

Intimate Technologies: The Ethics of Simulated Relationships

Stacey Pitsillides

University of Greenwich
s.o.pitsillides@gre.ac.uk

Janis Jefferies

Goldsmiths, University of London
J.Jefferies@gold.ac.uk

Abstract

This paper considers the complex relationship between ethics and social technologies. It is particularly concerned with what it means to be intimate or share ideas of intimacy with robots and avatars. Looking to the world of theatre and situating our ethical framework within two specific plays we are able to examine new technological narratives that inspire critical reflection on our current and future relationships, sexual taboos and ethical practices. It also poses the question of the role of the arts in preparing society for dramatic technological and social shifts that challenge what we might think of current ideas of what it means to be human and values that have troubled debates between the biological and the artificial. Such shifts are not gender, or diversity free and we recognize that ethical aspects of technology are always person-dependent, culture-dependent and situation-dependent [1]. Within ethics, discussions of privacy and identity move to the foreground of our discussions.

Situating Ethics in Technological Futures

Science fiction has often been used as a medium for understanding the emotional and ethical conditions of new and developing technologies [2]. Furthermore, robots and avatars are a recurrent theme in the science fiction landscape, Famous examples such as William Gibson's *Neuromancer* (1984) and Neal Stevenson's *Snow Crash* (1992) define the avatar and have inspired cybernetic dreams and the languaging of techno-spiritual transcendence [3]. Fritz Lang's *Metropolis* (1927) defined much of our aesthetics around robotics and Isaac Asimov's *I, Robot* has become a touchstone when discussing themes of robotics and Artificial Intelligence (henceforth AI) and still informs some of the policy and ethical guidelines around robotics sixty-five years after its original publication in 1950 [4]. In the 21st century, films like Spike Jonze's *Her* (2013), Alex Garland's *Ex Machina* (2015) as well as the recent hit television drama *Humans* (2015, Channel 4, UK) push the conflict with and negotiation of technology in our lives to legitimately change the way we comprehend what it means to be human. For example, in *Humans* Anita is a robot who has sex with the father of the family that has bought her, and in *Ex Machina* the characters want to have sex with Ava, the humanlike robot whose intelligence is

inherently humanlike. Ava inspires very human feelings: lust, adoration and empathy from the men.

It is this correlation between the technological or even biological superiority of AI fictions in *I, Robot*, *Humans* or *Ex Machina* that drive us to redefine the technological other. The technological creature in these cases is used to simulate our own very human, existential questions, which allow us to view them as models for reflecting on humanity as an outsider. Taken altogether, what we're seeing is both the horror at techno-infiltration coupled with a deep disgust at how much we seem to like it. The fact is people already fall in love with fictional characters, even though there is no chance to meet and interact with them. Like social networking and the email capabilities of the Internet revolution, robots and avatars are progressively surrounding us in our professional lives as well as our professional sphere.

Robots are already taking care of our elderly and children and there are few studies that consider the ethical implications of such care in the long term. Sherry Turkle is an exception. She has been a key theorist in the developing field of social robotics for over 40 years. As a professor of social science and psychology she maintains a profound interest in the inner working of the human mind. This includes the way that modelling the human mind on technology and technology on human interaction is affecting psychological theory and changing not just our engagement with technology but with each other [5]. Through monitoring the relationships people form with robots over a series of clinical trials, Turkle warns that the immersiveness of these relationships and the subsequent downgrading of the human will allow strong attachments to be formed that may replace other forms of human interaction, creating the illusion of companionship. She cites specific examples such as PARO¹ a therapeutic robot for the elderly, and AIBO, Tamagotchi and Furby as children's toys that stretch and re-form our definitions of authenticity, life and companionship. As Rosalind Picard has noted "The greater the freedom of a machine, the more it will need moral standards"[6].

In addition to Turkle's cautions about how humans live in a technological environment, other theorists, such as Becker, Crutzen and Duffy have examined the socio-

¹ <http://www.parorobots.com/>

technical aspects of human-computer interaction, others like Veruggio and Operto have opened up the question of ethics in interdisciplinary discourse in the field of applied ethics in robotics and the issues surrounding humankind and autonomous machines. Their paper in the International Review of Information Ethics (2006) offers a comprehensive view on current discourses, focusing on how far can we go to embody ethics in a robot? Is it right to talk about “emotions” and “personality” of robots and the anthropomorphization of machines? [7]

In chapter 3 of *Anarchy, State and Utopia* (1974) Robert Nozick introduces *Moral Constraints and the State* [8]. From a political philosophy perspective he opens up a range of questions surrounding morality and how the state in one form or another may deal with the issues of developing a good moral framework within their specific political systems. In this section he introduces two key ideas that are useful when examining our developing relationships with robots and avatars. Firstly touching upon the ethics of animal-human interaction; Are there “any limits to what we may do to animals? [And] have animals the moral status of mere objects” (pp.35). He debates the fact that some higher animals should be given more weight but concedes that it is difficult to define which animals are higher and how one might measure this. He also begins to break down some of the defined boundaries between humans and animals and discusses how violence, pleasure and pain in relation to these begin to blur the boundaries and moral conditions. He claims that “once they exist, animals too may have certain claims to certain treatment” (pp 39). Might this not be the case for robots too, that once they exist – we give them our form, eye tracking, AI or other empathy inducing features – that we may begin to categorise higher forms of robots that have gained an ethically ambiguous status within our society? In *Do Androids Dream of Electric Sheep* (1968) Philip K. Dick presents this debate through both human and animal robots, within a society that has clear moral guides that states that empathy can be tested for and measured as the key feature that defines the treatment and status of electronic and non-electronic humans and the authenticity of animals and practises of care. This puts into dialogue notions of the Posthuman and the ethical application of non-anthropocentric thinking [9] into conversation with debates on robotics.

In the same chapter Nozick introduces the concept of the Experience Machine as a thought experiment. This experiment asks if there was a machine that could not only simulate but convincingly “stimulate your brain so that you would think and feel that you were writing a great novel, or making a friend, or reading an interesting book,” would we plug in? In Nozick’s existential argument he states that there is a difference between wanting to *do* certain things and simply having the *experience of them*. He claims that it is not only experience that we value as human beings and plugging in would rob us, not only of our identity as a particular kind of person, but also our ability to have an impact in

the world. He then develops the argument further by asking if we adapt the experience machine to a transformative machine and through this we could transform into whatever kind of person we would like to be, while still being us, would we plug in? And beyond this if we then created a results machine that would allow us to additionally make a difference to the world, would we plug in? Nozick asserts that we should not be looking for the right formula or condition that would make plugging in a valid option for we cannot stimulate from within the brain the authenticity “to live (an active verb) ourselves” (pp.45). When considering the role and policing of avatars in line with developments into full body immersion [10], we must once again consider whether in specific cases Nozick’s condition of plugging in may become more attractive or even more moral when society denies us the possibility to live as ourselves. This may be particularly pertinent in the case of sexual perversions but more broadly this may apply to anyone who feel unaccepted by those who socially define them. Plugging in may become not only tempting but a refuge from society, a better way for someone to live themselves (as Nozick suggests), even if they are aware that it is virtual. This is something to consider in the case of *The Nether* play discussed within the following section.

The above examples give an insight into how avatars and social robotics have challenged some of the most fundamental and personal understandings of the way we form and sustain relationships. We believe it is important to look beyond generalising views of technology and consider a couple of situated examples that complicate current utopian or dystopian views on technological intimacy.

Ethics, Performance & Technology: Body Narratives that support Moral Ambiguity

The main focus of this section is to discuss and pull out key strands from two current plays that were performed in Edinburgh and London in 2015; *Spilikin: A Love Story* [11] and *The Nether* [12]. These plays both deal specifically with technology, ethics and the body. This is achieved by the actors performing narratives of near future robotic and avatar-based scenarios. Audiences are forced to examine current and future ethical practices around complex issues such as: dementia, robotics, care, virtual reality (simulation), paedophilia, cooperate ethical protocol and the formation of emotional relationships with technological ‘others’. In other words, how we understand the emerging and future technologies surrounding us - particularly how (sexual) companion robots and the policing of cybersex will affect us and the society in which we live.

Emotional and sexual relationships between humans and robots are the concern of Matthias Scheutz (2012) who has clearly identified dangers that robots, specifically designed for eliciting human emotions and feelings, could lead to emotional dependency or even harm. He discusses several experiments are discussed

that show that humans are affected by a robot's presence in a way "that is usually only caused by the presence of another human." (p. 210). However, in the case of human-robot interaction, the emotional bonds are unidirectional and could be exploited [13] whilst David Levy looks at future robot prostitutes. Men pay (mostly) women for sex in the 'real world' and Levy considers the ethics of robot prostitution and speaks of "the knowledge that what is taking place is nothing 'worse' than a form of masturbation" (p. 228) [14].

Blay Whitby (2012) directly addresses Levy when he considers how social isolation might drive people to robots for love and affection. Whitby says, "peaceful, even loving, interaction among humans is a moral good in itself", and "we should distrust the motives of those who wish to introduce technology in a way that tends to substitute for interaction between humans." (p. 238). He therefore suggests that robot lovers and caregivers are political as well as ethical topics, rather than providing simply technological solutions to the challenges of the modern world [15].

Socially, imagining how to befriend the robot or avatar allows a re-examination of how contemporary societies value and police, either socially or legally, the actions of individuals and groups. Cognitively it also makes us re-evaluate how we understand ourselves, one another and our relationships with the outside world, which are opened up to be reframed in the context of the robot or avatar companion [5]. The moral ambiguity of *Spilikin: A Love Story* and *The Nether* is also important. Neither play takes a position of what is right, although it may be said that both plays begin with a situation where personal morals rather than societal consensus around technology can easily be applied. *Spilikin* focuses on a robot caring for an elderly woman with Alzheimer's and *The Nether* deals with childlike avatars that perform sexual and sadistic activities for paying customers.

The Nether begins with the interrogation of Mr Sims aka 'Papa' whose Hideaway is a virtual world in the Nether. As the play develops we see that the customers who use the Hideaway become so addicted to it that they may be tempted to abandon real life altogether, getting themselves hooked up onto life support machines and "crossing over" to spend all their time in the virtual world where it is now possible to experience such sensations as taste, smell and sex. But in the outside world, the Nether's own policing unit are keeping an eye on things and the tough female investigator Morris has brought in the owner of The Hideaway where punters, retaining their anonymity by adopting avatars, are able to have sex with virtual children. The Hideaway is one of the darkest corners of *The Nether*, a paedophile's paradise created by a Mr Sims who provides his guests with the perfect getaway for them to explore the most extreme part of these darkest fantasies - the abuse and murder of children.



Fig 1. *The Nether*, 2015. Stills of the play showing the offline setting of the interrogation of Mr Sims aka Papa by Detective Morris. Image sourced from: <http://www.thenetherplay.com/>

As you delve deeper into this play it brings up a range of important questions about simulation, intention and what actually categorises sex or violence online [16]. Such as: If you create an avatar and your avatar is a serial paedophile, is that a crime? And more specifically, is a virtual paedophile as real a threat as a non-virtual one, if there are no actual children involved? Might, on the other hand, the virtual space be used as an option to live out paedophilic and sadistic fantasies in order to prevent them from being carried out in other ways? This is what the main character Mr Sims suggests, stating that he made The Hideaway in order that "users may experience their fantasies in a non-judgmental environment without committing actual harm." Morris however is unwilling to accept this answer and questions whether living out these fantasies could be a way of testing the boundaries of extremity, claiming that the cases of paedophilia reported have become more sadistic. Mr Sims motives are also questionable when one considers the fact that The Hideaway is at its heart a business that will no longer accept you when you cannot pay. The play also brings up a range of contemporary debates around the definition of real and virtual, particularly when the interrogation forces the characters to face a physical act which replicas, in its exact aesthetic and physical detail, the sex and violence of their virtual world. It makes the audience question what constitutes life, death and identity online, including the personal representation of intimate emotions such as love and loss in social virtual worlds and online games [17] [18].

Spilikin: A Love Story is a play that was performed during the 2015 Edinburgh Fringe Festival² and is going on a national tour in the UK in 2016. The play is a collaboration between Pipeline Theatre company and Engineered Arts, whose RoboThesbian was the instigator of this script. The story focuses on the past and present of a woman with Alzheimer's who lives with a robot, left to her by her dead husband. Through a collection of

² The cost involved in producing this play have been supported by the Arts Council UK, locally sourced R&D and crowd funding.

conversations with the robot the audience is drawn into her story and is able to share her vulnerabilities and the progression of her dementia in circumstances where she is more or less aware of her husband's death. The robot aids her in reliving her original meeting and developing relationship with her husband in the past. Throughout the play although the robot's physical appearance, projected face and mechanical body does not change, the widow Sally is able to express a range of emotions towards him. She engages with the robot in some instances as her husband who she cares for by covering him with a blanket and giving him his glasses, while at other times he is the target of her confusion and resentment, seeing the robot as an annoyance that she has to endure until her husband comes home from his conference.

This story focuses on current issues of robotics and care, particularly the integration of robots into care of the elderly [5] [19]. But the story is able to draw us into this debate in a deeper and more personal way by showing us 1) the uncomfortable relationship Sally has to the only other real person who comes to see her in the play, a technologist who fixes the robot and knew her husband 2) the fact that her husband knew he may inherit a disease that caused his father to die young and was through this experience already predisposed to thinking about the future and the relationship he may come to have with the mechanical robotic structures that he is always shown to be tinkering with in the past 3) the relationship she shared with her husband in the past and her admiration of his work with robotics, it is clear that her husband's identity is strongly embodied by his passion for robotics and thus the robot can be seen as a fitting tribute to his memory 4) the fact that her husband made the robot specifically for her and that this is clearly an act of care and love on his part. It is an individual robot for her who sings with her, confirms that she can call him her husband and acts as a memory aid for her 5) the materiality of the robot itself, as a being on stage – including the mechanical sounds and lights that are not trying to emulate the gestures, movement or looks of her husband.

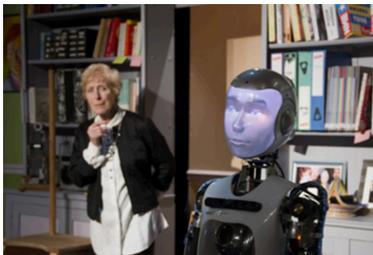


Fig 2. Spiltkin: *A Love Story*, 2015. Stills of the play showing Sally's emotions of love and fear towards the robot. Images sourced from: <http://www.pipelinetheatre.com/gallery1.html>

The breaking down of wide speculative scenarios, in which ethics are taken from a collective perspective of what is better for society into an individual story, shows that ethics need to be situated in order to be evaluated. Obviously this play does not suggest that robots should be companions for every Alzheimer's sufferer but it offers a touching and intimate portrayal of a woman who is for the majority of time able to take comfort in the simulation of her past (memories) and her companion (a robot). Engineered Arts' director Will Jackson also states that this was one of the main aims of the play: the examination of "the ethical, moral and philosophical ramifications of artificial intelligence and robots with human-like characteristics... This play isn't about presenting one side or another, but about exploring the issue in a nuanced, critical, human-centric way." [20]

In a similar way, *The Nether* projects some of our deepest social fears with the aim of interrogating technology, projection and simulation. This play takes a theme that has strong currents in public opinion and the media, the issue of paedophilia. Many reviewers and commentators³ noted that *The Nether* is part procedural police thriller and part evocation of the murky world of the Internet. Some specific questions that were addressed within these reviews were: How do you write a play about the ethics of online existence? How do you stage a virtual world? How do you police the entire Internet? And how much of this part of our world do we know about? This is what *The Nether* does. It questions what are the boundaries of immersion, when does play become real, what role do corporations have in policing their networks and how does the materiality of the

³ See: <http://www.telegraph.co.uk/culture/theatre/theatre-reviews/10991160/The-Nether-Royal-Court-review-haunting.html>, <http://www.theguardian.com/stage/2014/jul/27/the-nether-royal-court-observer-review>, <http://www.independent.co.uk/arts-entertainment/theatre-dance/reviews/the-nether-royal-court-theatre-review-deeply-disturbing-and-provocative-9629576.html>, <http://www.ft.com/cms/s/2/ae65965e-13e0-11e4-8485-00144feabdc0.html>, http://www.huffingtonpost.co.uk/victoria-sadler/nether-royal-court-theatre_b_5634521.html, <http://www.timeout.com/london/theatre/the-nether> accessed 1/12/15

Nether, as opposed to the flat projections used within the real world detective scenes (see Fig 1), help to enforce our view that the Nether is as real as any other environment.



Fig 3. *The Nether*, 2015, Stills of the play showing Papa and Iris having a picnic in *The Hideaway* inside *The Nether*. Image sourced from: <http://www.thenetherplay.com/>

The Nether is compelling and seductive partly because of what the stage designer Es Devlin does, for both the Royal Court Theatre and its transfer to the West End stage in London, is to make the online world a magical reality. There are beautiful sunlit poplar trees, a quaint Victorian styled, 19th-century house with elks' heads on the walls and a jovial proprietor and host called Papa, who offers a beautiful virtual girl for the delectation of his paying guests. After they have had sex with her they are invited to slay her with an axe.

Whilst the plays we cite focus predominantly on the elderly, Holloway and Valentine's research into the way in which young people engage with the Internet offers a useful example of what robots might look like beyond heteronormativity [21] They found that anonymity online allows "users to construct 'alternative' identities, positioning themselves differently in online space than off-line space" - identities that are both played with and at times abandoned. This anonymity offers control, flexibility, as well as "time to think about what they want to say and how they want to represent themselves." Despite this, they also found that the off- and online worlds of children are not utterly disconnected, but rather "mutually constituted". Nonetheless, legal and policy questions also arise, on which there has been little attention to date [22]. The first issue concerns not only the moral, but also the legal status and identity of the robot. Notably, and perhaps taking a cue from Asimov [23], some countries have begun to develop codes of ethics for robots [24]. The robot's status will in turn influence how other areas of the law might apply or develop. What about issues of consent? Might a sex robot be the instrument by which a sexual offence is committed by a human perpetrator? Can it be considered

fungible property, which can be permissibly sold or impermissibly stolen? And, finally, privacy questions also arise: For example, what data can the robot legitimately collect and distribute? [25]

These questions are what the two plays are probing. In *The Nether* the heterosexual and elderly men cannot distinguish between the worlds they inhabit. Pretence and belief are inverted in a magically seductive world but one in which the detective Morris argues that a crime is a crime in whichever reality it is committed, although Sims reminds her that she herself is drawn to the Nether in her sexual past, questioning why sex with a simulated child is different to sex with a simulated centaur or demon – why Morris was "ashamed [...] at the idea of having sex with an *image*." This leads Morris to question the usefulness of the body in the future and whether the Nether gives us the opportunity to "design the way that we *exist*." She also slips into the seduction and magic of the Hideaway herself, falling for the simulated child Iris while undercover. Whereas in *Spilikin* – Sally, the elderly widow – can not always tell reality from memory or imagined simulation due to her Alzheimer's and is thus able to take comfit in a being which does not question her understanding of reality. In both plays the questions of acceptance and social policing of norms are as much up for debate as the embedded ethical questions surrounding technology and the implementation of intimate technologies. Technologies are never politically, socially or cognitively neutral [26]. Technology can augment or challenge established assumptions that can be made in understanding the world around us [27] but are we ready to change with it?

Arts, Culture & Complexity: how can we broaden the debate on technology and ethics

This section focuses on the impact of the arts and arts research can have in widening cultural understanding of robotics and virtual reality, including the role of the avatar, through participatory and personal engagement in installations, workshops, exhibitions and plays. These art forms have the ability to provide people with engaging and meaningful encounters with new and emerging technology that may shape their perceptions beyond some of the classical aesthetic or behavioral tropes used within mainstream science fiction.

Prendergast in her paper *Utopian Performatives and the Social Imaginary: Toward a New Philosophy of Drama/Theater Education* [28] argues that theatre can be a powerful tool to explore and play with notions of Utopia and Dystopia in a shared space. Theatre gives us the possibility to experience our darkest fears and deepest desires in an intimate and shared space. It is this closeness, the proximity to the actors, and staging that makes this experience so immersive. The use of technology within the theatre space e.g. the projections used in *The Nether* and the live RoboThesbian in *Spilikin* provide an element of enchantment [29] to these experiences that further emphasises their dramatology and critical reflections on simulation and humanity.

The Nether also hosted a series of post-play public debates that aimed to gage the audience's developing views and opinions after their experiences of the play. At the Duke of York's Theatre, London on the 10th March 2015, Susie Hargreaves (Chief Executive of the charity, Internet Watch Foundation) and Jamie Bartlett (Author of *The Dark Net* and director at the UK think tank Demos) discussed the subject of policing the Internet. About 30 people were in the audience on that evening to engage with Bartlett. The dark net was the main focus of his talk as Bartlett has immersed himself in a disturbing journey through the furthest recesses of the Internet where users and payments are untraceable and anything is possible. On the other hand, Hargreaves was able to shine some light on the political lobbying which has got Google to donate £1m to the Internet Watch Foundation in 2013 to support its work on child sex abuse. Out of the abyss of the dark net comes a debate about ethical technologies and ethics, in relation to a public debate around intimacy (or sex) with robots and avatars, which is part of a campaign that reflects human principles of dignity, mutuality and freedom.

Installations, arts based research and exhibitions can also be powerful tools in testing public readiness and perceptions of new technology particularly in respect of how audiences and participants think about their own bodies. As they are not necessarily narrative-based they offer visceral ways to alter our predispositions about the relationships we may build with new technologies. In 1995 Anne Balsamo noted in her book *Technologies of the Gendered Body: Reading Cyborg women* [30], that the process of "reading the body," the body in high-tech is as gendered as ever but Jones and Arning state that "today [the body] and its visceral surroundings are studded with earphones, zooming in psychopharmaceuticals, extended with prostheses, dazzled by odourless tastes and tasteless odours, transported by new media, and buzzing with ideas" [31].

This has prompted several art projects, exploring these bodied experiences, among them Anna Dumitriu and Alex May have been collaborating with Professor Kerstin Dautenhahn and Dr Michael L. Walters from the Adaptive Systems Research Group (The University of Hertfordshire, UK) to investigate the social robotics that they make. Dumitriu and May's work focuses on raising public debate around the ethical issues in contemporary robotics and led to the development of a series of provocative heads for humanoid robots. The interactive robot head is the ultimate in personal robotics. It can take on the appearance of any user to provide a potentially comforting sense of recognition and familiarity, as can aid users in every aspect of their lives. The "Familiar" head uses a Microsoft Kinect to take features from visitors faces and combining them with features from their friends and family's faces based on their proximity to the robot. As you approach, it turns to you and begins to change. The robot tells you "I like your face" or "I love you". Of course this can also lead to a feeling of discomfort known in robotics as "the uncanny valley"

[32] (Mori, 1970⁴), where users feel a sense of repulsion as robots become very humanlike (in this case very like themselves and their companions) but stopping short of being wholly human. The depth camera in the Kinect can be used to measure this effect in operation by recording how visitors approach the robot. It looks most like the person that it sees most in order to promote bonding, a kind of intimacy that some visitors found unnerving as they experienced the work shown at FutureFest, London in March 2015.

Two further projects are relevant here, *The Blind Robot* and *me and my shadow*. These projects, commissioned and produced by UK design collective body>data>space, do challenge our current social consensus of what a robot or an avatar is and how we may engage with them in the future. They deal with a more nuanced approach to technological intimacy – less fantastical then science fiction and less corporate then products built for the market.

These two installations are of two programmes of work, *Robots and Avatars*⁵ and MADE, directed by body>data>space, and created with the support of the EU Cultural Programme, NESTA and others. A series of installations, exhibitions, workshops, and reports that act as a portal for developing a cross section of dialogue between the public, the technology industry and academic partners. The art works also become instigators for a range of debates about technology, including the development of a series of reports that chart new protocols of Behaviors and Ethics [33].



Fig 4. *The Blind Robot*, Louis Philippe Demers, *Touch and Interactive Robotics* (2012 – 2014). Image sourced from: http://www.robotsandavatars.net/exhibition/jurys_selection/commissions/the-blind-robot/

⁴ Masahiro Mori, Professor at the Tokyo Institute of Technology, wrote an essay on how he envisioned people's reactions to robots that looked and acted almost human. In particular, he hypothesized that a person's response to a humanlike robot would abruptly shift from empathy to revulsion as it approached, but failed to attain, a lifelike appearance. This descent into eeriness is known as the uncanny valley. It first appeared in an obscure Japanese journal called *Energy* in 1970. More recently, however, the concept of the uncanny valley has rapidly attracted interest in robotics and other scientific circles as well as in popular culture. Some researchers have explored its implications for human-robot interaction

⁵ <http://www.robotsandavatars.net/>

*The Blind Robot*⁶ is a robot that communicates predominantly through touch. Demers states that this work is about the development of “degrees of human engagement when a social robot intimately touches a person. This work originated from a recently known cultural artifact, the robotic arm, which has been transformed [in this art work] from a cold high-precision tool into a fragile, imprecise, sensual and emotionally loaded agent” [34]. The idea of linking the robot to the very human disability of blindness also helps with this aim as it evokes vulnerability on behalf of the robot and gives the touch a higher status that helps to create a level of trust and intimacy between human and robot.



Fig 5. *me and my shadow*, Joseph Hyde, Phil Tew, Ghislaine Boddington, MADE (Mobility for Digital Arts in Europe)(2007–2013). Image sourced from: <http://www.bodydataspace.net/projects/meandmyshadow/mams-made-commissioning/>

*me and my shadow*⁷ is an immersive installation that engages us through focusing on the body and movement in an aesthetically fluid virtual space rather than acting within a specific identity or scenario, as in *The Nether*. It is this centralizing of the body with the interaction that creates a poetic link to the metaphorical concept of the shadow, that is able to transform our

⁶ Blind Robot was commissioned by Robots and Avatars, a co-operation project between body>data>space (London, UK), KIBLA (Maribor/Slovenia) and AltArt (Cluj Napoca/Romania) with the support of the Culture Programme of the European Union (2007-2013). UK partners - FACT Liverpool (Foundation for Arts and Creative Technology) and National Theatre (London). Supported using public funding by the Arts Council of England. Robots and Avatars was originally conceived and produced by body>data>space with partners NESTA in 2009. Blind Robot premiered in Kibla, Maribor as part of Maribor 2012: European Capital of Culture from 5th to 30th October 2012.

⁷ *me and my shadow* was commissioned by MADE, a co-operation project between centre des arts d'Enghien-les-Bains (Paris, France), body>data>space (London, UK), Transcultures (Mons, Belgium) and boDig (Istanbul, Turkey), with the support of the Culture Programme of the European Union (2007-2013). UK partners - body>data>space and National Theatre (London) in association with Bath Spa University. Supported using public funding by the Arts Council of England. Connecting real-time audiences between London, Paris, Brussels and Istanbul, *me and my shadow* premiered at the National Theatre from 10 – 26 June 2012 during the Olympic celebrations.

perception of disembodied technical immersion into an extension of our own body's experiences. There is an intimate connection formed between the movement and the display that challenges our understanding of what it is to be intimate with technology.

Closing Statements

Within this paper we seek to widen the definition of intimacy in relation to ideas of technological intimacy. Whilst we have considered the role of theatre in exploring specific issues we would argue that the arts in general have a key role to play in bridging of the divide between the biological and the artificial.

By taking on the ethical debates that relate to developing new social norms and political understandings of simulation and robotics, through the arts, we consider how ambiguous narratives can help us to think through complex problems. This gives us more personal experiences challenging the boundaries of how intimacy is expressed within society.

Through this paper we would assert that the arts have a key role to play in the future development of technologies and technological narratives for public engagement.

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