

Chapter 16

On Display: Robots as Culture



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Abstract Robots are necessarily transdisciplinary things. Like everything that occupies that space in-between our taxonomies, or that third space, they can evoke strong feelings of curiosity or fear. The elements of variance and verisimilitude they can embody create a distance, another space, wherein curators can draw attention to the cultural aspects of robotics by researching and displaying the ‘stuff’ of robotics in cross-disciplinary contexts, such as exhibitions. This chapter will focus on the exhibitions of artist Mari Velonaki and Deborah Turnbull Tillman (in collaboration with fellow curators) whereby elements of robotics have come into proximity with exhibitions on art, design, computers and engineering. Their display in the context of collaborative making, audience engagement and notions of authenticity makes them social, and by extension, cultural.

16.1 Introduction

Museums and galleries are spaces that have helped establish clear lines across disciplines in the mind of the public. At a time when cultural platforms are entering an interdisciplinary phase, the exhibition of robotics is paving the way to crossing these disciplines, particularly in relation to new research. Introducing layers of information technology to the exhibition floor has made it so that these categories are able to become more malleable, more permeable. The ability to de-silo strict taxonomies has become possible.

This chapter examines curatorial and creative relationships that author Turnbull Tillman has established around the display of robotic materials. Conversations with curators Matthew Connell, Dagmar Reinhardt and Lian Loke, with artist and author 2 Mari Velonaki, bring into focus the current understanding of how robotics operate,

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who designs them, how they function and what the future may hold as robots become less spectacle, and more tool, toy or companion. The experimental nature of the art gallery holds a different function than the historical receptacle of a museum, but in the case of relational research with Turnbull Tillman as an intermediary, researchers can work across sites, across ideas and across materials to gain a clearer understanding of robots as culture.

In trying to define robotics, cultural professionals tend to think in terms of engineering and ingenuity. Robots are strong, they are accurate, they are fast, they have incredible repeatability and they don't get tired, bored, disobedient or sick. They tend to be considered, first and foremost, as ideal extensions beyond our human limitations. But they are also *other* things. They were initially created as automata, as objects of wonder and speculation by genius clockmakers. They ask us to contemplate what is beyond our limitations as humans by posing philosophical questions, such as what does it really mean to be alive? What does it mean to have agency? What does it mean to be human and possess human traits, both positive and negative? Robots later emerged as mechanistic abstractions of ourselves, where our humanness stops short but technology picks up the slack, as with telescopes, corrective eyewear, calculators and computers. In this chapter, authors Turnbull Tillman and Velonaki will discuss robotic ideas and objects for cultural audiences, and also how the transition through intent and into exhibition creates a kind of categorisation that becomes either relatable or rejectable but is always intriguing.

16.2 Inter-, Cross- and Transdisciplinary 'Things'

Contexts for research are often forged at the edges of disciplines

(Muller et al. 2015)

In examining the context in which robots come to exhibition floors through different avenues, one can trace them as interdisciplinary 'things' in that they "represent more than one branch of knowledge" (Magnusson 2013; Latour 2004). In existing across defined categories as examples of different disciplines, there is a relational aspect to the categorisation of cross-disciplinary things. They can represent but also "*relate to* more than one branch of knowledge." Transdisciplinarity exists specifically in a research context, where different disciplines are actively working together across categories to create new knowledge, methodologies and ideas because of the related aspects of their different fields. Robotics research exemplifies this approach.

As an example of inter-, cross- and transdisciplinary *things*, robots affect most people's lives in a way that gives them a social aspect. This folds into a larger culture of mechanical and technological pursuits, but ultimately returns to the philosophical, about what it means to be human; about what it means to be able to engage and think, even to decide and act. A good example of how robotics become about more than one thing is the understanding of what robotics are. Where Turnbull Tillman initially would not have classified herself as intentionally curating robots, rather contemporary

art made from robotic materials, author Velonaki works in collaboration with experts in software engineering, mechatronics and cultural institutions.

This precedent, where interdisciplinary teams of artists, technologists and curators work together to generate new research specifically across art-science, was solidly set at the Powerhouse Museum with the Beta_space project (Turnbull and Connell 2011) and continues to be explored through the work of Lizzie Muller at the National Institute for Experimental Arts, University of New South Wales (UNSW) (Muller et al. 2015), Matthew Connell at the Museum of Arts and Applied Sciences (Turnbull and Connell 2014) and author Turnbull Tillman through her research initiative New Media Curation and the Creative Robotics Lab, UNSW (Turnbull Tillman et al. 2015).

The third space is a place put forward as a psychosocial innovation to collaborative research in a public context where creative cognition (and recollection) is valued as part of the evaluative process of art-science research. Its roots challenge a ‘two-culture approach’ flagged as far back as the 1950s by C.P. Snow, which were collated and tested more recently by the Psychosocial Research Group (PRU) at the University of Central Lancaster (UCLAN) in the UK, and most recently by Muller at the UNSW Galleries at the University of New South Wales in Sydney, Australia (Muller et al. 2015). The third space is explored most recently by an international research team comprised of Lizzie Muller, Jill Bennett, Lynn Froggett and Vanessa Bartlett. In short, the third space is a research platform where a visual matrix methodology that prioritises art-sensitive research; that involves scientific inquiry, namely HCI or HRI and can exist in a public space with artists, scientists and the general public working together (Ibid). Previously, only the specialists were consulted, but more recently, through the work of Muller, Ernest Edmonds and Linda Candy (Aларcon-Diaz et al. 2014) and authors Turnbull and Connell (2011, 2014), audiences at interdisciplinary cultural institutions have become the medium through which experience can be gauged. Below are some curatorial examples in which authors Velonaki and Turnbull Tillman work with curators Connell, Reinhardt and Loke.

16.3 Autonomy and Characterisation: Robotics and Culture

Robots as hybrid objects are desirable because they represent a time, space and culture in which the character of a person is imbued on an object (Magnusson 2013) that presumably has agency and the capacity to mimic human behaviour in a technological way. It is a mnemonic device, in a way—a self-reflective object. The types of human behaviour of particular interest would be the ability to mimic thinking or responding to one’s own environment. Where there are also machines that do this, the point at which a robot crosses over from being a machine is when it appears to be making decisions in response to the environment it is sensing. The ability for a machine to act *autonomously* characterises it as a robot. It doesn’t always have to be humanoid

in appearance, but that does pose a question that nags author Turnbull Tillman. Does authenticity factor into a positive engagement with an autonomous system (for her, the audience's engagement with interactive art) (Turnbull Tillman et al. 2015)?

Robotist and artist Hiroshi Ishiguro has collaborated with the Creative Robotics Lab Director, artist Mari Velonaki (Author 2 and Turnbull Tillman's Ph.D. supervisor). Specific to the work of Ishiguro is that the characterisation he is imbuing his authentic replicas with are those of himself, his daughter, and the cultural (very gendered) stereotypes of Japanese males and females, as found in Geminoid HI-4, HI-2 and F. The larger context in which Ishiguro designs and realises his hyper-realistic robots is the Uncanny Valley, the curve with which audiences react to animated objects that are clearly not alive, and the repulsion that most people still feel when a non-human humanoid robot too closely mimics human behaviour. Ishiguro's creations are examples of what he articulates as being so close to the real thing that the feeling of discomfort or revulsion characterised by the Uncanny Valley is due to a failure to accurately and authentically mimic human behaviour in robotics (MacDorman and Ishiguro 2006). Indeed, his humanoid robots are close enough to warrant a second look when Ishiguro or his daughters are in photos with them (Fig. 16.1).

Author Velonaki has worked closely with Hiroshi Ishiguro. She hosted his staff and his Geminoid robots at the Creative Robotics Lab in 2003, and again in 2014. Here Velonaki considered elements of reality and authenticity in her 2009 artwork, *The Woman and the Snowman*. In this installation, Velonaki compares two fictitious



Fig. 16.1 Mari Velonaki with Geminoid F, 2009



Fig. 16.2 Mari Velonaki, *The Woman and the Snowman*, 2009

characters, a snowman and a woman. Through sound and an abstracted kinetic object, Velonaki explores how technology has encroached on and changed the way people relate to objects and to each other. In showing an obviously fictitious character of a snowman alongside a woman who ends up being a robot, the idea of reality is overturned, left open to contemplation, and exposed (Fig. 16.2).

When installing the *SHERobots* exhibition at Tin Sheds Gallery (Sydney, Australia) in October 2022, Velonaki commented that instead of showing *Fish-Bird* (2002–3), perhaps she should have shown *The Woman and the Snowman*. When asked why, she was contemplating Elena Knox’s *Pathetic Fallacy* (2022), which had been staged and filmed at Velonaki’s Creative Robotics Lab. Knox’s work was compiled as part of her Ph.D. project and includes one of Hiroshi Ishiguro’s Geminoids in the film. It portrays an elderly woman and a young female robot. The elderly woman grooms the younger robot, both admiring and bemoaning her beauty and how she will never age. Author Turnbull Tillman wonders if this exchange could be reminiscent of any intergenerational exchange in her introductory essay to *SHERobots* (Reinhardt et al. 2022, p. 86). Velonaki thought perhaps it would have created a nice discussion between the two pieces, both contemplating what is real and how far the range of ‘the Other’ extends (Fig. 16.3).

In many ways, these two works explode the traditional roles of women as both decorative and care-giving companions. They toy with the notion of how women are displayed and considered in society, and perhaps that by making strange this relationship, alternate identities might be considered, alternate autonomies reached. There is a similar consideration of the work that Velonaki included in *SHERobots*. In *Fish-Bird* (2002–3), first created at the University of Sydney’s Australian Centre for Field Robotics with mechatronics expert David Rye, two wheelchairs behave as companions to each other, and to the audience members that engage with them. As you walk into a designated space, they could be stationary, be caught in a choreographed



Fig. 16.3 Elena Knox, *Pathetic Fallacy*, 2022

dance or printing out messages to each other. Once they sense you, they immediately approach, seeking contact. They don't behave as even electronic wheelchairs might, but instead seek to create a connection with each other and their human visitors, following them and each other around. In Velonaki's own words, "Fish and Bird...fall in love but cannot be together due to technical difficulties. In their shared isolation [they] communicate intimately with each other and their visitors via movement and text" (Reinhardt et al. 2022, p. 91). Although these words have been spoken and written countless times since the artwork's inception, the limited autonomy with which these objects try to connect, looking as they do, in very human ways, has an even stronger impact post-COVID-19 pandemic, when most people remained confined to small spaces over two distinct lockdowns with only one or two other humans for companionship and reliant on text communications for outside contact (Fig. 16.4).

In discussion on the topic, the authors articulate what is missing from conversation around interdisciplinary arts and authenticity:

DTT: I notice that a lot of your works have a trajectory. They don't just show once, but there's an iterative quality to them that makes learning within research possible. And even if you don't know that you're doing it, it's kind of an automatic reflection, and then a shift in perception and a shift in making and exhibiting it again in a different way as part of another conversation. This is, I suspect, how your robots become social as well, is that they're involved in multiple levels of social commentary at any given time.

MV: It is important and it's a good point, but because, for example, like with *Fish-Bird*, every time we exhibited, we made it site specific for the location, for the museum or the gallery where it was going to be installed. For example, we connected the robots to online maps, so they possess information about their surroundings, their vicinity. We included vocabulary from the local language. The last time we installed *Fish-Bird* at the Bilbao in Spain, there were many opportunities to include indigenous language samples, so the robots learned a



Fig. 16.4 Mari Velonaki, *Fish-Bird* (2004)

new environment, a new language. This integration to their environment through language gave the sense of current or real time and would keep the [kinetic agents] connected by printing something from the local newspapers every morning.

I feel it's important to give more back, to learn more, to use the platform for other people, to learn, to create, to improve. Our robots have parallel lives outside of the galleries and museums they are exhibited in. We use the [robots] as both demonstrators and research platforms in the labs when they're not in exhibitions. Now we're working on the sound component with *Diamandini*, but there are all these other experiments that can happen in parallel which are very different to the exhibition [scenario]. It's important to show something different to what has come before. So, after all these years *Diamandini* now has a new component, but I would like to incorporate a different sound component that she, that the woman from the *Red Armchair Series*, that *Fish-Bird*, that the *Woman [and] the Snowman* didn't have before; that improves reciprocal interaction in a new way. (Turnbull Tillman and Velonaki 2020)

Each time Velonaki iteratively progresses a robotic artwork, the more it has a chance to learn from humans about human behaviour and the more humans learn about themselves.

16.4 Design and Functionality: ISAAC Versus BAXTER

When looking at the progression of displaying robots, the Cyberworlds exhibition at the Powerhouse Museum curated by Matthew Connell does a wonderful job. One such robot has occupied space in the Cyberworlds galleries for some time. ISAAC the

robot was collected by Connell in 1999 for the launch of the Cyberworlds exhibition. It [he] was on display, save for maintenance, for 16 years. His two primary modes were dancing for and playing a game with audience members. He was successful as a robotic agent largely because he is programmed to mock human behaviour. The more rude, mocking or disrespectful his is, the more popular he was with the museum audience. In these engagements, ISAAC personifies perceived negative human traits in a way that made the audience empathise with their own humanity, their own frailty and weakness. Where the end result of engaging with ISAAC was fun and entertaining, even challenging at times, there were elements of his display that protected the audience from their engagement with him. ISAAC was only ever powered on, or live, if his glass case was shut and locked. People were not permitted inside the case or near ISAAC when he was 'alive.' The strength and obedience with which he responded to his programming were so responsive that he wasn't yet aware of things like 'being careful,' 'minding others' or that care for human life might be more important than performing the tasks he had been programmed to do. ISAAC functioned as an obedient responsive system, in that he responds to his programming with industrial strength and obedience. He did so with grace, timing, accuracy, even rhythm.¹

These criteria for care and exhibition were understood by traditional museum practice and the professionals that assisted Connell in putting together the Cyberworlds exhibition. The object, ISAAC, could be contained, controlled and had an OH&S solution to any variance he might display (locked case: on/alive | open case: off/unresponsive). An on/off switch set to the Museum's opening/closing hours controlled when he was alive or unresponsive, making set-up and shut down of his systems for exhibition purposes easily aligned to the rest of the exhibition. ISAAC is easily categorised and referenced, and a label could easily be written up explaining his origins, what he represented and how he was meant to be interpreted and engaged with. In other words, ISAAC was easily manageable in terms of the Museum's standards of cultural significance.

Twenty-one years on, and robotic technology has progressed and developed. ISAAC was replaced in the Cyberworlds exhibition, and he is being replaced by a robot that has humanoid qualities. His name is BAXTER. He has a screen face with eyes and a mouth; he has two arms that are programmable through touch and choreography; he is not locked within a showcase, rather human approach and open engagement are encouraged. These display techniques indicate that he is safe to engage with on a regular and unrestricted basis. Human–robot interaction has become more engaged, more realistic, more touch and experience responsive. This is not for the benefit of the machine, but rather a design response to the changing needs of human beings to relate more closely to their machine companions (Fig. 16.5).

BAXTER is a prototype developed by startup group Robological,² made up of three engineering colleagues: Damith Herath, Christian Kroos and Zhengzhi Zheng

¹ YouTube user djobizz, 18 Feb 2009, <https://www.youtube.com/watch?v=ek9xrR4FGZI>, accessed 21 November 2022.

² <https://robological.com>, accessed 17 November 2022.

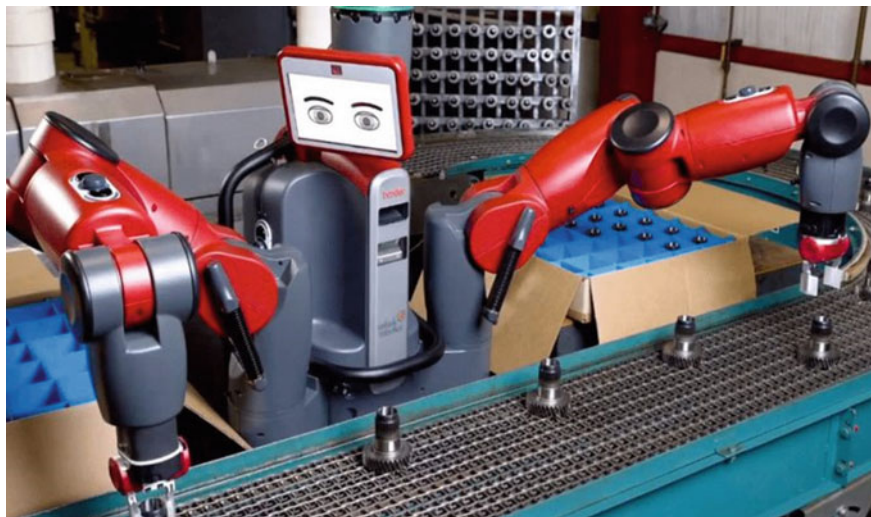


Fig. 16.5 Robological, BAXTER, 2022

of *The Thinking Head Project*. Unlike ISAAC, the screen face has eyes and eyebrows, but their functionality is false. These features are only there to provide familiarity and communication for the human user. The real communication devices are the 360-degree camera that is mounted on his head above the screen, the programmable arms and the recording system that remembers what users ask of the arms and then repeat the function. In this choreography, machine and robotic interactions have become more accessible to humans. BAXTER represents the ability to intercede with, interrupt or disrupt robotic function as it happens without the need for excessive coding or safety precautions on the part of the users. In industry, this represents the ability for humans and robots to work more closely together, rather than in a strictly action/response kind of way. If a human or machine worker notices an error in a product or in a packaging or production line, through the techniques that BAXTER represents, humans have access to correcting mistakes through an easier interface. No advanced engineering or computer science degrees are necessary at the engagement level.

Again, the BAXTER object may not have been so easily displayed at the time when Cyberworlds were first unveiled in the early 2000s. Since then, several things have happened culturally to allow for this research, reflection and display cycle to take place in the third space of a museum floor. For the social aspects of BAXTER's interface to become acceptable in the minds and actions of the Museum's audience, people needed to become more comfortable with machine functionality in their own lives. From robotic vacuums to smart televisions, responsive dishwashers and clothes washers, to remote air conditioning and alarm systems controlled through smart phones, technology has infiltrated our lives rapidly. In this new century, with the adage of networked systems, autonomously controlled devices have become more

mainstream to the point where life without them is considered somewhat compromised, if not lacking. This born-digital shift in human–machine and human–robot interactions allows designers to begin conceiving functional and engaging systems that also allow for a more connected, even empathetic, relationship to machines.

There are two main characterisations of robot form: mechanistic/industrial and humanoid robots. ISAAC and BAXTER demonstrate a shift away from those characterisations being dichotomous, and to becoming more layered, more engaged, more empathetic. For robotics and culture to come to this point, there is a history of human technology that the artist Stelarc would class as cyborgism. Popular culture, from comic books to novels and films would have us believe that cyborgs are a sophisticated hybrid of human and machine that think, feel and live close enough to humans to pose a significant threat to our authentic experience as humans. Stelarc, on the other hand, would consider any augmentation to our human experience to be an aspect of cyborg culture. This would extend from corrective eyewear to microscopes and telescopes.

16.5 Engagement Over Aesthetics: *The Articulated Head Over the Thinking Head*

There are also other things that robots do that relates specifically to their ability to enhance or pose questions about our culture and the nature of humanity...there is a creation complex that exists in us somewhere.

(Matthew Connell, from Turnbull Tillman 2015)

The Powerhouse Museum, and Connell in particular, have had a long association with the performance artist Stelarc, and the research group he collaborates with through the University of Western Sydney (UWS) called the MARCS Institute for Brain, Behaviour and Development.³ Stelarc is well known for melding technology with his body to enhance and augment the human experience in highly experimental ways, from probing and revealing his body with “medical instruments, prosthetics, robotics, virtual reality systems, the Internet and biotechnology, to explor[ing] alternate, intimate and involuntary interfaces with the body.” Stelarc was a Senior Research Fellow and visiting artist at MARCS, which specialises in the psychology of brain development in its many forms, particularly artificial intelligence (Fig. 16.6).

Previously, Turnbull Tillman and Connell have written about the way that Stelarc’s artwork *The Articulated Head* (2009–10) came to the Powerhouse Museum through the Engineering Excellence competition and award. This platform was previously discussed as a funding model for artists to garner institutional support in order to exhibit and evaluate their prototypes in an exhibition setting called The Museum Model (Turnbull and Connell, 2014). The predecessor of *The Articulated Head*, called *The Thinking Head*, was a chatbot designed by Stelarc that was projected onto

³ <https://www.westernsydney.edu.au/marcs>, accessed 17 November 2022.

Fig. 16.6 Stelarc, *The Thinking Head*, 2003



the wall in the early stages of the Thinking Head Project (funded by the Australia Council for the Arts), which also gave rise to *The Prosthetic Head* and *The Walking Head*, which were developments that came about as a desire of the artist to provide embodiment for *The Thinking Head* (Fig. 16.7).

This work was first and foremost conceived as an artwork, though it consisted of machine parts and an artificially intelligent architecture. It utilised a computer database, a keyboard, a projector (and projection surface) and encoded software to enable engagement with humans. What made the work particularly interesting was the characterisation of Stelarc's personality within the work. The image of the onscreen face matched Stelarc's, and the conversation topics loaded into the database were topics that Stelarc was interested in and liked to think and converse about.

In 2009, *The Articulated Head* won the Research Award in the Engineering Excellence annual competition. Facilitated by Engineers Australia, the exhibition collaboration with the Powerhouse Museum always included the top two prizes in the competition, the Bradfield Award and the Research Award, and a few others that exemplified engineering in a fascinating or innovative way. The year that Stelarc's *Articulated Head* won the Research Award also saw innovations in architecture, health and safety, distance engineering techniques and renewable resources. Where the connection to its predecessor, *The Thinking Head*, made the decision to exhibit Stelarc's piece an easy one, this time the work was an example of a display object existing in a transdisciplinary environment. Here, an iterative artwork incorporated

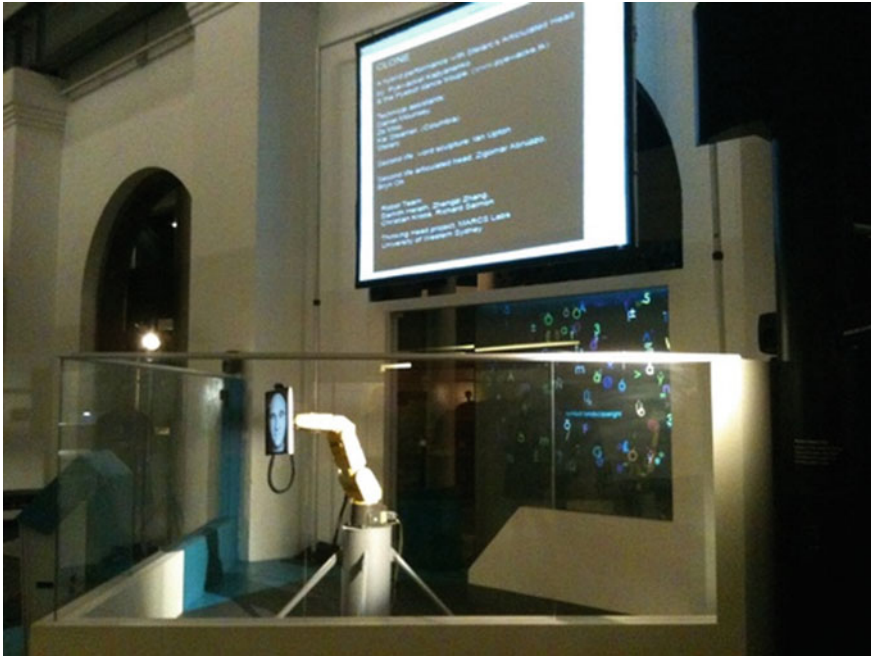


Fig. 16.7 Stelarc, *The Articulated Head*, 2009–11

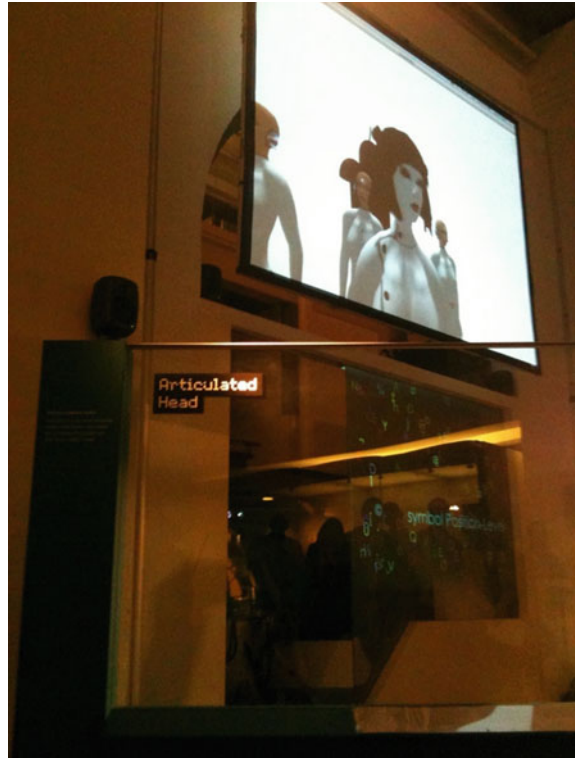
elements of engineering, computer science and audience engagement in a way that not only celebrated their interconnectedness but engaged the third space of the museum environment that incorporated the audience's response (Fig. 16.8).

Through the Beta_space platform and the ethics committee at the University of Technology Sydney's Creativity and Cognition Studios (CCS),⁴ and her research initiative, New Media Curation, Turnbull Tillman collaborated with the Powerhouse to produce a performance incorporating the platforms across which Stelarc was experimenting as a conceptual artist. In an artist talk and performance on 29 May 2011, Stelarc, MARCS, the Powerhouse Museum and New Media Curation worked together to produce a performance incorporating *The Articulated Head* and Stelarc's *Second Life* avatar in collaboration with artist Daniel Mounsey, the artist who created Stelarc's *Second Life* site, CYBORGS and ZOMBIES. Mounsey collaborates online as Pyewacket Kazyanenzo. This prototype performance, titled *CLONE*, was later the first of four performances for the Ultimo Science Festival in August of 2011 and featured in two conferences at the Museum over November and December 2011.⁵ The research element of the performance happened in the form of audience evaluation by survey, in which the MARCS researchers and Turnbull Tillman posited research

⁴ <https://www.creativityandcognition.com/>, accessed 17 November 2022.

⁵ https://debtturnbulltillman.wixsite.com/newmediacuration/past-1/Beta_space—accessed 17 November 2022.

Fig. 16.8 *CLONE* performance at *The Articulated Head* exhibition site, Powerhouse Museum, Sydney (MAAS), 2011



queries for them to answer during the performance and turn in at its conclusion. This data was collated by MARCS and utilised towards the next iteration/performance of *The Articulated Head*.

In this display object, conceived by one artist, realised, researched and exhibited in a research capacity, existing in a cyber-space realised by another artist and arriving on the Museum floor through an engineering sponsored competition, there is no doubt that *The Articulated Head* is not any one thing, nor was its development instantaneous. It developed iteratively, over time, with the support and funding of and across various institutions, bodies and platforms, including human audience engagement with art, technology, science and robotics. The Museum was delighted to have it for these reasons, in particular to further the development of the Cyberworlds exhibition and the ideas it encapsulates. As such, its exhibition on the Powerhouse Museum floor was extended for a year so that the researchers could gather further data. This had never happened before, and certainly instilled in the Museum's operative ethos that art was a useful portal for engaging with ideas of science, design and technology.

16.6 Performing Audiences: Materiality and Interactive Art in ISEA2013 and *SHERobots*

Sometimes as cross-disciplinary artists we collaborate with established scientific platforms to make use of them as a place for art to develop, become louder, and then eventually speak on its own.

(Mari Velonaki, in Turnbull Tillman 2015)

During her two-year contract with the Curatorial Department at the Powerhouse Museum, Turnbull Tillman was responsible for annual exhibitions such as Design-TECH and the Australian Design Awards (later rebranded Good Design). One of the first exhibitions Turnbull Tillman was invited to curate and produce on her own was at the behest of the former Director, Dawn Casey, who wrote an email requesting that she “take care of the ISEA business.” This business involved working with the UK-based international symposium brand ISEA (International Symposium of Electronic Art)⁶ for the 2013 instalment across Sydney. It was to be managed by the Adelaide-based Australian Network for Art and Technology (ANAT)⁷ and directed by Vicki Sowry. Turnbull Tillman’s task was to produce a selection of works from those shortlisted by Sowry, and appropriate to the Museum’s mandate of science, design and technology. In collaboration with Principal Curator Connell and Sowry, and later ISEA’s 2013 Executive Creative Producer, Alessio Cavallaro, Turnbull Tillman selected and directed the installation of two floors of some of the most engaging, enticing, automated, biological, robotic and performance-based artworks to be produced in Australia over the last 20 years.

The three exhibitions selected by the Museum’s curatorial team were touring exhibitions that would fit into the production requirements for a museum (rather than an art gallery). They would preferably be research-based, robust, and engaging to a range of audiences rather than a specific, singular or specialised audience. Conceived of as art-focused, these exhibitions were also considered research projects whose next iteration was commissioned by the funding body they exhibited with. These three exhibitions were a selection of ANAT’s *Synapse* residency programme, Symbiotica’s *Semipermeable* (+) and Experimenta’s *Speak to me...* Artists such as Helen Pynor, Keith Armstrong, Oron Catts, Nigel Helyer and Wade Marynowsky featured across two temporary exhibition spaces, positing experimental ideas to do with medicine, light (and dark), molecular biology focused on the membrane, digital international relations and robotics. These ideas were realised in sculpture, film, machinery, interactive engagement, autonomously interactive machine parts controlled by computers, petri dishes, inkjet printers and performances.

When reflecting on works incorporating robotics, both contemporary and historical, Connell spoke of Wade Marynowsky’s *Acconci Robot*⁸ as a standout work

⁶ <https://www.isea2013.org/>, accessed 17 November 2022.

⁷ <https://www.anat.org.au>, accessed 17 November 2022.

⁸ <https://wademarynowsky.art/Acconci.html>, accessed 17 November 2022.



Fig. 16.9 Wade Marynowsky, *Acconci Robot*, 2012

for him from ISEA2013. Based on the 1969 performance *Following Piece* by Vito Acconci, where he followed unknowing participants in the streets for as long as he could, Marynowsky designed an innocuous looking robot constructed of and resembling a wooden packing crate. It was fitted with image recognition sensors and software at eye, waist and ankle levels and a set of low, hidden wheels in order to move about when triggered. When an audience member approached or engaged with the works, the robot was unresponsive and still. As the audience member gave up and retreated, the robot would soundlessly begin to follow them (Fig. 16.9).

Housed within a low walled platform on the third floor the Powerhouse amongst the other Experimenta *Speak to me...* works, the *Acconci Robot* encouraged visitors to cross the divide between object and audience, to become more of a *thing*. Often to the delight of braver audience members willing to cross this divide physically, they were rewarded with the surprise of being followed so closely that they were frightened and immediately hopped the barrier back to the audience side while the robot tried to follow, often clumsily hitting the barrier and then turning to scan his articulated space for more unwitting participants. This was an amazing work because the joy of engaging with it was found within the experience. It was contemplative and intriguing, but again, one didn't need a degree in art history, or even an appreciation of art, to understand and enjoy the work (Fig. 16.10).

The pioneering work *Diamandini* (2011–), by author Velonaki, has roots in the ISEA universe. First exhibited in ISEA Istanbul 2011, where there were multiple themes and platforms to engage with, Velonaki and *Diamandini* exhibited in *Uncontainable: Signs of Life: Robot Incubator* (14 September to 7 October 2011 at Taksim Cumhuriyet Art Gallery/Maksem). In the words of curator Kathy Cleland:



Fig. 16.10 Mari Velonaki, *Diamandini*, 2011

In the *Signs of Life: Robot Incubator* exhibition there are robots that look like machines but display human-like psychological behaviours; a humanoid robot that looks like a sculpture come to life, a doll-like robotic automaton performer and interactive modular robots that display hybrid machinic/biomorphic characteristics. (Cleland 2011, p. 8)

With the purpose of an arts incubator being to test new ideas in an environment supportive of the specific industry of the artwork, ISEA was the perfect setting in which to premiere *Diamandini*. In a community of artists who experiment with the hybridity of electronic art en masse, Velonaki was able to discuss the subject of robots moving through human spaces. Her kinetic agent could move through the gallery, surprising people in much the same way as Marynowsky's *Acconci Robot* did two years later, but in the guise of a drifting, elongated girl, seemingly searching for her space in society. Her movements weren't as restricted as Marynowsky's shipping container, largely because she looks and behaves somewhat human. She approaches visitors to the gallery, with her key purpose being to negotiate the space she inhabits in relation to the audience. Everything about *Diamandini* provides a strong metaphor for both the original and the new patriarchal 'other', the first being women, the second being robots.

When conceiving *SHERobots*, curators Dagmar Reinhardt, Lian Loke and Author Turnbull Tillman initially invited Velonaki to exhibit *Diamandini*. Unfortunately, the timing was off, and 'Dia' was scheduled to be on loan to the emerging National Communications Museum in Melbourne. When Velonaki instead offered *Fish-Bird*, the removal of gender or even a humanoid appearance offered an alternate intrigue to displaying a female presence. If the environment created was intended to be wholly

female, having the secondary other of robotics might expand the definition of ‘other.’ When attempting to de-silo the roles that women play in relation to robotics research, this enquiry extended into the roles that the exhibitors were curious about. Themes of touch, intimacy, domestic labour, child and elder care, the performative presentation of self, construction of home, material and meaning making, and gender (non) expression all come to the fore. In this way, *SHERobots* pays homage to women working across all forms of robotics, conceiving and expressing ways that robots can work collaboratively with them so they can engage in society with more equity and visibility than previously. The fact that this happens on an art gallery floor as a social probe, part of a larger social experiment, shows we have a way to go.

16.7 Conclusion

This chapter sets out to discuss the display of robots as cultural objects in Museum and Gallery settings. In presenting case studies from the Powerhouse Museum and Tin Sheds Gallery, authors Turnbull Tillman and Velonaki have occupied and analysed a third space in order to conceive and exhibit transdisciplinary objects that may not fit tidily into a research stream. Where the Museum exhibitions focused more on the making and the materials of the robots, the Gallery floor tends to be a place to experiment and de-silo the taxonomies that history constructs. Conversations with fellow curators Matthew Connell, Dagmar Reinhardt and Lian Loke, and artist and Author 2 Velonaki, brought forward the different intentions and outcomes of considering robots social as cultural entities, and how audiences both respond to and dictate these tropes. In a broader social context, questions around who is designing, making, defining and displaying robotics and in what contexts (history vs care concerns) are left for the reader to consider. More personally, people may also be left considering what it means to be alive, have agency, be assigned gendered tasks and possess humanity.

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