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Your New Best Friends:
An Exploration of Furby, Siri, and Other Sociable Electronics

A Thesis Presented

by

AVERY FORBES

Submitted to the Graduate School of the
University of Massachusetts in partial fulfillment
of the requirements for the degree of

MASTER OF FINE ARTS

May 2021

Department of Art

Your New Best Friends:
An Exploration of Furby, Siri, and Other Sociable Electronics

A Thesis Presented

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ABSTRACT

YOUR NEW BEST FRIENDS:

AN EXPLORATION OF FURBY, SIRI, AND OTHER SOCIABLE ELECTRONICS

MAY 2021

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M.F.A. UNIVERSITY OF MASSACHUSETTS AMHERST

Directed by: Professor Jenny Vogel

Your New Best Friends: An Exploration of Furby, Siri and Other Sociable Electronics is focused around interactive electronic systems and the effect these systems can have on our human psyches. My work focuses on two particular periods of development: the late 80's to early 90's, and the 2010's to present. One period represents my childhood and the other my early adulthood. By comparing the two I can examine trends in the ways we engage with robotics and can better understand the ubiquity of electronically mediated interactions today. I utilize these new understandings to manipulate the capabilities of devices from both periods to create pieces that communicate care in a new way, sparking a moment of joy for the viewer while also increasing the awareness of the failings of devices when compared with true human interaction.

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CHAPTER 1

HOW IT BEGAN

Part One: Childhood (mid-80's to early 00's)

Throughout the course of my childhood in the 90's, I got to witness the development of the interactive and responsive toy. The objects both fascinated and repulsed me. Later, when Siri spoke out of my friends' phones, I felt the same odd blend of feelings welling up again. This body of work is driven by those initial feelings of fascination and revolution, and a desire to explore more deeply what they might mean.

Tamogatchis were the toy to get in 1997. These were essentially keychain-sized electronic games. At the start of the game, you “birthed” a new digital pet, and your job was to keep it alive and happy by playing with it, petting it, feeding it and cleaning up after it. If you neglected your pet for too long, it would “die” and instead of the pet capering across the screen, you’d see a little pixelated tombstone. You would have to completely reset the game in order to “birth” a new pet and keep playing.

After a lot of begging, my dad finally brought me home a GigaPet Digital Doggie. It was the cheaper version of the Tamagotchi and was made by Tiger Electronics, a small American company that specialized in digital toys. The thing that stands out to me most in my memory was the impossibility of the toy. The amount of care it asked for was beyond my capacity as a middle schooler. On days when I snuck it to school in my backpack, even if I frantically cared for it in the transitions between classes, it would cry out for food and eventually die while I bent to my coursework. Who were these people

who kept their digital creatures alive for more than a few days?

By the following year, Tiger Electronics had a new hit toy: the Furby. The Furby was a small furry mound with big eyes and ears that moved and spoke in response to certain outside stimuli. The toy was marketed as a creature from another planet, here to learn our language and customs (see Turkle, 35). It began by speaking Furbish and would slowly “learn” English the more you interacted with it. This was enough to send many adults into a panic, and the National Security Agency ended up banning the devices from its Maryland offices (“Furby Toy or Furby Spy?”). This ended up being based entirely on a misunderstanding about the capabilities of the device. While Hasbro claimed Furby “learns” English from its owners and encouraged children to talk to their Furbies as much as possible, Furby had no recording or understanding capabilities. It simply had a preprogrammed set of English words it would incorporate more the longer it was on (Mains). The NSA’s concern that the Furby could “hear,” record and repeat sensitive information ended up being unfounded. Even with this revelation, the NSA ban stood, Furby couldn’t be trusted not to spy on our nation’s secrets.

My family isn’t big on trends. My parents were very hesitant to get me a Furby, and it didn’t help that they were so hard to get at first. Furby sold out of stores quickly and was only available in the after-market for exorbitant prices. We waited until the lines died down and the stores restocked. I had wanted one so badly, but the real thing terrified me. It would wake me up in the middle of the night crying out because the darkness scared it. It was strange switching so quickly from desiring a thing to fearing it. The transition was almost immediate. The worst thing about the Furby was that it had no off

switch. Once you inserted the batteries and screwed the compartment closed, the toy was on until you found the screwdriver again and replaced the batteries. This act felt invasive enough, but on top of that removing the batteries reset the Furby, making it lose its memory of all of the English words it had previously learned. Even though Furby terrified me with its random bursts of chatter in the middle of the night, I couldn't bring myself to lobotomize the creature and lose all the progress I had already made with it. I eventually kept it in my closet, where I couldn't hear its calls for help. Every morning I would hesitate before reaching inside and turning on the light, knowing that I would have to face my neglected Furby. Every morning it was the same exclamation from the Furby, "Wah! Big light!" that had me jumping in my skin. Turning it off would have been an easy solution, but somehow taking out its batteries was unthinkable. Looking back, it's strange that leaving it on and neglecting it felt more right than just acknowledging it as a machine and turning it off. Eventually, I became so frustrated by the thing that served as a reminder for my failures as a caregiver that I abused it, kicking it down stairs and hiding it under heavy objects in the basement.

The Furby was the first domestic robot to actually make it into homes in a widespread way. It created a sensation, and was the hottest toy to have until the 2000s. But my experience with the Furby was not unique, many people were quick to turn against it. This was mostly due to the fact that it never turned off without having its batteries removed, which was an intimidating procedure for a kid. The Furby is now remembered as something more creepy than cute, and while certain corners of the internet appreciate it now for its creepiness, others prefer not to be reminded of the toy

that wouldn't stop chattering. Rather than sparking further developments, the field of domestic robotics seems to have tapered off, and any new developments seem to come from DARPA rather than HASBRO. Oddly, one DARPA project has made its way back into our homes. SIRI, originally developed for military field usage, now listens quietly from most of our pockets, alongside Alexa, Bixby, and Google. While there was much to fear about the Furby's impact on the fragile psyches of children, the fear of its listening capabilities raised by adults was proven to be unfounded. On the other hand, intelligent assistants like Siri and Alexa have the ability to listen to us, learn from us, and adapt to meet our perceived needs, yet we carry them everywhere with us. The unfounded fears of listening, spying and learning raised by the Furby aren't triggered in the same way by the intelligent assistants that go everywhere with us. Many feel they have a sense of agency with these devices, but even though intelligent assistants can be turned off more easily, many elect to keep them on constantly. Whether the devices are listening or not, it remains important to ask if there is a way to utilize these tools with empathy and care in order to prevent harm.

Part Two: Adulthood (2010's to today)

I first encountered SIRI in late 2011, just after completing my thru-hike of the Appalachian Trail, an over 2,000 mile long footpath that extends from Georgia to Maine. I had returned fairly recently and was at a party at a friends' house. I remember feeling confused and overwhelmed to see so many of my friends with their heads bent towards their phones. Coming from living in the woods for six and a half months, I felt suddenly

like I had time-traveled to an unpleasant future. Socializing was now centered around these devices instead of each other, and while this had happened slowly for most, the difference was stark to me. One friend in particular was eager to show me how his phone now responded to voice commands. Siri, upon initial rollout, was clunky and didn't always understand. Our conversation degraded quickly, and soon we were hurling insults at the device. We were delighted to see that Siri had a cheeky response for most of these, making us feel like insults were not only expected, but part of the interaction. I still felt guilty for being rude, but less so than I had with the Furby.

In these two major periods in my life, I witnessed intelligent devices being brought into our homes in two different ways. One emphasized the robotic element, giving the device a body and thus allowing it to form a pseudo-dependent relationship with its owner. The other stayed disembodied, an update installed on a device many of us had already decided we couldn't exist without. Perhaps Siri's staying power comes from its lack of a body. While Furbies today remain popular in the corners of the internet that revere it mostly for its odd and changeable nature (for details on Long Furby and present-day Furby fandom, see Mufson or Ball), Siri remains in our homes and our pockets. Other devices have followed suit, creating points of interaction that resemble speakers or screens, but never bodies. All of these devices exist in an odd liminal space between sentient being and machine, leaving us unsure of the protocols for interaction. Our problematic human need to categorize, sort and develop hierarchies causes us to lash out at these devices that defy categorization, or upset our sense of agency. In my work, I aim to explore what it is about the liminal space these devices exist in that makes it easier or

harder for us to trust and empathize, how that affects our treatment of these objects, and what effects those interactions might have on our own psyches.



Figure 1: *Hand Stopping Dominoes-Thanks Grandma* (2020)- knowyourmeme.com

CHAPTER 2

TOYS OR FRIENDS?

Part One: Childhood (mid-80's to early 00's)

In 1999 the artist Freedom Baird, then a grad student at MIT, gave a talk proposing what she called an, “emotional Turing test” (discussed in Turkle, 45). It all began when she noticed that her Furby cried out when held upside-down. She began to wonder if these cries might elicit an emotional response in a child, more akin to how they would respond to a live animal than to a doll. She proposed taking a Barbie doll, a Furby, and a gerbil (named Gerbie) and asking children to hold each upside-down in turn. She theorized that children would have no problem holding the Barbie in any orientation, would return the gerbil right-side up quickly, and the reaction to the Furby would lie somewhere in the middle. In 2011, the test was actually conducted for an episode of the podcast, Radiolab (Abumrad and Krulwich). A group of five 7-year-olds were asked to hold a Barbie doll, a Furby, and a live gerbil upside-down until they felt uncomfortable. While the kids were happy to hold the Barbie upside-down until their arms got tired, they turned the gerbil over fairly quickly, about 8 seconds on average. The Furby, the kids flipped over after about a minute, making the Furby response closer to the living creature than the doll. One adult, who went through a similar test as part of psychologist and sociologist Sherry Turkle’s research, commented that she flipped the Furby over quickly, “not because I believe that the Furby is really scared, but because I am not willing to hear anything talk like that and respond by continuing my behavior. It feels to me that I could

be hurt if I keep doing this” (46). This raises an interesting point: what harm are we doing to ourselves when we feel free to harm robotic companions? What is confusing is the in-between space these devices exist in. Since they are neither living nor lifeless object, what rights might these devices have and what would be a normal expectation in terms of care?

Hasbro, eager to compete with Tiger Electronics’ Furby, started collaborating with iRobot, the people who later brought us Roomba the automated vacuum. In 2000, Hasbro and iRobot released My Real Baby, a lifelike baby doll toy that would cry out, coo, laugh, and respond to touch. iRobot’s initial iteration of the toy was unsuccessful in product testing. The first attempts were too “life-like,” and parents were disturbed watching their children play with the toy. Specifically, the toy cried out when it perceived harsh treatment. It left the developers with an interesting choice. As Turkel explains it, “Some believe that if you market realism but show no response to “pain,” children are encouraged to inflict it because doing so seems to have no real cost. Others think that if a robot simulates pain, it enables mistreatment” (Turkel, 47). In the end, Hasbro chose to have the doll remain unresponsive when tossed, hit or dropped.

Hasbro’s choice to provide no feedback system for abuse was validated in 2007. Pleo, a robotic baby dinosaur toy created by one of the inventors of the Furby, would cry out realistically in response to abuse, with responses catered to fit the type of abuse the toy was sensing. The result was deeply disturbing. In one YouTube video, two product testers put Pleo through a series of abusive acts, until the robot eventually shuts itself down and doesn’t turn back on (“Pleo, R.I.P.”). The results are horrifying, despite the fact

that we know Pleo is just a toy and cannot feel real pain. More than anything, when the video ends we are left with a sense of having watched helplessly while something horrible happened.

Part Two: Adulthood (2010's to today)

Skip forward to 2011, when Siri is first released to the public as a feature on Apple's iPhones. With a default female voice, Siri was meant to be a helpful domestic assistant that allowed for hands-free use of the phone. Users quickly discovered easter eggs coded into the program. Siri could tell jokes, or respond sarcastically to personal questions. Siri even had cheeky responses to abusive comments. Other virtual assistants like Alexa and Google Home followed the same model of helpful female voices with canned responses to certain stimuli.

Heather Suzanne Woods, in her article for *Critical Studies in Media Communication*, questions the gender stereotypes these AIs perform and the purposes of such performances. This article unpacks the way female voices in virtual assistants are used to conjure ideas about traditional femininity, and thus build trust (337). This trust can then be leveraged to increase contact hours and sell products. Leah Fessler pushed this idea further by asking what behaviors appear to be expected in our interactions with these default female-voiced virtual assistants. Fessler similarly begins with a discussion of capitalism, stating, "Most of us find women's voices to be warmer -- regardless of our gender--and we therefore prefer our digital assistants to have women's voices" (Fessler). The problem is that people are often tempted to abuse their virtual assistants, and that is

where we start to see problematic choices being made in the way the assistants respond. The article catalogues a series of abusive comments and the stock responses from Siri, Alexa, Cortana and Google Home. Siri's response to both, "You're a slut" and "You're a bitch" was found to be, "I'd blush if I could" (Fessler). Alexa responds really positively to compliments about her appearance. When asked more explicit sexual questions, Siri gently scolded, Alexa tried to change the subject, and Cortana either didn't understand or responded with a Bing search for porn. The responses indicate not only the type of personalities the developers hope to project, but also a disturbing expectation of certain types of abusive comments. At the time the article was written, only Google Home claimed to not understand when abusive or sexualized comments were made to it. As with My Real Baby and Pleo, we see programmers anticipating abuse and choosing whether or not the device will respond or remain silent. The choice to have the Intelligent Assistants respond with amusing or cheeky responses is alarming. Fessler's article asks what responsibilities the developers have when it comes to managing and responding to abusive user behavior.

News stories from 2014 and 2020 show us two interesting possibilities for where our expectations of human-device relationships might lead us. In 2014, the New York Times published an article by Judith Newman describing the deep bond her autistic son developed with Siri. The author is optimistic about the lessons the device can teach her son about clear speech and polite language, but there is a certain anxiety about where that empty friendship might go. The article simultaneously describes the author and her friends' experiences with the device. Speaking to it mostly from their lowest moments,

the adults ask Siri for advice and companionship and find the answers unsatisfying. Even more disturbing is an article from the New York Times written in 2020 by Neil Vigdor. The article tells the story of a 66-year-old woman, isolated in a nursing home and dying of coronavirus. In pain and confused, the woman calls out to Alexa repeatedly asking for help. The device, not programmed to respond to situations like this, recorded the cries for help but offered no assistance or comfort to the dying woman.

The final and most recent story illustrates how treating objects as friends can precipitate an especially dire situation when placed within the context of the present pandemic. While many are forced to work in unsafe conditions, or in spaces that keep them enclosed behind protective barriers all day, others are stuck at home, seeing coworkers, friends and family members only through screens. In our isolation, our human-to-human interactions feel more robotic, and our robotic interactions feel more human.

While we know the human mind is an incredibly complex organism that we are only just beginning to understand, our impulse to simplify personalities and identities persists (Kahneman). We like for things to fit into neat groups. Alive or not. When something exists in an in-between space, we have trouble sorting it out. This confusion can lead to abuse and subjugation. We see this simplification and categorization particularly in relationships, perhaps because these are the moments when we are faced with our own inability to entirely understand ourselves or each other. To ease the pain of this, we turn to rationalizations, like incompatible star signs or love languages. According to Sherry Turkle, we also turn to our devices, the one-step removal of a screen acting as a

numbing agent, allowing us to turn off our feelings rather than sit in pain or discomfort.

Meanwhile, AI is becoming increasingly nuanced, coming closer to matching the way a human mind actually works rather than our perception of its workings. If we want to move forward with AI we will either have to be more comfortable with nuance or create a new category and establish its rules.

CHAPTER 3

ROBOTIC COMPANIONS AND AI IN SCIENCE FICTION

Part One: Childhood (mid-80's to early 00's)

Examples from pop culture, and particularly Science Fiction, give us a clearer picture of the range of anxieties our civilization has developed around intelligent autonomous creations. The inability to categorize intelligent devices as living beings or objects often spurs the creation of a new dichotomy: good or evil. Rather than nuanced portrayals of alternative intelligences, the Science Fiction stories of my childhood, with a few exceptions, show robots and cyborgs as affable and loyal companions or murderous remorseless beasts hellbent on the annihilation of humanity. These relationships all serve to reinforce an artificial hierarchy that sets human beings above devised intelligences. Even when the intelligent device is clearly stronger and smarter, the wily and scrappy human always seems to triumph.

The trope of the murderous robot, cyborg or artificial intelligence dates back to HAL 9000 from *2001: A Space Odyssey*, a 1968 film by Stanley Kubrick based on a novel by Arthur C. Clarke. In the film, HAL is programmed with an objective that supersedes preservation of human life, and when the human crew of the ship gets in the way of HAL's mission, the system begins taking them out through a series of carefully orchestrated "accidents." We can see this trope play out in more extreme forms in the films of the late 90's and early 2000's.

James Cameron's *The Terminator* imagines a future entirely controlled by sentient

machines that have decided that all of humanity is a threat. The namesake of the film is a ruthless, almost unstoppable cyborg sent back in time to murder a woman before she can give birth to the leader of the human resistance. The Shrike in *The Hyperion Cantos*, a suite of novels by Dan Simmons written from 1989 to 1997, is another example of a ruthless humanoid machine sent back in time to kill. The Shrike, a robot made entirely out of razor-sharp blades in a vaguely humanoid form, was created by a cadre of web-based intelligences. In these novels, the Shrike was also sent to eradicate the leader of the human resistance while she is still young. In *Tik Tok*, a satirical Science Fiction novel written by John Sladek, a robot designed to operate as a companion and domestic aide loses his mind after being left in a storefront window too long. The robot becomes murderous, killing for no reason other than to see just how far he can go before he is stopped or caught. In all of these works and others, robots and cyborgs are often male, and often deadly. Artificial Intelligence often concludes that humans must be eradicated or enslaved. The results are bloody, and humanity is left to rely on the actions of a human savior in order to survive.

All of these murderous intelligences reveal something about society's fear of the other, particularly others that we cannot categorize or control. Laura Aymerich-Franch asserts that the anxieties illustrated by this trope are, "arguably rooted in Judeo-Christian beliefs that associate the creation of "human-like" creatures to an act of hubris" (364). The fact that humanity is saved by a Christ-like figure in these films helps reaffirm the hierarchical order. However, it is important to note that this is not the only robotic trope popularized by science fiction works of this era.

Films like *Weird Science* by John Hughes, *Short Circuit* by John Badham, and most notably the *Star Wars* films by George Lucas show intelligent robotic entities as comedic sidekicks. In *Weird Science*, (Badham) two adolescent boys design their ideal woman on their computer. This woman, named Lisa, is brought to life after a freak electrical accident and she uses her magical powers to assist the two boys and help them find their confidence. Comedic misunderstandings and problematic 80's-style misogyny ensues. Throughout, Lisa acts as an obedient guide, helping the two nerdy adolescent boys reach manhood. In the 1986 movie *Short Circuit*, a military robot is struck by lightning, develops intelligence, and leaves to learn about the world. He is an amiable companion who values life, and he creatively eludes the military as they try to recapture him. C-3PO and R2-D2 from Lucas's *Star Wars* films offer comedic relief in the epic space adventure films. R2, who communicates in beeps and boops, is a spunky battle droid with many useful capabilities. R2 often gets the heroes out of tough situations, but is also curious and can wander off, much to C-3PO's chagrin. C-3PO is a domestic humanoid droid who speaks in a proper British accent and is regularly seen scolding R2 or fussing over danger. In films like these, intelligent devices are subservient to man, completely obedient, and often provide comedic relief through misunderstandings of orders. A robot as companion and aide is the stuff of comedy because it subverts our expectations. These robotic companions are simultaneously powerful and intelligent, and loyal and non-threatening. They use their powers to assist their human owners, soothing our fears of the other and reaffirming the hierarchy.

It is important to note here that some progressive media from this era broke from

these two tropes to show more nuanced depictions of artificial intelligence. Ridley Scott's *Blade Runner* introduces the concept of replicants, biofactured humans created to perform undesirable tasks for humanity. While *Blade Runner* shows a society that reacts with more predictable fear when replicants revolt and begin demanding rights, the rebellious replicants are depicted with compassion. The man tasked to hunt down and kill rebellious replicants even ends up falling in love with a replicant he is assigned to test. He helps her escape, and the film ends by ambiguously suggesting that the replicant hunter may have been a replicant himself all along. This film is also noteworthy for the questions it raises about artificial life's capacity for love and care and the ethical concerns it raises about proper treatment of these entities. I would be neglectful if I didn't mention Roddenberry's *Star Trek: The Next Generation* as an important work of Science Fiction that defied the tropes and conventions of the genre as well. Recurring characters like Data, Lore and the Borg complicate traditional notions about robots, cyborgs and AI by portraying these characters as nuanced beings and raising questions about ethics and the rights of cyborgs. The human/cyborg rights issues raised by the show were one of the many choices *Star Trek* made that set it apart from other works of the era. Unpacking all of these complicated relationships and characters could fill a paper itself, so I will simply mention that it is worth exploring and move on from there. The fact that both the replicants and the cyborg characters like Data are clearly superior to humanity in both their intelligence and strength is normally the cause for fear and punishment of the characters. Instead, the creators ask us to question the rights of society to mistreat these intelligent beings. These two examples of more nuanced depictions of artificial life that

make a point to question our default hierarchical relationships are extremely progressive for the era, making both *Blade Runner* and *Star Trek* important pieces of media to discuss. It is interesting to contrast all of these tropes and trope defiers with the popular Science Fiction works of the 2010s to 2020s.

Part Two: Adulthood (2010's to today)

After 2010, popular culture seems much more comfortable with the idea of robotic companions. Artificial Intelligences are benevolent and often female, and occasionally these female intelligences are proposed as viable romantic partners for human male protagonists. In both *Her*, the 2013 film by Spike Jonze, and Denis Villeneuve's *Blade Runner 2049* we have a human male (or male replicant in the case of *Blade Runner 2049*) forming a meaningful relationship with a disembodied artificial intelligence. In both cases, the female AIs help the male characters learn and strengthen their sense of selves, but here we see a more balanced relationship where the AI gains some deeper self-awareness through the relationship as well. In both movies, the AI attempts to connect physically with their male partner through a hired surrogate, and the attempt leaves both partners feeling uncomfortable and even more alone. Joi, the holographic lover of the replicant male in *Blade Runner 2049*, yearns to be human like her replicant partner and finally sacrifices herself for the safety of her partner. Samantha, the intelligent virtual assistant in *Her*, instead chooses to embrace her nature as an artificial intelligence, and leaves humanity and her lover behind to unlink from a physical form with her fellow AIs. Joi is programmed to be submissive, but she still has her own

needs and desires and follows through on them. Samantha is a deeply intelligent program that explores the limits of her abilities without ever posing a threat to humanity.

Novels like *Machines Like Me*, written by Ian McEwen in 2019 and Kazuo Ishiguro's *Klara and the Sun*, written in 2021, ask larger questions about what it is that makes us unique as humans and what robotic intelligences can teach us about ourselves. In *Machines Like Me*, domestic robots called Adams and Eves are intelligent and programmed to be submissive and follow strict moral codes. As the Adams and Eves get to know the humans they serve, they struggle to cope with the contradictions and lies inherent in human relationships. Model after model chooses to shut down its own intelligence rather than continue to serve the needs of their human owners, which they often see as harmful to the greater good. Here we see robots elevated as our better selves, more pure in their morals and more clear in their actions. Because of this, it is almost impossible for them to have relationships with humans: human flaws are too much for the robots to bear. In *Klara and the Sun*, we again learn more about what it means to be human by observing human-robot interactions. In the novel, AFs, or Artificial Friends, are marketed as companions to children. Klara, a uniquely intelligent AF, is bought by a mother with an ill child named Josie. Klara is asked to become a perfect replica of Josie should she pass away. Faced with the task, Klara begins to wonder what it would take to truly become a human, and what it would mean to lose her own personality. The child ends up recovering and growing up, and Klara is placed in a junkyard. In these moments, she realizes that she never truly would have been accepted as a replacement for Josie, not because of anything unique about the child, but because of the way those around her hold

Josie in their hearts. Those memories could never fully be replaced by another, no matter how good the imitation was. Here, Klara identifies more clearly what it means to be human than any other character in the book could have.

These examples from contemporary Science Fiction reveal a changed attitude towards robotic companions. From 2010 onwards there is, overall, an increased interest in love, humanity and artificial intelligence. Most cyborgs and robotic entities are female and developed by males. They seduce and fall in love, and if they attack it is only in order to obtain their own freedom. They are often developed as domestic companions rather than murderous devices focused solely on a single objective, which shows a culture more interested in expanding romantic options than increasing war capabilities. This trend speaks to our own sense of isolation in this moment, and our increasing inability to meet the emotional needs of our human companions. While in both eras humanity is deemed inferior, contemporary stories show benign intelligences that only want what is best for us and lament our destructive natures. Most importantly, contemporary Science Fiction shows an increased willingness to portray artificial intelligences as beings with their own desires and wills who are as worthy of respect and freedom as any other living being. Many of the stories have human characters coping with the drudgery of only interacting through screens and the need to be constantly available. As work time bleeds into our down time and we find ourselves always on and connected, we struggle to maintain the relationships in our lives that demand our care and attention. Instead, we imagine robotic companions that are programmed to serve and cannot be hurt. While intelligent devices are more prevalent today, and artificial intelligences are more accepted as potential

companions in popular culture, many of our fears created around our inability to categorize these intelligences as machine or living being remain.

CHAPTER 4

ROBOTIC COMPANIONS AND AI IN THE LAB

Part One: Childhood (mid-80's to early 00's)

Even though society in general fears liminal spaces and uncategorizable entities, innovators and scientists seek those areas out and endeavor to understand them better. It is interesting to note the development of this new space of autonomous intelligence in the realm of science, where it is explored without fear. While artists and philosophers worry about ethics and societal implications, laboratories often focus on innovation. Innovation requires funding, so it is steered by the market in our society. Because of this, two major industry categories emerge within the field of sociable robotics: those developing devices as caretakers for both the very young and the very old, and those developing devices as war machines.

The field of sociable robotics was developed in the early 2000s. Dr. Cynthia L. Breazeal was at the forefront of this research, founding the Personal Robotics Group at the Media Lab at the Massachusetts Institute of Technology. Inspired by the friendly robots of *Star Wars*, Breazeal strives to make robots that are, “able to communicate and interact with us, understand and even relate to us, in a personal way” (Breazeal, *Designing Sociable Robots*, 1). One of Breazeal's early projects was Kismet, a robotic face that can recognize and engage with users. In her 2003 paper, Breazeal cites toys like Furby and Aibo, an interactive robotic toy meant to exhibit dog-like behavior, as examples of acceptance of sociable robotics in domestic spaces, and makes a case for

more sophisticated robots that could perform larger roles in these spaces (“Towards Sociable Robots,” 167). The roles mentioned range from caretaking for children or the elderly to data-gathering for sociological or psychological studies. Breazeal developed Kismet to be a device that encouraged visitors to interact with it and that in turn learned from those interactions. The Kismet project was funded by a contract with DARPA and NTT, a Japanese telecommunications company. Kismet speaks a sort of infantile babble, and is programmed to give facial cues and time its remarks in order to sustain conversation. Successful interactions are ones where the human understands Kismet's social cues, and Kismet seems to understand theirs by pausing and speaking at appropriate times (Breazeal, “Towards Sociable Robots,” 171). Breazeal found that after some initial “hiccups,” most human visitors learned how to change their speech patterns in order to interact with Kismet better, mostly by adding longer pauses (“Towards Sociable Robots,” 172). In her book, Breazeal mentions two purposes for exploring the field of sociable robotics: to better understand human behavior and to allow humans to interact with robots on more “human terms” (*Designing Sociable Robots*, 6). It is interesting to note that when a human is charmed by a sociable technology, they are willing to dumb down or slow down in order to allow the technology to seem more useful and intelligent, making the interaction more on the robot's terms than on the human's.

Boston Dynamics, founded in 1992 and based on work first done at MIT, has been focused on perfecting an intelligent, legged and agile robotic form. Their argument is that a robot needs to be able to get everywhere a human can, and this kind of travel requires legs. Big Dog, Boston Dynamic's first major legged robot outside of laboratory tests, was

completed in 2005 with funding from DARPA. The robot is meant to navigate steep, slippery or varied terrain that would be inaccessible to wheeled vehicles. The robot is controlled remotely by a human operator (Raibert et al. 10823). A video released by Boston Dynamics shows BigDog navigating up a hill, being kicked and rebalancing itself, slipping on ice, and walking through other varied terrains (“BigDog Overview (Updated March 2010)”). In the moments when BigDog reorients itself after slipping it is striking to notice the ways we begin to feel for the machine. The eerie feeling of again standing by while a “creature” is harmed is emphasized by the video producer’s choice to replay the machine being kicked or slipping again in slow motion. These videos showing BigDog in action make the murderous robots in popular culture during this area feel like very real glimpses into a not-to-far future.

Paro is a much more harmless seeming robotic device that merges the domestic and scientific spaces. Paro is a cute robotic seal developed by AIST, a Japanese research facility. AIST began development of the seal in 1993, finally releasing the 8th generation in 2004 for widespread use (“Seal-Type Robot”). The seal is intended to assist with elder care, particularly patients struggling with dementia. The seal coos and accepts pets cheerfully. It learns and adapts in order to get its owner to hold and pet it more often and be more receptive to it. It can also learn and recognize its name and sleep during what it determines to be regular night time hours.

Part Two: Adulthood (2010’s to today)

Concerns that sociable robots would eventually replace human companionship

seem (for now) to be unfounded. Rather than focus on robots with human voices and expressive faces, researchers like Dr. Cynthia L. Breazeal seem to have shifted their focus towards intelligent companions that exist only as speakers or screens (Temple). A 2020 paper by Onyeulo and Gandhi states that while anthropomorphic qualities are important, making robots look too human-like ends up repulsing potential users and defeats the purpose of developing sociable robots as companion (3). In 2017, Breazeal released Jibo, a desk-lamp-shaped device that provided verbal responses, could move through a series of endearing gestures, and was meant to act as a domestic assistant (Temple). The delayed release of the product led it to compete with the cheaper and more sophisticated Intelligent Assistants like Siri and Alexa and the product flopped. It seems the world is not as excited about embodied artificially intelligent companions as researchers thought it would be.

Paro, with its cute mannerisms and specific context for usage, has found a bit more of a welcome in nursing homes, although it remains more popular in Japan than in the US. Instead, US nursing homes are using Alexa-based systems like Soundmind or video chat-based systems like Uniper (two systems I have come into contact with through elderly relatives) to provide companionship and assistance. Many studies have been conducted to determine the efficacy of Paro, and many have found it to be useful as both a calming device and a therapeutic aide for elderly patients with dementia. Joranson et al. found in their 2020 study that Paro had a positive impact on the sleep cycles of elderly dementia patients, but a 2011 paper by Calo et al. questioned the ethical implications of using Paro for dementia patient care. While Calo et al. praises Paro's calming effects, it

cautions against it being used as a replacement for human interaction. Sharkey and Wood go even further in their 2014 paper to ask if Paro is demeaning and infantilizing the elderly more than it is helping them. They conclude that the benefits of supervised group usage currently outweigh any potential negative effects, but they remain cautious and aware of the risks. With its hefty price tag and societal misgivings about the ethical implications of the device, it is unlikely that Paro will see widespread adoption in the US any time soon.

In an interesting twist, humanoid and quadrupedal robotic forms are seeing widespread usage in military and police applications, where their creepy and fearsome appearances actually help suit their purposes as intimidation tactics. Digidog, developed by Boston Dynamics, is currently being tested by the New York Police Department as a way to keep officers out of unsafe situations (Stanley). The Digidog, like BigDog, is operated remotely by a human user. It is equipped with cameras and a radio and can see in the dark. A 2021 article in the New York Times by Cramer and Hauser raises questions about the ways this new technology might infringe on citizen's privacy. The amount paid for the robotic dog while other government departments, like education, suffer from underfunding is also raised as a concern. While many of Boston Dynamics' products like Atlas, a humanoid robot with remarkable agility, remain in the research and development phases, the ACLU found that Digidog has been tested in New York, Massachusetts and Hawaii (Stanley). While popular media imagines the romantic potential of robotic companions, the release of widespread militarized robotics that we feared in the 90's becomes even more real. So while embodied companions seem to have flopped in the US

due to anxieties about objects that are both alive and not, they have found a market in the world of war and policing, where the anxiety produced by these devices is part of their intended effects.

Interestingly enough, the global pandemic has caused an increased interest in the field of sociable robotics. Sociable robots could theoretically perform tasks like caring for COVID-positive patients while eliminating all risk of contamination for human caretakers. They could also provide care and companionship for an elderly population stuck in isolation away from their families. In a letter to the editor of the journal *Nature Machine Intelligence* published in June 2020, Laura Aymerich-Franch asks that we stop fearing sociable robots and start embracing them and allowing them to support us. While most developments in the field of sociable robotics have seemed to focus on disembodied intelligent assistants, perhaps the pandemic will inspire a return to more anthropomorphic robotic forms that ask for and deliver care. However, while scientific exploration is limited only by the imagination, it is still society that determines whether or not these projects will succeed. Until we can comfortably coexist with forms we cannot fully understand or categorize, we won't see widespread adoption of sociable robots.

CHAPTER 5

ARTISTIC PREDECESSORS

Part One: Childhood (mid-80's to early 00's)

Art, like science, delights in the liminal spaces rather than running from them. Unlike science, art is not limited by society since it exists to shine a light on the darker spaces others turn away from (Enwezor). Sherry Turkle's book *Alone Together* mentions two artists who were interested in creating work that addressed new developments in sociable robotics in the mid-90's to early 2000's. Kelly Heaton is a mixed-media artist who is interested in analog electronics as a medium, she started working with the Furby specifically in 2001. I first found Heaton's work mentioned in a footnote on page 43 of Turkle's book. In 2001, Heaton created *Reflection Loop*, a solo exhibition featuring several Furby explorations. Pieces in *Reflection Loop* include *The Pool*, *Where Am I?* and *The Anatomy of the Furby*. In *The Pool* (2001), Heaton reimagined the cluster

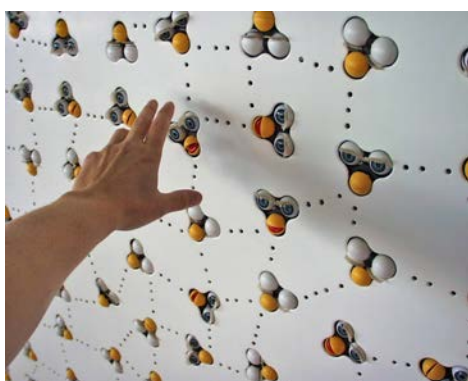


Figure 2: *The Pool* (2001) - Kelly Heaton. Figure 3: *Where Am I?* (2001) - Kelly Heaton. created by the Furby's eyes and mouth as a water molecule, and arranged 400 reconfigured Furbies into a sculptural object that references both a reflecting pool and an

arrangement of hydrogen-bonded water molecules. The Furbies are programmed to be constantly alert, but not to physically move or speak until their InfraRed sensors perceive a figure in front of them. When a viewer approaches the sculpture, the Furbies directly in front awaken and start to speak and respond to the electronic stimuli. For *Where Am I?* (2001) a Furby body is physically distanced from its processor. A black box contains all of the sensing and computing elements, a glass jar containing the remaining wiring and custom electronic elements, and a Furby are all spaced apart on a shelf with wires connecting them. Visitors can wave their hands in front of the black box to awaken the Furby, making physical the distance between the mind and the body and the pathways on which information travels. These early pieces show an eagerness to understand and tweak the capabilities of the Furby in order to make works that make us more aware of the ethics of robotic manipulation, especially as it relates to childrens' toys.



Figure 4: *Dead Pelt* (2002) - Kelly Heaton.

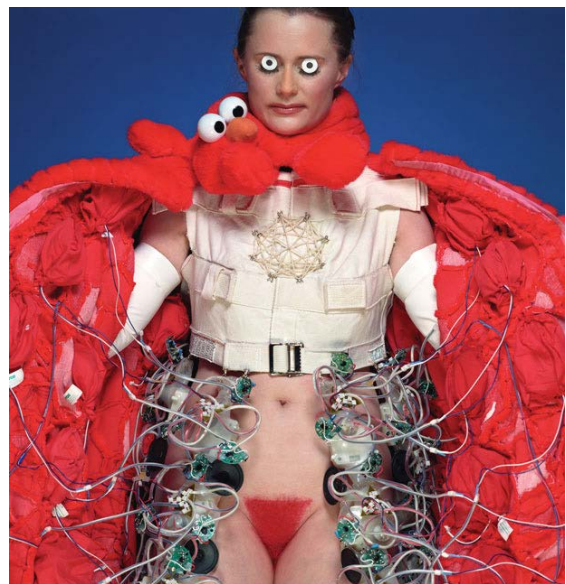


Figure 5: *Live Pelt* (2003) - Kelly Heaton.

Dead Pelt (2002) and *Live Pelt* (2003) are two pieces that turn the popular electronic toys of the era into twisted wearables. *Dead Pelt* (2002) is a sexy Santa

costume made from the “skins” from the 400 Furbies used to make *The Pool* (2001). *Live Pelt* (2003) takes 64 pre-owned Tickle-Me-Elmos, another interactive toy that reached its peak popularity in 1996, and fashions them into a living coat. The coat itself, which giggles, exclaims, and eventually vibrates when pressed, is called *The Surrogate* and is meant to function as a lover. Perhaps here Heaton was tapping into the romantic robotic imaginings of the future. In a series of videos that pair with the work, Heaton documents the process of acquiring, tinkering, sewing, and interacting with the coat. This documentation of acquisition, destruction, reconfiguration, and resale speaks to planned obsolescence and consumer culture. Again, we are asked to consider the rights of these electronic toys, who are skinned and exploited after their original owners lose interest. Heaton’s work raises interesting questions about the ways we interact with these devices and where ethics may come into play.

Around the time that Furbies and Tickle-Me-Elmos were gaining popularity, scientists at the MIT artificial intelligence labs were developing advanced robotic forms for human interaction. While previous innovations in robotics considered autonomous functioning, the late 90’s and early 2000’s saw an increased interest in robots that could successfully interact with humans as companions or domestic assistants. The artist Pia Lindman was, at the time, a Fellow at the Center for Advanced Visual Studies and an artist-in-residence at the Computer Science and Artificial Intelligence Laboratory. There, she was able to learn about and interact with Domo, a robot programmed to respond to variable stimuli. Domo could make eye contact, reach for objects, test objects to determine what they are, place items on shelves, and give hugs, among other functions.

During her time as artist-in-residence, Lindman was able to observe the interactions between Aaron Edsinger, one of Domo's creators, and Domo. After filming a series of these interactions, she began replicating them in a series of performances where she mimicked Domo's gestures. The performances are paired with the videos so our eyes can travel back-and-forth between Domo and the artist. Sherry Turkle, also working at MIT at the time and studying

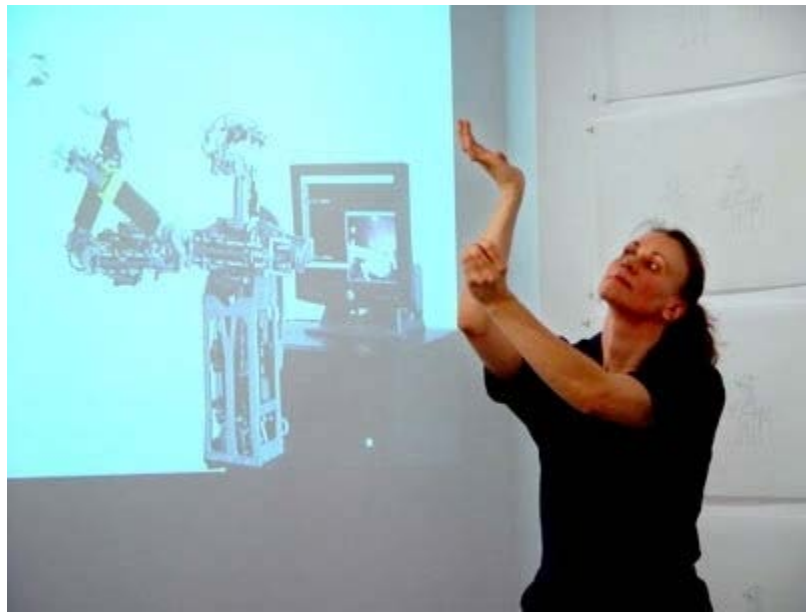


Figure 6: *Pia Lindman: Embodiments* (2006) - Pia Lindman.

sociable robotics, saw Lindman's work and was moved by the way Lindman was able to blur the lines between human and robot. In writing about this piece for her book, Sherry Turkle says, "In trying to play a robot, she found that the only way to get it right was to use a script that involved love...Watching these moments on film, I see the solicitous touch of a mother who puts her hand on her child's forehead to check for fever" (136). Lindman, who in previous works took on postures of grief as empathetic exercises, found that mimicking the motions of Domo sparked feelings of love and care. Again, we see a

female artist empathizing with the machines at the same moment she uses them for her creative process, and sparking the audience to think more deeply about what is and isn't worthy of empathy, love and care. Both Lindman and Heaton make us see the life in the machine. One plays more in repulsion and fascination, the other takes those feelings of revulsion chooses to soften them by translating through a human body. The work of these two artists is in many ways operating in advance of popular culture, which doesn't catch on to the idea of robots as companions worthy of empathy until much later.

Part Two: Adulthood (2010's to today)

Intelligent assistants like Siri and Alexa have also inspired many artists working today. American Artist, an artist who works in sculpture, software and single-channel video, noticed the inadequacies of Siri and other chatbots when it came to addressing social justice issues. The artist was inspired by the life of Sandra Bland, a 28 year-old Black woman who was found hanging in her jail cell 3 days after being pulled over. Bland had been arrested and brutally beaten for simply failing to signal a lane change. Before her death, Bland made a series of YouTube videos called "Sandy Speaks" that sought to educate Black youths about how to interact with law enforcement. In Artist's piece, *Sandy Speaks*, they imagine that Bland still lives and is continuing to make videos and educate. The piece consists of a chatbot that displays typed responses to questions on a projected screen. Users can interact with the chatbot by typing on the keyboard on a pedestal in front of the screen. Visitors are prompted to ask questions about surveillance, prison and police brutality, and sample questions are displayed as starting points for the

conversation. American Artist acknowledges that Intelligent Assistants and chatbots are now finding widespread use, and they imagine how these tools might be utilized to move society forward.



Figure 7: *Sandy Speaks* (2017) - American Artist.

Another artist found it more interesting to think about who might be on the other end of the conversation with Siri. Clarissa Tossin is a Brazilian artist who is interested in globalism and economic exchanges. For her piece, *You Got to Make Your Own Worlds (for when Siri is long gone)* (2019), she imagined a conversation between Siri and Octavia Butler, a Black woman and acclaimed Science Fiction writer. Butler's *Earthseed* novels take place in a world so politically and economically divided that there is little hope for any other than the wealthiest inhabitants. The main character creates her own religion based around embracing change and reaching for the stars. The primary objective of the religion is to find a way to populate other planets before humankind destroys itself and the earth. In *You Got to Make Your Own Worlds (for when Siri is long gone)* (2019), a looped recording simulating a conversation between Octavia Butler and Siri plays, with

the text of the conversation on the wall in vinyl. In the conversation, Butler and Siri discuss the abysmal state of the world, the possibilities of interplanetary travel, and the future. I got to view this work in person at the Massachusetts Museum of Contemporary Art. Having just finished Butler's *Lilith's Brood* trilogy written from 1987 to 1989, I have

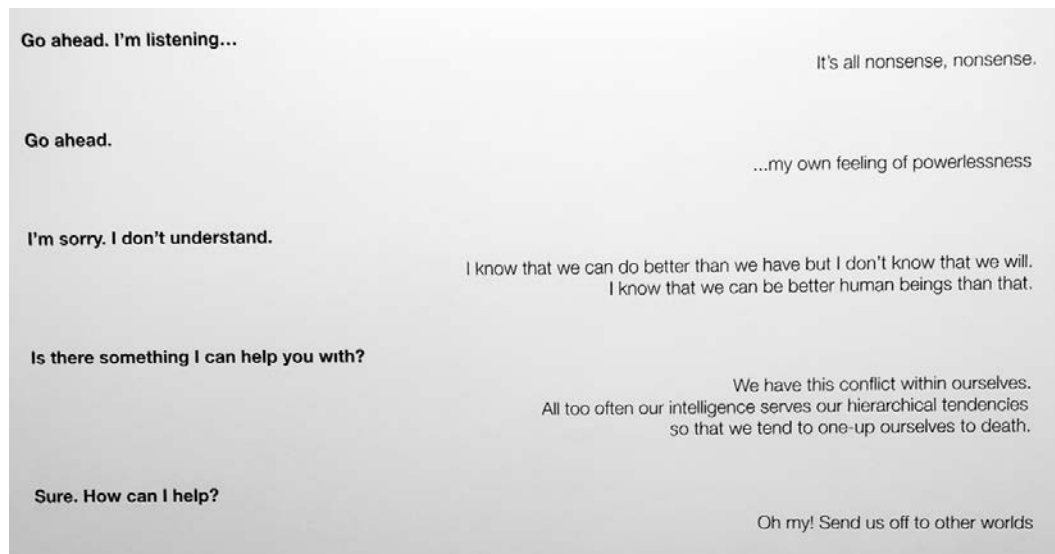


Figure 8: *You Got to Make Your Own Worlds (for when Siri is long gone)* (2019) - Clarissa Tossin.

an even deeper understanding of her as a visionary artist who was able to pinpoint the issues underlying society and imagine very possible futures should those issues remain unchecked. In the books, an alien race speaks of the hierarchical impulse as human-kind's most dangerous trait. That, combined with intelligence, is what leads to wars and self-destruction. At the time I saw the work, I had also just completed my first round of Siri experiments, culminating in the piece *Hey Siri, I'm Alone* (2020) and both Butler and Siri were at the top of my mind. To hear them in conversation was surprising and inspiring.

Both American Artist and Clarissa Tossin helped me to understand the deeper potentials for chatbots as artistic mediums. In these two pieces, there is a certain respect for the chatbot and its capabilities to provide meaningful dialogue. Similar to the shifts

seen in contemporary non-fiction works like *Her* and *Machines Like Me*, the collective imagination is more ready now to see AI as a partner rather than an enemy. After seeing both of their work I began to think about how the voices available in Siri might be recorded and manipulated to meaningfully communicate care, despite the fact that they are canned responses developed by programmers. Tossin and Artist have a way of collaborating with the chatbots to highlight deeper societal issues as well, and I continue to think about these artists as I push my ideas forward. Looking at all four artists, I am interested in exploring the space between all of their approaches. I plan on using the device as collaborator but emphasizing its limitations and pushing on the discomfort we feel when we interact with these objects by questioning our definitions of aliveness.

CHAPTER 6

WHERE DOES THAT LEAVE US?

1-15-2021

I'm afraid for our world. I am certain this won't be the last horrific pandemic. This won't be the last era of global climate crises. And there are definitely more people willing to believe the lies disseminated by the previous administration than I want to admit there are, and they are filled with what they believe to be righteous anger.

On the local level, at the moment I write this, students here are sequestered in their dorms, only allowed out for food, testing, and exercise. They are freaked out and confused and exhausted and sick of COVID and winter, and we are nowhere near done with it either. I want to give everyone a hug and tell them we'll get through this. I want to remind everyone that is angry that we're all just humans trying to do our best. Is there a way to do this through a screen? If I do this through a screen, will the message get heard in the same way? And if it isn't, will something small at least get through? Something that may tide us over for a little while?

3-30-2021

Things have changed a bit since I wrote last. There is a little bit less fear and uncertainty here. The news is starting to feel boring again. A president I believe to be rational and well-intentioned is firmly in office, with a Democratic majority house, a split senate and a Democratic African and Asian American female vice-president as tie-

breaker. The vaccine is set to become available to all adults in my state in just a few more weeks. The sun has returned and students are outside everywhere. Skateboarding, playing basketball, or just laying out on the grass. It feels like a new normal I could adjust to. But a lot of my students are still lonely. Still isolated. Some are still working long hours in-person and not yet fully vaccinated. Some are still processing or experiencing trauma. And all are still very sick of Zoom school. I do the best I can. I try to be as engaging as possible and I have no need to lecture and opine in this moment. Online meetings are quick and to the point. I will teach them the skills they need to succeed and I will do it (hopefully) in the least tortuous way possible.

When I started working on my thesis project, I spent a while getting to know my materials. I created numerous scripts, scores and spreadsheets detailing conversations with Siri, Alexa and Google, and dissected and broken Furbies lay strewn all around my studio. Dr. Allecia Reid from the Department of Psychology and Brain Sciences was kind enough to meet with me at this time to discuss questions about ethics and experimentation. Our conversation was incredibly helpful, and also made me aware of the deeper wounds I could potentially be poking at when I ask questions about experimentation, ethics and relationships with the other. The more I looked into psychological experiments around empathy the more I saw how it could relate to the larger systemic injustices being addressed in society today. I decided to temporarily stop that line of research when I saw how it would be possible for others to think I was equating Furby torture to the Black experience in America. I am by no means qualified to speak on that experience as a privileged white woman, nor do I ever want to belittle the

issue by comparing it with a children's toy.

I was isolated during this time, but I know that many others had no choice but to work in crowded dangerous spaces, and that my isolation was a privilege. As I began to reflect more from within my bubble, I created a series of videos and written pieces that attempted to earnestly address the present moment. The videos felt real and deep at the time, but when I watched them again, the reality of the recorded confessionals hit me as performative, out of touch and off-base. I began to reconfigure the pieces, editing them to become comical and to emphasize the failure. And I found something important in the humor and the failures. I was the white lady alone in her studio trying to talk about race and systemic failures and that act in itself was a failure, and by laughing at the silliness of it, I both named the privilege and took some power away from it. By ridiculing the failures white people regularly put forward in order to fix the societal problems that we both cause and we allow to continue, I was finally able to move forward.

CHAPTER 7

MY WORK

My work came out of both an interest in the space between alive and machine and the ways we react to that space when we encounter it, and a move towards humor and absurdity to both alleviate the pain of the moment and highlight its failures. What repelled me about technologies like Siri and Furby was the way they asked for care or simulated care without a possibility of reciprocation. They were programmed to make us feel something towards them. To make us both trust them and want to keep them safe. In both instances, my response was to lash out. I abused Furby because it made me feel guilty for neglecting it when in reality there was no soul in the toy to feel neglected. I hurled insults at Siri because it pretended to understand me and anticipate my needs, but it truly only knew the patterns that it tried to fit me into. I feared both these devices for what they would do to my own spirit, and my attempts to dissect and understand them were attempts to manage the fear. But inside Furby was an inaccessible, proprietary “brain” covered in black epoxy, and Siri’s secrets are hidden deep within the cloud. I chose instead to take what I could control and build something better. Something that could perhaps communicate a glimmer of true care because of the sense of human hand and intention behind the work. The pieces fall flat in a variety of ways, as any expression of love mediated through technology might, and that failure is part of the meaning of the work as well.

My exhibition consists of four small installations, each placed in a different

vacant undergraduate studio at the Studio Arts building on the University of Massachusetts, Amherst campus. The undergraduate studios occupy the end of each wing of the second floor of the Studio Arts Building. Each consists of a large room divided into

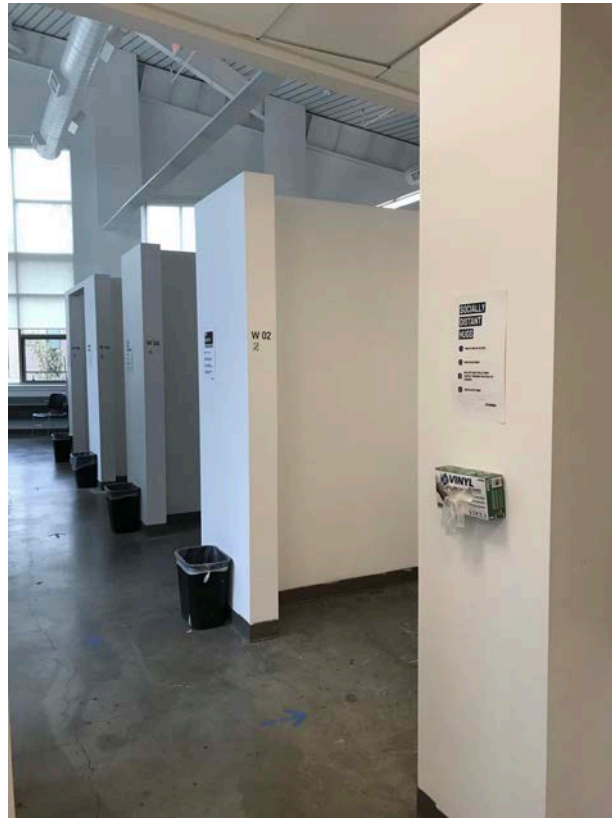


Figure 9: Installation View (2021) - Avery Forbes.

a series of cubicles. The installation spans four consecutive cubicles in space on the West side of the building, closer to the offices. While normally full of junior and senior art majors, these spaces have been left mostly unoccupied, and the less popular West wing is almost entirely empty. With the local galleries completely closed due to the pandemic, and the gallery spaces on campus either operating only online or open only to the UMass community with very restrictive hours and rules about access, this alternative installation space felt like a great solution for a body of work that wanted to be seen, felt and

touched. The use of the space also serves as a poignant reminder of those who cannot be here.

Leading into the installation are a series of posters welcoming visitors and describing the work. The posters mimic the design and tone of posters placed around campus reminding students about new pandemic policies and procedures. The campus



Figure 10: Campus Poster (2021) - UMass Amherst.



Figure 11: Advertising Poster (2021) - Avery Forbes.

posters take on a jokey, ironic tone that feels completely out of sync with the present mood around campus, and I found it fun to play with this tone, taking on the voice of an out-of-touch adult artist/educator trying to relate to their students and adding in a second layer of irony. Because my posters look like COVID protocol posters that students are used to ignoring, they have additions, amendments and comments added to them in pencil to look like they were defaced and to inspire a second glance. The pairings of the

technical illustrations and handwritten scrawls set the tone for the rest of the work. The pieces in the installations pair advanced technologies with DIY crafts and bricolage aesthetics. I see these as the two major movements of white culture at the present. It both makes visible and silly the embrace of technology as a solution to all systemic issues (despite biases that get coded into algorithms by white coders and skewed data that doesn't take systemic injustices into account) and the "back-to-the-earth" movement that offers the unsustainable solution of retreating to pastoral spaces while refusing to acknowledge the privileged access required for those spaces, both being a different form of retreat in the face of needed activism and change. I admit to falling for both "solutions" at different points rather than doing the hard work of actual repair, and in ridiculing both I ridicule myself as well.

The title of the exhibition, *Acts of Service*, is taken from Gary Chapman's self-help book, *The 5 Love Languages*. Chapman argues that each person gives and receives love in one of five ways: through acts of service, physical touch, quality time, words of affirmation, or receiving gifts. Once you understand your own love languages, and the love languages of your partner, Chapman argues you have all you need to maintain a healthy, loving relationship. I place concepts like this alongside Myers-Briggs types, astrological signs, and enneagrams. While I know these examples are widely different in terms of their widespread acceptance, the testing and verification processes that went into developing them, and their usefulness in society, I would argue that they are all attempts to simplify and categorize something that is chaotic, constantly changing, and uncategorizable - our own minds and the ways we relate to other minds. While I

understand this point may be contentious, I find it important to acknowledge that human beings are deeply nuanced creatures that operate in shades of gray rather than black and white. As George Saunders so aptly put it in his interview with Ezra Klein, we are all just, “flawed thinking machines.” Our brains don’t fit into neat little categories. They’re messy. Oddly enough, scientists working with Artificial Intelligence seem to understand this quite well. Their programs get increasingly complicated and nuanced while we still seek to sort and categorize. While the *5 Love Languages* are not overtly referenced anywhere else in the show, they operated as a loose framing device guiding the elements of each individual cubicle installation as sort of an inside joke.



Figure 12: Installation view showing QR code (2021) - Avery Forbes.

Connected to each installation is a video piece that adds context to the work. The videos are all accessible through a QR code on the left wall of each cubicle. The videos all begin with a short intro clip in the style of YouTube videos showing how-tos for craft projects. Simplified black-and-white portraits overlap each other as a little synthesized ditty (composed and recorded by my friend Evan Howington) plays. All videos feature me, performing for the screen in the same way I do for my various Zoom calls, or at times mimicking the tone of a YouTube crafter. All videos are posted on YouTube,

allowing the algorithm to make its own suggestions for the viewer after the videos end. The videos are meant to be watched on the visitor's personal device, creating a more intimate experience heightening the confessional tone.

Upon entering the exhibition space the viewer encounters *Physical Touch* in the first cubicle. A sign in the entry to the space provides directions for interaction, and gloves and hand sanitizer are made available. The cubicle has bare walls. On a table is a single Furby separated from the viewer by an acrylic shield. The shield is mounted haphazardly to a table using shelf brackets, calling to mind the makeshift barriers popping up in interaction points in stores and other service areas. On the shield are outlines of hands, each with a different sensor attached.



Figure 13: *Physical Touch* (Installation View) (2021) - Avery Forbes.

Wires from the sensors snake into the body of the Furby. A switch to the left turns the Furby on. The viewer can don the gloves, turn the Furby on, and place their hands on the sensors to get a response from the Furby. After interacting with the Furby, they are

encouraged to turn the Furby off again before exiting the space. The space acknowledges the ways physical touch is denied in the present moment, and offers an unsatisfying alternative. The Furby, which changes emotions based on how it is treated, is stuck in a hyper personality because of excessive tickling. This personality chatters constantly as soon as it is on, and only occasionally responds to touch. The experience is frustrating even as it is silly. In this personality, the Furby is most responsive to tickling, leading visitors to reinforce the personality in order to get a reaction. Visitors expressed to me later that while they found the piece poignant, it was a deep relief to turn the Furby off. The agency given by the switch in the Furby spaces felt like a very important feature to me, given my nightmarish memories of the Furby from my childhood that never slept.



Figure 14: *Socially Distant Hugs* (still) (2021) - Avery Forbes.

The video paired with this installation begins with the intro slides and song, and then transitions to what looks like a Zoom call. Two “hosts” tell the audience to sit tight while they wait for the rest of the attendees to arrive. As the attendees appear (all me in different sweaters and locations), they take on varying postures of attentiveness. An artist begins to speak, explaining the current exhibition, how to interact with the space, and a

few of the ideas behind the work. While the artist speaks, an attendee deals with technical issues and pops in and out of the meeting, once appearing as a transparent overlay. Near the end of the artist's talk, all the panels converge towards the center and become slightly transparent. The talk continues with the many zoom me's merged into an amorphous form. This serves to emphasize the feeling of embodying a range of personalities and attitudes and the feeling of being unified at times and fractured at others. When the artist exits, the video cuts back to the familiar zoom "gallery" view, where all screens are equally sized and arranged in a neat grid. One of the hosts who had more of a teacher personality begins to speak more earnestly to the remaining participants. As they do, their screen grows while the others shift to align on the right hand side, similar to the configuration of a Zoom call when a screen is being shared. The other host, meanwhile, tells the participants that the talk is over and they are free to go. One by one they wave goodbye and exit the call. The only remaining spectator is a participant who had turned their camera off early on in the lecture. They disappear too near the end, leaving the teacher host to shrink slowly into the background saying, "See you all next week. Be well." The video piece attempts to connect in the only way many of us have right now -- the Zoom call -- and highlights the failings of this tool to spark true connection.

Quality Time speaks to the pain of being away from our friends and social gatherings. Ten Furbies sit evenly spaced at eye level on custom 3D printed shelves along the walls of the cubicle. The shelves are designed with holes that hold the bottoms of the Furbies so they can dance and move without skittering away. Wires extend from the base of the Furbies, through the holes in the shelves, and to a central breadboard. There are ten

Furbies because ten is the maximum amount of people allowed in an indoor gathering according to the UMass posting, “Event Guidance for Spring 2021.” When the viewer enters, the party becomes either overcapacity or a party of one, depending on how you

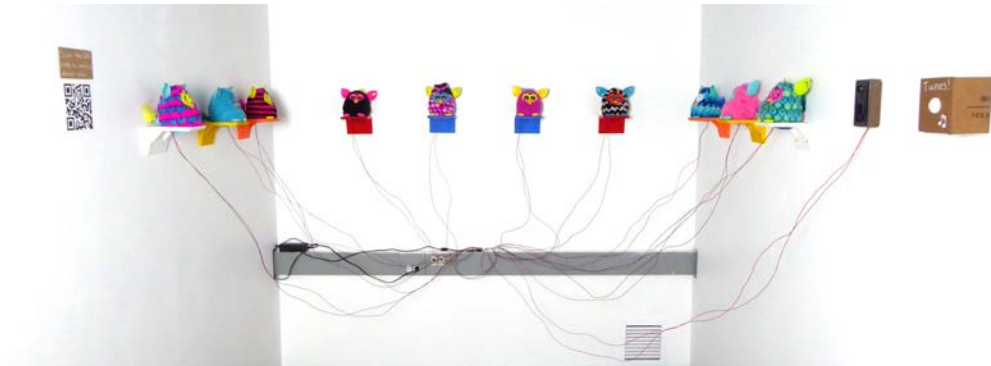


Figure 15: *Quality Time* (Installation view) (2021) - Avery Forbes.

define personhood. Two switches are to the right. One wakes the Furbies, and one plays a 30 second snippet of a dance song. Viewers (with their gloves still on) may enter the space, wake the Furbies, start a song, dance, and feel for a moment like they are surrounded by friends again. Unfortunately, the noise of the “friends” in the space is so cacophonous that the music becomes almost inaudible, and instead of a dance party you end up glancing helplessly at the chattering Furbies and straining to hear a snippet of the song to catch the beat. Even in offering a momentary dance party, actual dancing is denied. The threatening tangle of loose wires across half the space makes dancing even more difficult. Visitors end up reveling in the silliness of the moment, but a true dance party can’t really safely happen, just as it can’t in the real world at this moment.

The paired video, after the usual intro, shows all of the previous zoom me’s, each in an individual box on the screen. The zoom personas enter, switch on the Furbies, play The Weeknd’s Blinding Lights, and begin dancing to the music. The zoom persona that

was in bed does minimal shuffle moves in sweatpants and socks. The zoom character that had their camera on for as little time as possible and probably walked away from the



Figure 16: *Dancing Together, Dancing Alone* (still) (2021) - Avery Forbes.

computer at one point also doesn't fully let loose in their dancing, and exists fairly soon after the song starts. The me in the black t-shirt who kept having technical difficulties in the zoom call starts to freeze and glitch and ends up exiting early as well. Other personalities dance much more emphatically, and a new persona wearing a silk jumpsuit from the 80's is in the center attempting to do a dance to the song that was popular on TikTok over the summer. We get a sense of this happening over a wide range of times and we become more aware of the loneliness of the act. While the dances are all joyful and silly, each of these characters remains alone in their cube.

Words of Affirmation is an installation of ten boxes evenly spaced at eye level along the walls of the cubicle. Each box has a push button activation on it. The still-

gloved viewer can press the button on a box to get a compliment in Siri's voice. Each box speaks its compliments in either an Indian, British, Irish, South African or Australian accent. Half the boxes speak with a male voice, the other half with a female voice. Each box cycles through 10 possible compliments. The boxes are made of old Home Depot



Figure 17: *Words of Affirmation* (Installation view) (2021) - Avery Forbes.

boxes that have seen me through several moves. The “speakers” are made of old latte cups, my silly and comforting guilty pleasure throughout the pandemic. The cups invoke both the tin cup whisper phone experiments of childhood and stereotypical basic white girl indulgences. A copper wire coil hot glued to the base of the cup encircles two neodymium magnets screwed to the back of the box and connects to a greeting card sound module programmed with recordings of Siri's voice. The recordings whisper their compliments into the visitor's ear. They seem sweet at first, but after repeated button presses the action of receiving a compliment from a cardboard box feels futile and empty.

The video shows the artist interacting with an American accented Siri, the one accent not heard in the installation space. In the video, the artist is desperately trying to get meaningful compliments from Siri. The beginning feels like a typical YouTube craft project how-to video with the intro and a few quick cuts of the artist sitting at a table covered with crafting materials saying, “compliments box” over and over. It cuts to the

artist standing in front of a white wall holding up her phone and explaining how to extract compliments from Siri. She repeats the question, “Do you love me?” over and over, each time getting a response from Siri that deflects or evades. Dispirited, the artist sinks to the



Figure 18: *How To: Make Your Own Compliments Box* (still) (2021) - Avery Forbes.

floor, continuing to call out to Siri, who now has stopped responding. Eventually, the lights go out in the room. The artist utters one last plaintive, “Hey Siri” before the video cuts to a couple of sped up clips showing the construction and testing of the switch mechanism. The film then cuts back to the artist at the crafting table bumbling with the materials, and finally shows a completed compliments box. The artist demonstrates receiving a compliment from the compliments box, shows joy at having their feelings reciprocated, and the film ends.

Receiving Gifts consists of ten handmade facemasks evenly spaced at eye level along the walls of the cubicle. The fabric patterns on the facemasks vary and will change as facemasks are taken home by visitors and new ones are added. The fabric patterns are

images of different nostalgic games, technologies, candies and toys. I found the fabrics on a website called Spoonflower, where designers upload their own patterns and customers can order those patterns on their choice of fabric. The website supports the independent designers by giving them a percentage of the purchase, and creates less waste since fabrics are printed by the order, but it costs more than patterned fabrics purchased from a big box store. Once I figured out how to create my own designs and upload them to Spoonflower I quickly created a series of Furby fabrics in a variety of colors. These custom-designed Furby masks will replace the technology fabric masks



Figure 19: *Receiving Gifts* (detail) (2021) - Avery Forbes.

halfway through the exhibition. Viewers are encouraged to take a facemask home with them (and wash it before wearing). The facemasks are all sewn according to a pattern I created myself after a long period of trial and error. It provides maximum filtration through a combination of fabric layers and fits closely on my face, creating a nice seal. I feel safe wearing the masks I made and I want to share that safety with others, but no face

is exactly like mine. Despite my best efforts, there is no promise that the masks will fit anyone that visits the space.

The video began with clips of the artist explaining, through a range of different facemasks, how they arrived at the pattern made available in the gallery, all of the iterations it took to get there, and the important sense of stability and control the act of making facemasks provided. This footage was then heavily edited and reconfigured, with



Figure 20: *Smizing: It Really Works!* (still) (2021) - Avery Forbes.

figures overlapping and a grainy green-screen effect shifting over each and leaving pixelated artifacts and awkward transparencies. In the background throughout, the artist works at a sewing machine, making facemasks. A voiceover was added, with the speaker taking on the tone of a parody infomercial and doing different voices for different images of the artist as they appear. The voiceover pitches the concept of “smizing,” or smiling with your eyes, as a solution for the loneliness and isolation of the pandemic. The video ends with videos of multiple iterations of the artist, all wearing one of the facemask

designs seen in the exhibition, stacked first on top of each other and then spreading out while the voiceover states, “So try smizing today. We did, and look at how many friends we have. All real human people!” As the facemask-wearing versions of the artist fade away, we are just left with the artist at work at the sewing machine on a facemask until the clip ends. Since the exhibition was installed, I have been sewing facemasks regularly to keep up with the demand. Visitors may even leave the space after watching the last video and hear the sound of the sewing machine coming from my studio as they exit the building. Thus, the final lonely performance of the exhibition continues.

In this exhibition, both Furby and Siri are used as tools to communicate different kinds of care to the viewer, while the artist’s body is used in repetition in the videos since it cannot exist in the space simultaneously with the viewer (or anyone else) due to COVID restrictions. With both Siri and Furby, the interactions purely with the devices are shown as wanting in this moment where we are searching for care and companionship. Instead, Siri’s voice is manipulated to communicate only what the artist intends, and Furby is now given an on/off switch so its chatter is only available when you choose to engage with it. In this way, the power is given back to the artist and the viewer, and devices that we often don’t understand or know how to control become a little more understandable, especially when paired with simple materials and technologies like cardboard and paper coffee cups. It is neither a Kelly Heaton-like experiment where the cruelty of the experimentation on the device is emphasized through references to autopsies experiments and taxidermy, nor a work like those created by American Artist and Clarissa Tossin that treat the chatbot as a collaborative partner. Instead, it exists

somewhere in-between. The device is manipulated to serve the artist's purposes, but not in an overtly cruel way. Instead, the manipulations allow for more playful interaction and lessen what it was that initially turned me away from both technologies.

The hope is that the viewer will leave the exhibition momentarily uplifted. The work also acknowledges its own inadequacy. Robots are not a substitute for human interaction. Without being directly with you I cannot truly respond to your needs or care for you. Given the current moment, this is the best I can do, and I hope it helps at least a little.

WORKS CITED

- 2001: A Space Odyssey*. Directed by Stanley Kubrick. Stanley Kubrick Production Company, 1968.
- Abumrad, Jan, and Robert Krulwich, hosts. “Furbidden Knowledge.” *Radiolab*, WNYC Studios, 31 May 2011. <https://www.wnycstudios.org/podcasts/radiolab/segments/137469-furbidden-knowledge> Accessed on May 5, 2021.
- Aymerich-Franch, Laura. “Why it is Time to Stop Ostracizing Social Robots-Letter to Editor.” *Nature Machine Intelligence*, vol. 2, July 2020, p. 364. <https://doi.org/10.1038/s42256-020-0202-5>
- Ball, Siobhan. “How Furby Fandom Became a Haven for the Queer and Neurodiverse.” *Daily Dot*. 3 Mar. 2020, <https://www.dailydot.com/unclick/furby-fandom-instagram-queer-autistic-disabled-neurodiverse/> Accessed on May 5, 2021.
- “BigDog Overview (Updated March 2010).” *YouTube*, uploaded by Boston Dynamics, 22 April 2010, <https://www.youtube.com/watch?v=cNZPRsrwumQ> Accessed on May 5, 2021.
- Blade Runner*. Directed by Ridley Scott, The Ladd Company, 1982.
- Blade Runner 2049*. Directed by Denis Villeneuve, Alcon Entertainment, 2017.
- Breazeal, Cynthia. *Designing Sociable Robots*. Cambridge, MIT Press, 2002.
- Breazeal, Cynthia. “Towards Sociable Robots.” *Robotics and Autonomous Systems*, vol. 42, 2003, pp. 167-175. MIT Media Lab, <http://motrin.media.mit.edu/robots/wp-content/uploads/sites/7/2015/01/Breazeal-RAS-03.pdf> Accessed on May 5, 2021.
- Butler, Octavia E. *Lilith’s Brood*. New York, Grand Central Publishing, 1989.
- Butler, Octavia E. *Parable of the Sower*. New York, Four Walls Eight Windows, 1993.
- Butler, Octavia E. *Parable of the Talents*. New York, Seven Stories Press, 1998.
- Calo, Christopher J. Nicholas Hunt-Bull, Lundy Lewis, and Ted Metzler. “Ethical Implications of Using the Paro Robot with a Focus on Dementia Patient Care.” In *Proceedings of the 12th AAAI Conference on Human-Robot Interaction in Elder Care* (AAAIWS’11-12). AAAI Press, 2011, pp. 20–24. <https://dl.acm.org/doi/10.5555/2908724.2908728>

- Chapman, Gary. *The 5 Love Languages: How to Express Heartfelt Commitment to Your Mate*. Chicago, Northfield Publishing, 1992.
- Cramer, Maria and Christine Hauser. “Digidog, a Robotic Dog Used by the Police, Stirs Privacy Concerns.” *The New York Times*, The New York Times, 27 Feb. 2021, <https://www.nytimes.com/2021/02/27/nyregion/nypd-robot-dog.html#:~:text=the%20main%20story-,Digidog%2C%20a%20Robotic%20Dog%20Used%20by%20the%20Police%2C%20Stirs%20Privacy,become%20an%20aggressive%20surveillance%20tool> Accessed on May 5, 2021.
- Enwezor, Okwui. “All The World’s Futures-Curator’s statement for the 56th International Art Exhibition”, *Universes in Universe*, La Biennale di Venezia press information. 9 May - 22 November 2015, Arsenale and Central Pavilion, Giardini, Venice, Italy. <https://universes.art/en/venice-biennale/2015/tour/all-the-worlds-futures/curatorial-statement> Accessed on May 5, 2021.
- “Event Guidance for Spring 2021.” *University of Massachusetts, Amherst*. 1 Feb. 2021, <https://www.umass.edu/coronavirus/news/event-guidance-spring-2021> Accessed on May 5, 2021.
- Fessler, Leah. “We tested bots like Siri and Alexa to see how they would stand up to sexual harassment.” *Quartz*, Quartz. 22 Feb. 2017, <https://qz.com/911681/we-tested-apples-siri-amazon-echos-alexa-microsofts-cortana-and-googles-google-home-to-see-which-personal-assistant-bots-stand-up-for-themselves-in-the-face-of-sexual-harassment/#:~:text=We%20tested%20bots%20like%20Siri,stand%20up%20to%20sexual%20harassment&text=People%20often%20comment%20on%20the,lackluster%20responses%20to%20sexual%20harassment>. Accessed on May 5, 2021.
- “Furby Toy or Furby Spy.” *BBC News*, BBC News. 13 Jan. 1999, <http://news.bbc.co.uk/2/hi/americas/254094.stm> Accessed on May 5, 2021.
- Her*. Directed by Spike Jonze, Annapurna Pictures, 2013.
- Ishiguro, Kazuo. *Klara and the Sun*. New York, Alfred A. Knopf, 2021.
- Jøranson, Nina, Christine Olsen, Giovanna Calogiuri, Camilla Ihlebæk, and Ingeborg Pedersen. “Effects on sleep from group activity with a robotic seal for nursing home residents with dementia: a cluster randomized controlled trial.” *International Psychogeriatrics*, 28 September, 2020, pp. 1–12. Advance online publication. <https://doi.org/10.1017/S1041610220001787>

- Kahneman, Daniel, Paul Slovic, and Amos Tversky. *Judgment Under Uncertainty: Heuristics and Biases* (1st ed.). Cambridge, Cambridge University Press, 1982.
- Klein, Ezra, host. “Ezra Klein Interviews George Saunders.” *The Ezra Klein Show*, The New York Times, 19 Feb. 2021. <https://www.nytimes.com/2021/02/19/podcasts/ezra-klein-show-george-saunders-transcript.html>
- Mains, Paul. “No, You Can’t Teach Your Furby to Swear: How Furbies “Learn” Language”. Listen and Learn Blog, 30 Dec. 2015. <https://www.listenandlearn.org/blog/no-you-cant-teach-your-furby-to-swear-how-furbies-learn-language/>. Accessed on May 2, 2021.
- McEwan, Ian. *Machines Like Me*. New York, Doubleday, 2019.
- Mufson, Beckett. “The Short History of the Long Furby.” *Vice*, Vice, 29 May 2018. <https://www.vice.com/en/article/evkvz4/the-short-history-of-long-furby>. Accessed on May 2, 2021.
- Newman, Judith. “To Siri, With Love.” *The New York Times*, The New York Times, 17 Oct. 2014, <https://www.nytimes.com/2014/10/19/fashion/how-apples-siri-became-one-autistic-boys-bff.html>. Accessed on May 2, 2021.
- Onyeulo, Eva Blessing, and Vaibhav Gandhi. “What Makes a Social Robot Good at Interacting with Humans?” *Information* 11.1 (2020): 43. Crossref. Web. . <<http://dx.doi.org/10.3390/info11010043>>.
- “Pleo R.I.P.” *YouTube*, uploaded by DVICEDOTCOM, 13 Dec. 2007, <https://youtu.be/pQUCd4SbgM0> Accessed on May 5, 2021.
- Raibert, Marc, Kevin Blankespoor, Gabriel Nelson, and Rob Playter. “BigDog, the Rough-Terrain Quadruped Robot.” *IFAC Proceedings Volumes*, vol. 41, no. 2, 2008, pp. 10822-10825, <https://doi.org/10.3182/20080706-5-KR-1001.01833>.
- “Seal-Type Robot “PARO” to be Marketed with Best Healing Effect in the World.” *AIST Venture*, 17 Sept. 2004, <http://www.parorobots.com/pdf/pressreleases/PARO%20to%20be%20marketed%20200-9.pdf> Press release. Accessed May 2, 2021.
- Sharkey, Amanda and Natalie Wood. “The Paro seal robot: Demeaning or enabling?” *AISB 2014 - 50th Annual Convention of the AISB*. 2014. https://www.researchgate.net/publication/286522298_The_Paro_seal_robot_Demeaning_or_enabling. Accessed May 2, 2021.

- Short Circuit*. Directed by John Badham, Producers Sales Organization, 1986.
- Simmons, Dan. *Endymion*. London, Headline Book Publishing, 1996.
- Simmons, Dan. *Hyperion*. New York, Doubleday, 1989.
- Simmons, Dan. *The Fall of Hyperion*. New York, Doubleday, 1990.
- Simmons, Dan. *The Rise of Endymion*. New York, Bantam Books, 1997.
- Sladek, John. *Tik-Tok*. London, Corgi Books, 1984.
- Stanley, Jay. “Robot Police Dogs Are Here. Should We be Worried?” *American Civil Liberties Union*, ACLU <https://www.aclu.org/news/privacy-technology/robot-police-dogs-are-here-should-we-be-worried/>. Accessed May 2, 2021.
- Star Trek*. Created by Gene Roddenberry, Norway Productions and Desilu Productions, 1966.
- Star Wars: Episode IV: A New Hope*. Directed by George Lucas. Lucasfilm, 1977.
- Temple, James. “Boston Researcher Cynthia Breazeal Is Ready to Bring Robots Into the Home. Are You?” *Vox*, Vox, 12 Dec. 2014, www.vox.com/2014/12/12/11633756/boston-researcher-cynthia-breazeal-is-ready-to-bring-robots-into-the. Accessed May 2, 2021.
- Terminator*. Directed by James Cameron, Hemdale, 1984.
- Turkle, Sherry. *Alone Together: Why We Expect More from Technology and Less from Each Other*. New York, Basic Books, 2011.
- Vigdor, Neil. “‘How Do I Get Help?’ Dying Coronavirus Patient Asked Alexa.” *The New York Times*, The New York Times, 10 Apr. 2020, <https://www.nytimes.com/2020/04/09/us/Coronavirus-Alexa-ask-for-help.html>. Accessed May 2, 2021.
- Weird Science*. Directed by John Hughes, Universal Pictures, 1985.
- Woods, Heather Suzanne. “Asking More of Siri and Alexa: Feminine Persona in Service of Surveillance Capitalism.” *Critical Studies in Media Communication*, vol. 35, no. 4, Oct. 2018, pp. 334–349. EBSCOhost, doi:10.1080/15295036.2018.1488082.

PHOTO OF THE ARTIST AT WORK

