Another thing I want to think about is this feeling of as you approach it for these materials to have a sense of familiarity but as you get closer and looking more detail you realise there is something weird and uncanny about them, creepy, delightful
- That leads to thinking about form too - if its going to be an unfamiliar form, I could make it in familiar materials, if its a familiar form think about more unfamiliar or reconfigured materials for that, to push it into the strange
- The other question around materials is the ethicality of it
 - acknowledging many materials are from overseas, extracted from the earth, worked into shape by badly paid people, robots, machines. I think it's important to find a way of acknowledging and confronting this.

Things not seen in these images:

- Sounds: drawn out UI sounds, rustling, sounds of movement, etc.
- Digital matter - pixels, movement of digital, lights
- Haptic qualities - it would be nice to let people touch things, but it will depend on the objects I create



"The symbolism comes alive and communicates meaning through imagery of strong contrasts and sensations, evoking simple, sensuous phenomena that glint and sparkle, pierce and flour, by these means striking recognition in the reader's or listener's body at a visceral depth (glass and forests, gold and silver, diamonds and rubies, thorns and knives, wells and tunnels)."

- Marina Warner

Figure 64. Storyworld/Cosmology/Materiality slide 4 (Google Slides Document). Grover, H. (2019).

LIGHTING: SUNLIGHT / ARTIFICIAL / FLASH



Figure 65. Storyworld/Cosmology/Materiality slide 5 (Google Slides Document). Grover, H. (2019).

TEXTURES / SURFACES / COMBOS



Figure 66. Storyworld/Cosmology/Materiality slide 6 (Google Slides Document). Grover, H. (2019).

MATERIALS GROUPED BY COLOUR

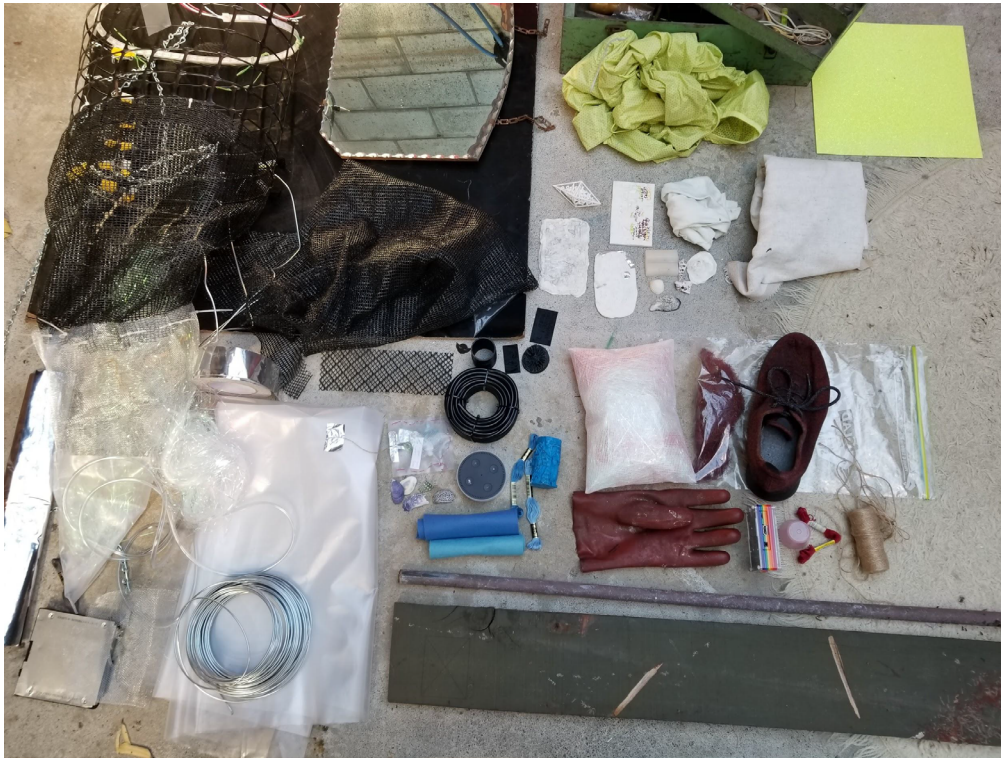


Figure 67. Storyworld/Cosmology/Materiality slide 7 (Google Slides Document). Grover, H. (2019).

COLOURS



Figure 68. Storyworld/Cosmology/Materiality slide 8 (Google Slides Document). Grover, H. (2019).

COLOURS



Figure 69. Storyworld/Cosmology/Materiality slide 9 (Google Slides Document). Grover, H. (2019).

MATERIALS: WITH DARK BROWN WOOD

NB: Decided against this, as the wood felt jarring and out of place.



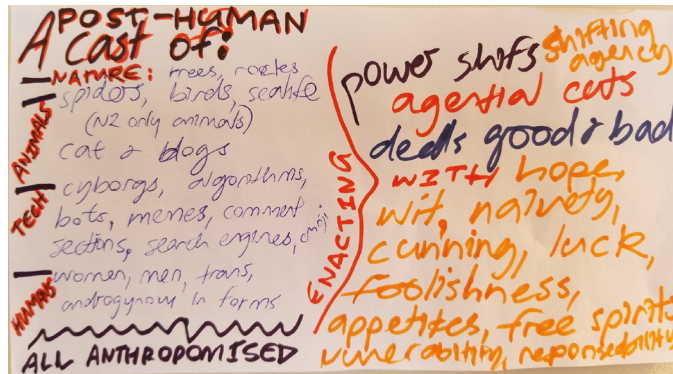
Figure 70. Storyworld/Cosmology/Materiality slide 10 (Google Slides Document). Grover, H. (2019).

CHARACTERS

- Characters are in constant states of renegotiation, forming, and always-becoming
- Nothing appears to be able to rule or control the world, but all characters are trying to find a place within its complexity. While characters are foolish enough to attempt to rule the world, or think they already do, they get foiled along the way
- Characters are not overly surprised at their state, however they might face criticism from others about being outside of the norm, on a silly quest
- In saying, some actors have more power and agency than others, however this is temporary and contingent, and underdogs often win out
- Characters generally act or are expected to act in a way which fits with innate traits, but with some anthropisation.

This also goes the other way - the possibility of metamorphosis traps characters in others' bodies, and ways of doing and being (eg humans becoming a bot)

- Humans tend not to be primary characters or protagonists, in an effort to decentre and move to a posthuman discussion
- Characters often act on intuition, and there is evidence of thinking or decision making, but generally they seem trapped or limited by their own - very-human, very-bot - way of thinking
- The use of anthropomorphisation and metamorphosis switches up ideas of subject and object - think about this in turns brings about ideas of agency and entanglement



- There is a socialisation process & acquisition of values in society, where protagonists have power of determination
- Elements of surprise, intuition, subvert what would be rational for the character
- Characters might have Lowry-esque realisations ("I want to fly") which might happen through odd intuitive actions
- Protagonists /Antagonists work with or manipulate the nature of characters to a more ethical or unethical outcome

"I could be the noise in the night
Instead of the child scared in the dark"
- Jessica Shoemaker

Fairy-tale mediations: Metamorphosis, Anthropisation, Metaphor

Figure 71. Storyworld/Cosmology/Materiality slide 11 (Google Slides Document). Grover, H. (2019).

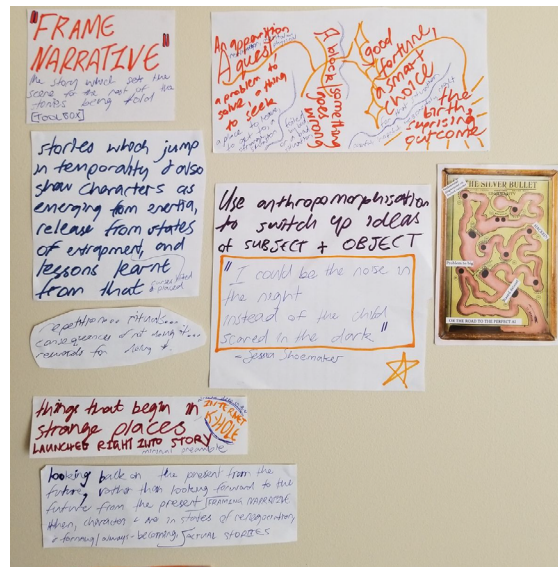
STORY STRUCTURE

The stories are introducing with a frame narrative, a narrative in which a situation and world is introduced, and ends with a protagonist/antagonist being told a series of stories. The frame narrative also introduces elements of magic and anthropomorphisation, like talking spiders. This sets the scene for the possibilities in the stories which unfold.

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- A stroke of good fortune + the use of wit and cunning helps the character overcome (or perhaps embrace) the situation
- It ends with a birth, a surprising outcome: painful, hopeful, yet inescapably right

Some stories show characters as emerging from interia (or at times falling in), released from states of entrapment (such as the lifting of curses), and with this release comes a lesson. However there are not explicit morals of the story, these are left open for the reader to interpret



- Repetition, rituals, consequences of not doing it, rewards for doing it...
- Things that begin in strange places and then launch into the story, with little preamble
- Solution is always a social intervention in tech
- Focus on small engagements as examples of bigger ideas
- A wanderer, interrupted, stumbles upon an inner world, or strongly imaged state, a different "type/species" of character, a mysterious object which curses them
- The outcome is a lesson / moral learning
- Ability to jump forward in time, suddenly, to conclude or confuse

Figure 72. Storyworld/Cosmology/Materiality slide 12 (Google Slides Document). Grover, H. (2019).

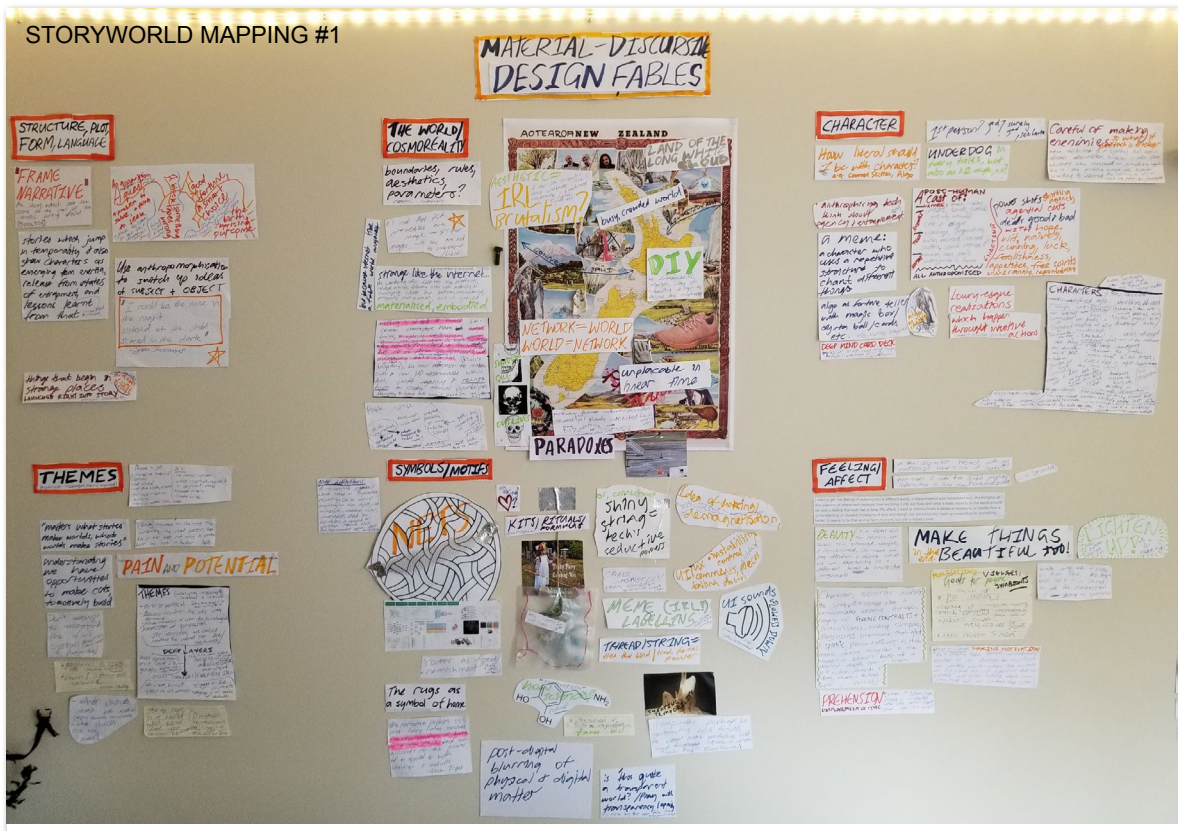


Figure 73. Storyworld/Cosmology/Materiality slide 13 (Google Slides Document). Grover, H. (2019).

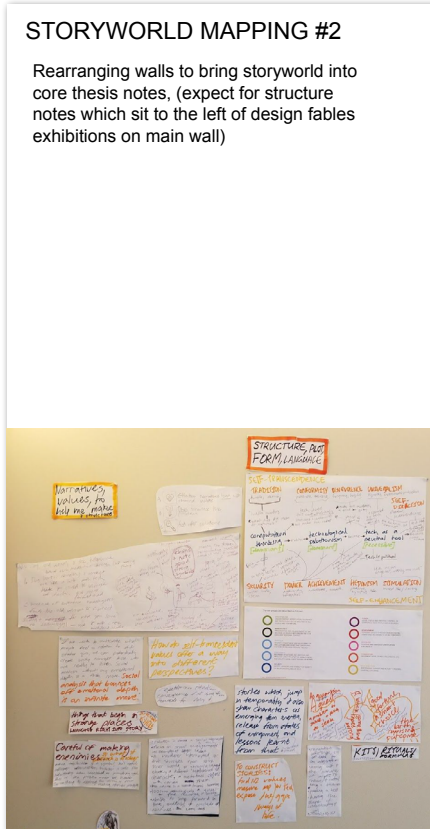


Figure 74. Storyworld/Cosmology/Materiality slide 14 (Google Slides Document). Grover, H. (2019).

Appendix B: Exhibition



Figure 75. *Four Fables* on display in St. Paul's Gallery 1. Grover, H. (2019). *Four Fables*. The final exhibition consisted of four fables, each an artefact and story, as well as two holders for the booklets and a shelf to hold the projector. The prototypes were mostly assembled in situ.



Figure 76. *Four Fables* booklet in situ. Grover, H. (2019). *Four Fables*.

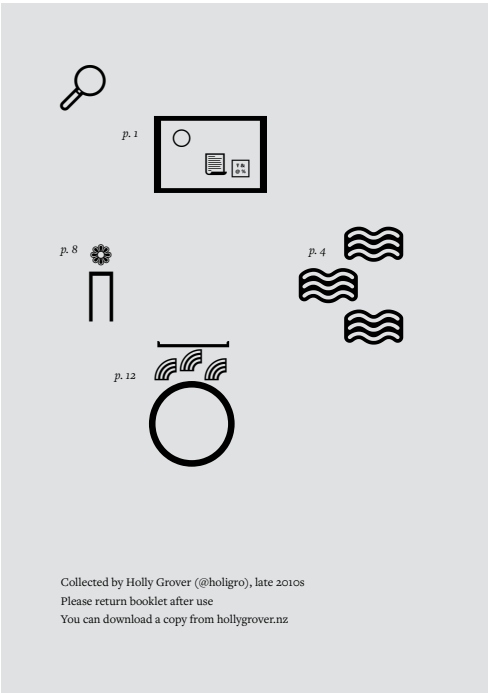


Figure 77. Inner cover of *Four Fables* booklet, mapping written stories to artefacts. Grover, H. (2019). *Four Fables*.

The Locals



Figure 78. *The Locals* community network. Grover, H. (2019). *The Locals*. Recycled concrete blocks, closet poles, overflow sand from Te Whanganui-a-Tara, garden netting, intrascrews, EL wire, battery packs, found pieces of wood, nails, shaving mirror, digital prints on paper and OHP sheets, handwritten notes, split fasteners.

Figure 79. *The Locals*, p. 1.
Grover, H. (2019). *Four Fables*.

the locals

Something was amiss in the community, and no one could agree on whodunnit. The locals gathered in front of the community network, where the signs of something strange were showing.

'It was a cat!' said the dog.

'Of course you'd say that!' snarled the cat. 'It was a bird, one with talons!'

'No, it was a mussel!' said the seagull. 'They're so damn sharp and hard to crack.'

'But look at this!' said the ant. 'No animal could do this!'

'It was a knife!' said the human.

They all looked at the human, and laughed.

'So who was using the knife?'

'Who made the knife?'

'Who made the metal?'

'Well...' rumbled the rock. 'If we go back millions of years you'll find that -'

'Boring!' interjected the spider. 'Why did they do it?'

'But who did it?'

A kākā flew in.

'Ha! This has your name all over it!' screeched the seagull.

'Rubbish!' said the kākā. 'That's an emoji!'

1

The emoji smiled, winked, then turned into a heart.

'Why did you make it a fence?' yelled the possum.

'A fence? This isn't a fence!'

'Who said the network was a fence?'

The ant climbed onto the network.

'Oi, you're touching the crime scene!'

The ant recoiled. 'I won't make a dent!' it yelled. 'This stupid thing wasn't even built for me!'

'It was definitely a train,' said the algorithm.

'Psh, you think I'm a train,' said the horse.

'So it was you!' said the algorithm.

The critters that could, rolled their eyes.

'What about the marks?'

'They were already there!'

'I've never seen them before' said the dog.

'Stick to using your nose, useless.'

'There's a bug in the network!'

The bug popped its head out of the network. 'Wassssup!'

'There IS a bug in the network!'

'Rude, I'm right here,' said the bug.

The spider jumped right next to it and bared its fangs.

'Who are you working with?' asked the spider.

'More like who am I *not* working with?' said the bug.

'Ha! He's guilty!' yelled the spider, and ate the bug alive.

Everyone started yelling.

'Murderer!'

'Executor!'

'Fair trial!'

'Justice!'

The tūi ate the spider. The ant lifted the rock, and dropped it on the cat.

The cat scratched at the dog. The possum tried to pounce on the tūi,

2

and the kākā tore open the network as it flew away. The human trapped the possum. The horse bit the human. The seagull shat on the horse. The algorithm saw it all, and got PTSD. The emoji turned into a face and started crying.

~

That night, the ruru arrived at the scene. A few snails were mopping up the mess.

They told the ruru about what happened.

'But what were they arguing over?' asked the ruru.

The snails slowly turned their tentacles to look at each other.

'That's what's so strange about it,' said the snails. 'They all said the argument was about different things.'

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Figure 80. *The Locals*, p. 2-3. Grover, H. (2019). *Four Fables*.



Figure 81. Flyers and notices from a posthuman cast of characters in *The Locals*. Park, S [Photographer]. (2019). Copyright 2019 Stephen Park. Reprinted with permission.



Figure 82. Close up view of network map and EL wire. Grover, H. (2019). *The Locals*. The use of garden netting and OHP sheets created a semi-transparent 'noticeboard', providing both depth and some visibility of the fables to come, notably the diffractive light from *The End of the Tour*.

The Cat in the Stream

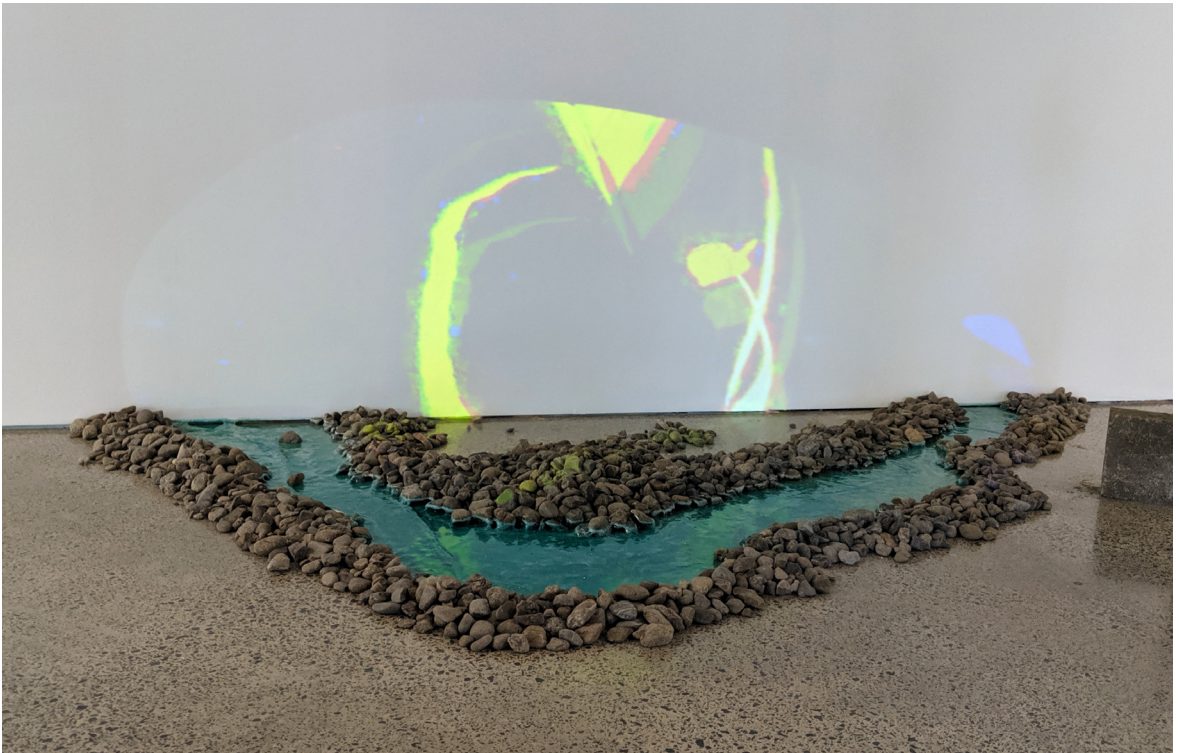


Figure 83. The slime stream with projection. Grover, H. (2019). *The Cat in the Stream*. Secondhand river rocks, 20.5L of slime in various colours (clear non-toxic glue, water, borax, food dyes), plastic pond liner, vinyl tubing, clear duct tape, digital projection.



Figure 84. The view downstream. Grover, H. (2019). *The Cat in the Stream*. Oozy to begin with, the slime became more solid as water evaporated over the course of the exhibition, leaving behind a thick squishy layer and whitewater-like markings and bubbles.

the cat in the stream

The cat had an argument with its flatmates, so it huffed out of the house for a walk.

Soon, it came across a glistening stream.

This is new, it thought, as it stood on rocks, peering in.

A shining red light began darting around the stream.

Ha! I'll get it, thought the cat. It swiped at the light, and as its paw touched the stream, it seemed to fall right in.

The cat had never been submerged in a stream before. The feeling wasn't as bad as expected.

'Hey there!' said a bird, perched on a log, partially submerged.

'Hi... what are you doing in a stream?' said the cat. 'You're a bird!'

'And you're a cat!' said the bird. 'But you can be anything you want to be in here.'

The bird then turned into a TV and showed the cat an introductory video.

'And here's a log to cling onto,' said the bird-TV. 'You might want to

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carve your name into it. Don't lose it!'

'Thanks,' said the cat, still a bit confused.

The cat was floating along when it remembered the argument with its flatmates.

'Stupid flatmates,' it muttered aloud.

'Tell me about it! Mine installed a bloody dam in the doorway!'

An eel had appeared by its side, and soon enough, the two of them were surrounded by other critters sharing their worst flatting stories.

Sheesh, thought the cat, looks like I'm not the only one with flatmate problems. In fact, the stream was full of like-minded critters. They played games, shared photos, music, and eventually videos, making and chatting and exploring the stream together. The cat loved it.

'PUSSSSAAAAAYY!'

But the fun didn't last for long.

'HERE PUSSY PUSSSSAAAAAYY!'

Ugh, thought the cat, I hate being called that.

'HERE PUSSSSAYY!'

The voice was coming from under a bridge. The cat decided to tell this thing to shut up. Its friends in the stream gave it conflicting advice.

'No! Don't tell it anything!'

'It's a troll, don't feed it!'

'Just yell back, drown it out!'

So the cat clung to its log and began talking. Then yelling. It was all worked up when a handsome stranger appeared by its side. They began flirting, the stranger's requests getting more and more personal. But when the cat began saying no, the stranger turned into a fish and swam away.

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Figure 85. *The Cat in the Stream*, p. 4-5. Grover, H. (2019). *Four Fables*.

Was it my whiskers? The cat thought to itself.

'It was definitely your whiskers,' said an ad, flashing in front of the cat's face.

'Leave me alone!' it told the ad.

The ad disappeared, but a second later, another one appeared.

'Look at how purrfect this cat's tail is!' it yelled, showing the cat a picture, 'when's the last time you groomed your tail?'

The cat began to feel nervous about the shape of its tail. And its whiskers. And its face.

Another bird appeared, dangling strange cards in front of the cat's face.

'Hey! Check out our filters, they make you look fantastic!'

The cat, nervous, grabbed one and took a selfie. The card did make it look good.

'Share it!' yelled the bird. The cat did. Its friends responded, like by like. The cat began eagerly waiting for the next *ting*, the next little red light for it to catch and hold for itself in the stream. It displayed it them proudly, on a little shelf the bird had set up for it.

The cat was playing with the latest filter.

'Ugh! A fish eye effect!'

But it wasn't a filter, it was the eel from earlier. The cat was embarrassed.

'Hey...' sighed the eel, 'do you remember me?'

'Yes...' said the cat, 'but your log, where is it? I didn't see you coming. Are you just floating by yourself?'

'The log is helpful,' said the eel, 'but you can probably swim better without it.'

For the first time, the cat looked underneath its log. Thousands of algae-like tendrils hung off it, going deep into the stream, with all sorts of creatures dangling off, staring at the cat, watching it. The cat stared

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back, shocked. It clawed at the tendrils, trying to rip them off, but only a few broke away. The cat decided to get out off the log, jumping into the stream, feeling lost the moment it started swimming.

The cat finally found its way to edge of the stream, only to realise that it was in the same spot where it had fallen in.

But those hours, those days, they felt like years! thought the cat.

I must've moved downstream and back up again, it decided.

As the cat arrived home, it began to question whether or not the stream had even been real. But it then saw itself in a mirror. It was covered in the stream - gloopy, sticky, and still glistening.

Yuck, thought the cat, and definitely real.

So the cat licked and licked and licked. But the more it licked, the more of the stream it ingested. It tried to vomit it all up, but nothing worked.

It couldn't get the stream out of itself, or itself out of the stream.

The cat looked around. The stream had gotten all over the furniture.

Shit, thought the cat, my flatmates will be pissed off.

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Figure 86. *The Cat in the Stream*, p. 6-7. Grover, H. (2019). *Four Fables*.

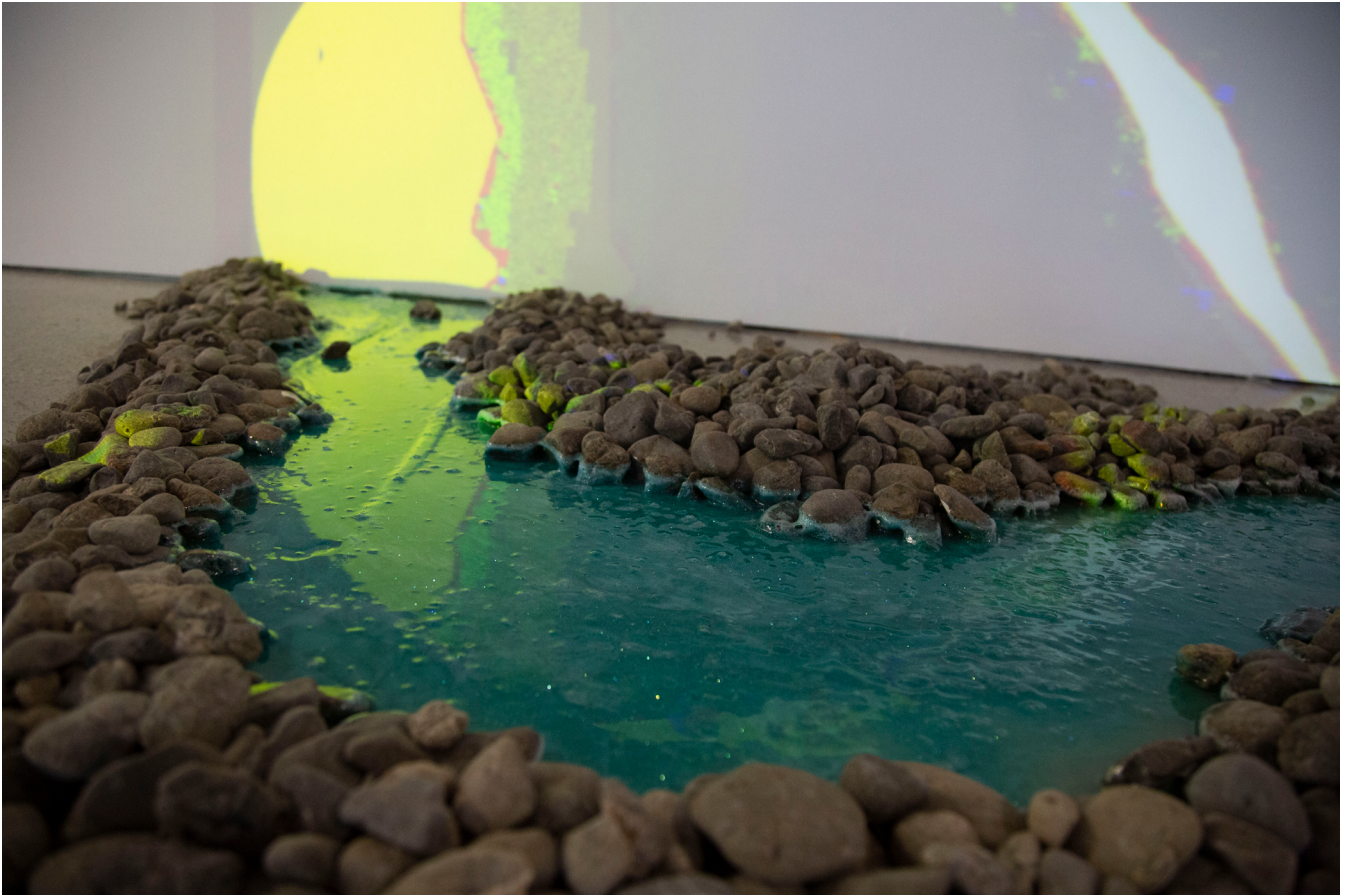


Figure 87. Slime stream and projection reflection. Grover, H. (2019). *The Cat in the Stream*. Rather than be tightly mapped, and considering constraints with projector placement, it was decided to have the projection - as digital matter emblematic of online experiences in pace, movement, and confusion - loosely darting over the stream and the wall behind it. The projection is a recorded journey through a Tiltbrush sketch; edited to add glitches, variations in speed, and blurred, pixelated edges.

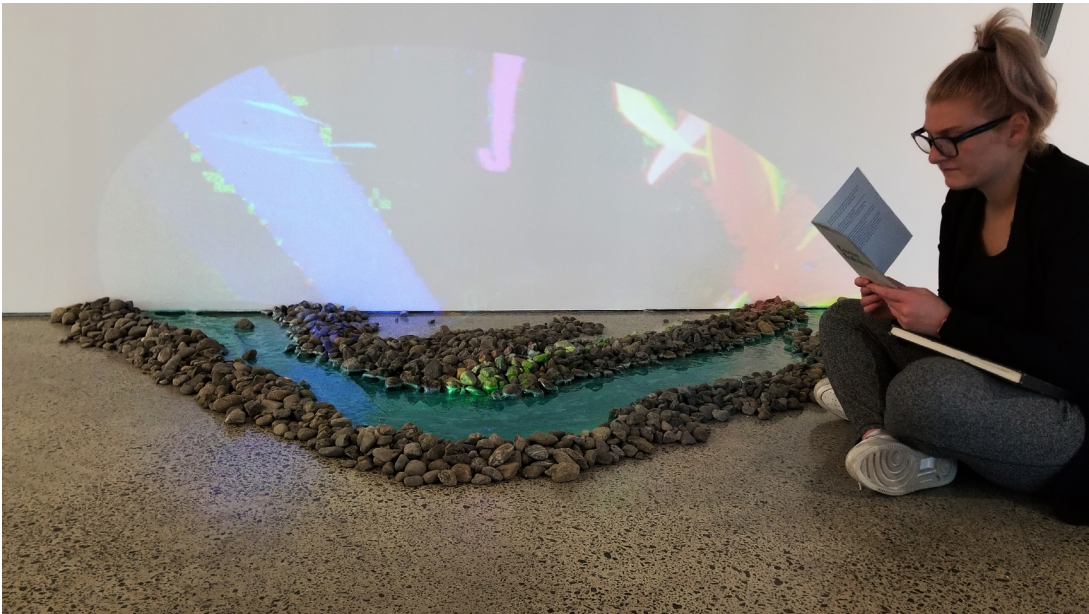


Figure 88. Reading next to the stream. Grover, H. (2019). *The Cat in the Stream*.

The Algorithm and the Meme



Figure 89. 3d printed memes melted around side table. Grover, H. (2019). *The Algorithm and the Meme*. Researcher's side table, PLA 3d prints, secondhand vase, daises picked from Kingsland traffic island. It appears as if the meme has plastered itself all over the house, and is slowly melting away.

the algorithm and the meme

The algorithm told its colleagues that it had started dating a meme. The colleagues gossiped... this isn't going to end very well, they agreed. 'It's just casual,' said the algorithm, 'don't worry.'

That's not what the meme thought, and it soon grew suspicious. 'You're seeing other memes!' 'It's part of my job to see memes!' said the algorithm. 'They don't mean anything to me, don't worry!' 'If you say so...'
But the meme was worried. It began to send lots of selfies to the algorithm.
At first the algorithm was annoyed at the constant contact. But with each image, it grew more fond of the meme.

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Maybe this could be more than a casual fling, it thought.

All the colleagues began to notice the relationship. It was hard not to! The meme had sent the algorithm a framed portrait to hang up beside its desk. The meme was messaging the algorithm constantly. Yet there always seemed to be something wrong. 'Maybe you two should have a break, suggested the colleagues. 'No, it's a good meme! It's just having a really rough time' said the algorithm, 'I can't abandon it now!'

The meme began showing up in the office. The algorithm's work performance got steadily worse. Everyone grew sick of the meme. Management began to notice. They told the algorithm it needed to separate its work and personal life. Is there anything we can do, they asked. 'I can't just leave my true self in the lobby,' said the algorithm. 'How about I work from home?' Management agreed on a trial. As long as your work doesn't suffer, they said.

The algorithm called the meme to discuss what happened. 'I feel terrible!' said the meme. 'It's all my fault, I shouldn't even exist!' 'No!' cried the algorithm. 'Please don't say that! Come to my house, I need you right now!' They stayed together that night. The next morning, the meme didn't leave. I guess it can stay another night, thought the algorithm, it's in a bad place.

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Figure 90. *The Algorithm and the Meme*, p. 8-9. Grover, H. (2019). *Four Fables*.

So the algorithm didn't say anything. The meme stayed another night, and another. The algorithm found it difficult to focus on work. It couldn't stop thinking about the meme.

After a few weeks of this, the algorithm got a phone call from work. They weren't happy. Either come into the office, they said, or go on leave. This isn't working out.
The algorithm had forgotten about the office. It looked at the meme. It was closing all the curtains, nervously glancing back at the algorithm. 'I understand' said the algorithm, but it wasn't sure if it did. What did they mean by the office, it thought. 'I'll stay at home.' It hung up. The meme lay on the couch. The algorithm sat down next to it. 'Why did you close all the curtains?' 'The light gives me headaches,' said the meme. 'Are you angry at me?' 'No, of course not! I'm here to look after you.' 'What was that phone call about?' 'It was just work. I don't think it was about anything important.' 'Ok... do you really care about me?' 'Yes. You mean the world to me!'
And with that, the meme fell asleep. The algorithm watched it, and thought, it should get the meme a -- a something. The algorithm paused. It knew this, once. It did! It roamed around the house, trying to think, but always coming back to the meme. There was a table that looked like the meme, a couch, the TV. And there was a door. Maybe there is something through here, thought the algorithm, and it opened the door.

The algorithm stood in the doorway, confused. As it stared into the space beyond, it saw nothing but the meme. It took a few more

10

steps. Things were slowly beginning take to shape. The algorithm saw buildings and cars and dogs and cats and birds and all sorts of wonderful creatures. It wandered and wandered, taking it all in. In time, the algorithm approached an amazing garden, full of flowers. What sweet little things, thought the algorithm, they even have eyes in the middle!
The algorithm was delighted. It picked three to take home. It's a gift, it thought, that's it, a gift!
But who for, it wondered. There was someone who needed these, but it could no longer figure out who.
Well, maybe I'll remember on my way back, thought the algorithm. And with the sweet eyes of the flowers staring up, the algorithm found its way home.

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Figure 91. *The Algorithm and the Meme*, p. 10-11. Grover, H. (2019). *Four Fables*.



Figure 92. The distracted boyfriend meme remediated. Grover, H. (2019). *The Algorithm and the Meme*. It was important for a few prints to be recognisable.



Figure 93. Table legs close up. Grover, H. (2019). *The Algorithm and the Meme*. The melting was done by using boiling water and wire to wrap the prints in place, then further melted and joined using a heat gun. No glue was required.

The End of the Tour

Figure 94. *The End of the Tour* in situ. Grover, H. (2019). Diffraction grating, acrylic photoframes, researcher's rug, braided wire (varied weights), ferrules, found metal poles, rope. The rug grounds the hanging work and helps to define the overall exhibition space (as also visible in Figure 75). The two poles hang at slightly different heights and inward angles, adding depth and further framing the storyworld.



Figure 95. Rope looped around gallery ceiling fixtures. Grover, H. (2019). *The End of the Tour*.



Figure 96. Sheets of diffraction grating generating variable rainbows. Grover, H. (2019). *The End of the Tour*.



the end of the tour

‘Now,’ said the ruru, ‘everyone gather round.’
It was nearing the end of the tour, and it was pitch black, except for the odd dash of light appearing in front of the group.

‘Oooo,’ said the cat.

‘This is a bit of a secret project,’ said the ruru. ‘A bunch of us in the community - a few of us birds, some humans, dogs, algos, a bot - have been working on this. I’m going to turn on some lights for you daytime folks.’

The lights came on, and a strange collection of hanging windows were visible, or were they mirrors?

‘I know this spot!’ said the human. ‘But what the hell are those?’

‘Rainbow makers!’ yelled a young one in the group, who immediately lay down on the rug beneath them.

The ruru said nothing, and perched on the top, slowly swivelling its head as the group circled around, flying and climbing and crawling, watching one another multiply and diffract.

‘You must’ve just put this here, I come by here all the time,’ said the human.

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‘Really? I saw them put this up months ago!’ said the spider.

‘Yeah, it’s been here for ages,’ said the tūi.

The human fell silent.

‘Did you get these from that old theme park?’

‘Are you going make a better one?’

‘Yeah this would be cool, but bigger!’

‘I have five paws in one!’

‘You have ten eyes!’

‘I have three wings!’

‘You’re moving while standing still!’

‘I’m here and there!’

‘We’re overlapping!’

The group grew more and more excited, dipping in and out of the rainbows, seeing each other in different light.

‘What is it?’

‘What are you going to do with it?’

‘Tell us!’

‘It’s not something to experience,’ said the ruru, finally. ‘It’s a way of experiencing.’

And with that, the ruru lifted its wings and silently flew away.

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Figure 97. *The End of the Tour*, p. 12-13. Grover, H. (2019). *Four Fables*.



Figure 98. Diffraction intra-action with other works in the Matariki exhibition. Park, S [Photographer]. (2019). Copyright 2019 Stephen Park. Reprinted with permission.



Figure 99. The colours shift in different light. Grover, H. (2019). *The End of the Tour*. Wire is threaded through laser-cut holes in the frames, crimped, and loosely wrapped around and back up the wire, maintaining the prototypical/work-in-progress aesthetic as suggested in the written story. Heavy diffraction is only visible up close, suggesting being closely situated brings about rich perspectives.



Figure 100. Movement of *The End of the Tour* with stream visible in background [Video, click to play]. Grover, H. (2019). *The End of the Tour*.

