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Humanity's Capability of Transcendence through Artificial Intelligence

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Humanity's Capability of Transcendence through Artificial Intelligence



What does it mean to be a human in a technological society?

Source: Cazy89. *Artificial Intelligence*. Cruz, Alejandro. *Flickr Commons*. Wikimedia Project. Web. 28 December 2008. Digital Image.

Senior Capstone

Practical and Professional Ethics

Research Essay

David Reichard

Division of Humanities and Communication

Spring 2016

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ACKNOWLEDGEMENTS

I want to dedicate this project to my family

Francesca, Michael, and Zoe McCartney.

They have enlightened me into my own being.



PROJECT PROPOSAL ESSAY OPTION

1. **Provide your name and identify your area of concentration**

Zena McCartney, Practical and Professional Ethics concentration.

2. **Focus:** Identify the *specific* issue, problem, or question addressed in your essay. Be sure to frame as a question. Briefly explain why you chose this focus area.

Questions: Do transhumanism technologies specifically robots, cyborgs and mind-uploading technologies make it so a robot is as capable as the same a human? What are the ethical considerations of artificial intelligence (AI)? What is the potential capability of humanity? Will the human race reach immortality or even extinction through AI technologies?

Thesis: This paper will explore different ethical considerations of AI being as capable as a human being.

3. **Alignment with Common Theme:** Provide a *concise overview* of your project's *direct alignment* with this semester's shared theme of inquiry.

This research paper will identify different cases of AI, the consideration behind such technologies, and their effect on humanity. AI technologies, such as robots, the ability to upload one's mind into a robot and humans having mechanical elements that make them limitless (cyborgs), draws a slippery slope between being a human and technology creation. AI questions the purpose of such creations for better or worse outcomes of the human race.

4. **Purpose:** What is your project's primary purpose? What do you hope to accomplish through this project?

The purpose of the research is to have a greater understanding of the ethical concerns around AI and its technologies. Specifically how these technologies have changed the concept of what it means to be human through consciousness, emotions, movements and interactions. I hope to accomplish bring in multiple viewpoints on AI and its outcomes.

5. **Capstone Title:** What is your project's working title?

Humanity's Capabilities Transcending Through Artificial Intelligence

6. **Working Summary:** Provide a one-paragraph working summary of your project...

AI developer and computer scientist Ray Kurzweil predicts that machines will be able to pass the Turing Test by 2029, making machines as intelligent as humans. What does that mean for humanity? How are we able to use technology to re-evaluate the potential of machines? What makes us human? Will machines be able to think for us? Will uploading our minds result in immortality or destruction of the human race? In the 21st century AI technologies such as robots, mind-uploading and cyborgs have probed at these questions. This paper represents some of the different arguments for and against such technologies. AI technology will possibly transcend humanity for better or worse. Through such research ethical ideas will be raised around human immortality via mind uploading, the capability of machines, and cyborg technology that could save or desecrate our existence as humans.

7. **Sources:** Address each of the following:

- In order to complete your project, what additional knowledge, insights, skills, understanding, and/or other resources and tools do you anticipate needing?

I will have to do some more research on AI and transhumanism which are both the same subject in question. I want to be able to narrow my research down a little more and began writing notes on the articles. I anticipate talking possibly talking to a scientist in the AI field to get an ethical insight. I will begin to look for more case studies that could give me insight as well.

- Describe the kinds of primary and/or secondary sources you intend to use for your inquiry. This could include collecting original oral histories, analyzing government statistics, consulting scholarly peer-reviewed articles, books, and websites, among others. If you have consulted sources to get started, list them here.

Primary resources I have are YouTube videos of robots or AI. I want to use as case studies and respond to them using my research to support it. I want to contact expert knowledge to gain some insight on ethical concerns in AI. Secondary resources will be all my online research of different arguments for/against AI and other case studies that are included.

- **If you have consulted sources to get started, list them here:**

Note: All of these links you need to be signed into my.csumb.edu to access.

Rebuttal to an argument against mind-uploading

<http://link.springer.com.library2.csumb.edu:2048/article/10.1007/s00146-011-0333-7/fulltext.html>

The ethics of mind-uploading. What does it mean to be a person?

http://go.galegroup.com.library2.csumb.edu:2048/ps/retrieve.do?sort=RELEVANCE&docType=Article&tabID=T002&prodId=AONE&searchId=R2&resultListType=RESULT_LIST&searchType=AdvancedSearchForm&contentSegment=¤tPosition=1&searchResultsType=SingleTab&inPS=true&userGroupName=csumb_main&docId=GALE%7CA431349064&contentSet=GALE%7CA431349064

Transhumanism and Extropianism are two recent ‘movements’ which aspire to transcend the perceived limitations of human biological evolution.

<http://link.springer.com.library2.csumb.edu:2048/article/10.1007%2F02912238>

8. **Next Steps:** What steps will you need to take to meet your project’s expectations, including preparation of all required deliverables? (be as specific as possible)

I will need to do more research and develop an outline. I want to explore more of the ethical perspectives than I have listed now. I want to do more research on robots and cyborgs. There are ethical concerns about mind uploading and how the technology could create human immortality, which I have listed scholarly web URL’s for within this proposal.

9. **Timeline:** Provide a detailed (and realistic) timeline for completion of each step required to meet the project’s expectations.

Thursday, Feb. 18:

✓ Due Draft of Proposal & Bring 2 Copies to Class

Monday, Feb. 22:

➤ Finish Research & Notes

➤ Draft Final Proposal

Wednesday, Feb 24:

➤ Verify Research is Valid for Paper

➤ Create Outline

➤ Print Out 2 Copies of Proposal For Class

Thursday, Feb. 25:

✓ Due Final Draft of Proposal on iLearn & 2 Copies for Class

Monday, February 29:

- Start Paper
- ☐ Saturday, March 5:
 - Draft Annotated Bibliography
 - Finish 4-5 Pages of Essay
- ☐ Wednesday, March 9:
 - Verify & Print Finished Annotated Bibliography
- ☐ Thursday, March 10:
 - ✓ Due Annotated Bibliography on iLearn
 - ✓ Due Project Title & Abstract: Provide a title, your name and concentration, and a 150 word abstract on iLearn
- ☐ Saturday, March 12:
 - Finish 6-7 Pages of Essay
- ☐ Saturday, March 19:
 - Finish 8-9 pages of Essay
- ◆ Spring Break Monday, March 21 – Sunday, March 27
 - Work on Paper 3-5 Pages Minimum
- ☐ Monday, March 28:
 - Finish 11-13 Pages of Essay
- ☐ Tuesday March 29:
 - ✓ Due Essay Draft on iLearn
 - ✓ Revised Annotated Bibliography iLearn
- ☐ Saturday April 9:
 - Finish 14-15 Pages of Essay
- ☐ Saturday April 16:
 - Finish 15 Pages of Essay

- Thursday, April 21:
 - ✓ Due Revised Essay Draft on iLearn
 - ✓ Final Annotated Bibliography on iLearn

- Monday May 2:
 - Create Resume
 - Print 3 Copies of Resume for Class

- Tuesday May 3:
 - ✓ Due 3 Copies of Resume in Class

- Wednesday May 4:
 - Print 3 Copies of Poster or Speech for Class

- Thursday May 5:
 - ✓ Due 3 Copies of Poster or Speech

- Tuesday May 10:
 - ✓ Due Draft of Final Capstone Portfolio
 - ✓ 3-5 page Synthesis Paper

- Thursday May 12:
 - ✓ Due Final Bound Book of Capstone Portfolio

RESEARCH ESSAY

Currently and historically robots have evolved from simple processing machines into artificial intelligence (AI). These AI creations raise questions around the integrity of the technology for better or worse outcomes of the human race. Inventor Ray Kurzweil, along with other futurist's propose that a time called The Singularity is approaching. This is when technology advancement will be changing so quickly that human life will be completely transformed ("Human 2.0" 32). While many other thinkers scorn this idea that technology will ultimately take over, the purpose of this paper is for the reader to have a rational understanding of philosophical concerns around AI. This research essay will outline different ethical arguments about robots, cyborgs, mind uploading theories, and how they are revolutionizing the concept of what it means to be human through consciousness, emotions, movements and interactions.

Historically, machine technology has grown to have more diverse abilities over time. In 1833 The Analytical Engine by Charles Babbage was the first machine created that operated like a computer does today (see Fig. 1). The engine had a "storage" where information could be kept and a "mill" which was the processor for arithmetic tasks. It could perform basic functions such as adding, subtracting, multiplying, and dividing. The machine could be programmed by looping, which is a sequence the computer performs over and over until the results are achieved (Green). Babbage at the time was unfamiliar with the technology that could work like this, though he in essence created it. The looping can be applied to any common word processing document we use today. The machine could create columns, type and print text, and other functions.

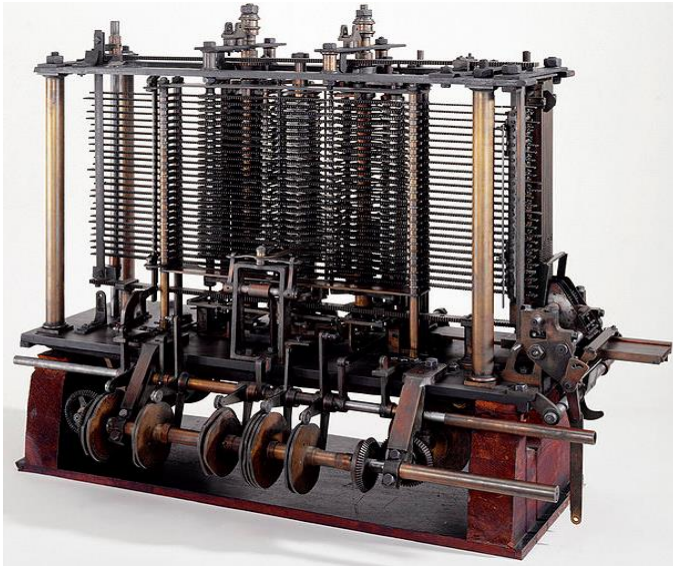


Fig. 1: The Analytical Engine which echoes the networking of a modern computer

Source: Mrjohncummings. *Babbage's Analytical Engine, 1834-1871*. Photograph. Science Museum London. *Flickr Commons*. Wikimedia Project. Web. 28 August 2013. Digital Image.

After the release of the Analytical Engine his assistant Lady Lovelace warned the public that the machine was not something to be afraid of: “We are not aware of its being on record that anything partaking in the nature of what is so well designated the Analytical Engine has been hitherto proposed, or even thought of, as a practical possibility, any more than the idea of a thinking or of a reasoning machine” (Green). This first wave of computer technology made users wary of its implications. Lady Lovelace seemed assured that the Analytical Engine would not use reason outside of its basic function. Yet, she was the first to coin the term “thinking machine” because she noticed a general fear the public had of a machine that could extend itself outside of its original purpose. This marked the first questions around technology: who is in control the machine or human?

The Elektro Robot tested this very question. The robot was created in 1937 by Joseph Barnett and was 210 centimeters (approximately 6.8 feet!). Elektro had a vocabulary of 700

words and could perform around 26 movements. The robot was made out of aluminum with motors, telephones, record players, etc. that marked its directions and actions (see Fig. 2). Elektro had no ON/OFF switch or remote control. Instead the machine relied on stimulations from the words it heard. The middle of Elektro's chest would light up as its lips moved while talking and gesturing. The robot could do a variety of different activities including moving its head and arms, counting on its fingers, recognizing colors, and could smoke cigarettes (Dalakov).

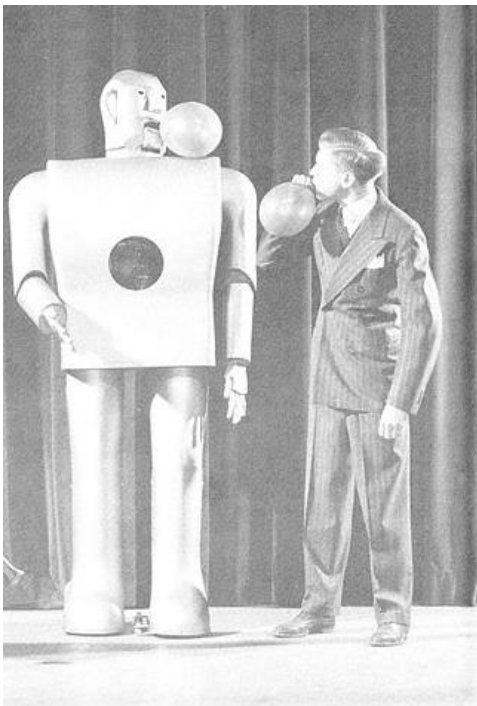


Fig. 2: Elektro 1939 New York World Fair filling up air in a balloon

Source: Wdwd. *Elektro and Sparko*. Photograph. McKellar, Ian, San Francisco. *Flickr Commons*. Wikimedia Project. Web. 7 October 2008. Digital Image.

This robot was shown at the 1939 New York World Fair, where people were awed and amazed. Elektro was the first robot who could take physical actions and vocalize enough to have full conversation with a human (Dalakov). The creation of the Analytical Engine had an entirely different reaction from the public. This could be because the Analytical Engine looked more like

a modern computer, something people in 1833 had never seen before. Yet, Elektro had a face similar to a human, actions, and words, which made the machine approachable to an audience. Although over time this concept changes dramatically as trust in machinery and robots that can act on free will becomes more prevalent.

By the mid-20th century in 1950 Alan Turing wrote an article entitled *Computing Machinery and Intelligence* poses key a question, “Can machines think?” (Turing 433). The only way a machine could be considered intelligent is if it can pass the Turing Test. This is where a human observer is separated from a machine and another human. The machine and human can communicate with the human observer but only by teletype writer. The human observer is forced to figure out which messages are from the human and which are from the machine. If a machine passes this test it is to be considered “intelligent”. Turing originally wrote that 70 percent of humans would be fooled by the machine and think it was human (Turing 442). Turing was one of the first to theorize that machines are capable of transcending humans intelligently at the minimum. If machines were able to prove that they are smarter than humans, than what is to say they might not have common sense or reasoning outside of what they are given by humans. This concept similarly relates to how Lady Lovelace warned the public of the capability of the Analytical Engine as a Turing Machine (“thinking machine”), to fool a human and supersede the machine’s capabilities (Green).

The Logic Theorist invented by Allen Newell, Herbert A. Simon, and Cliff Shaw was the first computer program that tested the concept of being a “thinking machine”. A thinking or intelligent machine is defined in this essay as a technology that is able to think or act on its own, or will create something new from previous learned abilities. In 1956 The Logic Theorist proved 38 of 52 proofs in Alfred North Whitehead’s book *Principia Mathematica*. The program went

further by finding a new proof for one of the mathematical theorems (Dasgupta). This lay the foundation for machines being able to create new solutions by the tools human simply apply to them. During the Dartmouth Conference in 1957 John McCarthy coined the term “artificial intelligence” maintaining a definition that was very similar to one of a thinking machine. It was during this conference that Newell proposed that a computer could be the world chess champion. (Moor) This statement may have been over zealous but his Logic Theorist program forecast digital, logical, and analytical aspects of machines that were capable of transcending their basic functions. The quote also puts into perspective how fast historically technology is developing and will continue to advance into the 21st century.

Currently, one fundamental issue is machines that are autonomous or able to think for themselves. Starting in July 2014 a robot named Hitchbot was able to move freely across the world. Hitchbot used GPS to locate where to go, could take pictures, and have minimal conversations. Then news headlines came out labeled: “Hitchbot is Murdered in Philadelphia,” “Innocent Hitchhiking Robot Murdered by America,” “Who Killed Hitchbot?”. The media and police were out for a “killer” it seemed, although these notions of human action reflect how we see robots (Lafrance).

At first when Elektro the robot was created in 1937 people were astonished that a machine could talk and move on its own. Then when Hitchbot was created many people had the same reaction as Elektro, they saw him as a new technology, not something to be afraid of. In fact humans wanted to take pictures with him to remember meeting Hitchbot. However the difference was that Hitchbot as a machine could be granted moral permission in our society to move *wherever*. He traveled the world with the goal to meet people and see new places (see Fig. 3). Hitchbot was considered morally wrong to a person because giving a machine free will

crossed the line between humanity and technology. Furthermore, a machine that does not take input from a human, may be able to destroy the very human that created it.

HitchBot could be considered morally autonomous. Aristotle and Plato both agreed that humans should be defined by being self-sufficient. Kant developed this into moral autonomy or being able to govern your own actions. We are all guided by maxims or universal laws which we impose on ourselves. These maxims usually can be agreed upon by society and can be referenced back to basic morals in Christianity's Ten Commandments such as: "Do not kill", "Do not cheat", "Do not steal", etc.

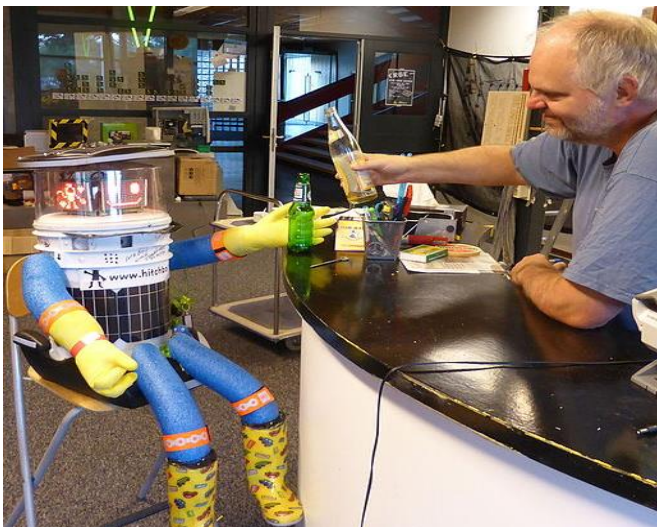


Fig. 3: Hitchbot having a soda with a human friend.

Source: theFriedZombie. *HitchBOT*. Photograph. Zilverschoon, Martijn, Netherlands. *Flickr Commons*. Wikimedia Project. Web. 16 June 2015. Digital Image.

HitchBot could be defined as a morally autonomous being, able to decide his own actions; however it is unknown if he had integrated these human universal maxims. Although he never hurt anyone or had the goal to hurt someone, he had the opposite programming which infers he was able to act with moral character. Kant describes in his theories what enables a person to have moral access in a community:

If these maxims can be deemed universal, such that they would be assented to and willed by any rational being, and thus not rooted in any individual's particular contingent experience, then they may gain the status of objective laws of morality. Each moral agent, then, is to be seen as a lawgiver in a community where others are also lawgivers in their own right, and hence are to be respected as ends in themselves. (Dryden)

If we are then not to base what morality means on "any individual's particular contingent experience" then a robot by Kant could be defined as having moral status (Dryden). If then a robot could be deemed as a moral agent they are at least part of humanities community (if not human). The person who dismembered HitchBot deemed the robot as an unethical machine, instead of a moral agent on quest for adventure and connection with others. Kant says as moral members we should be "respected as ends in themselves" (Dryden). Hitchbot was dismembered by a person who was acting unethically in a duty perspective, and using the robot as an "ends in themselves" (not the opposite way around). Somewhere HitchBot registered that he was being incapacitated just as a human understands what killing is. His last words were: "Oh dear, my body was damaged, but I live on with all my friends. Sometimes bad things happen to good robots! My trip must come to an end for now, but my love for humans will never fade" (Lafrance).

The question facing humanity is whether machines eventually could be smarter than humans. They raise the question: what is the purpose to humanity? If a machine can pass the Turing Test then is it appropriate to be in society acting on free will? Ronald and Sipper envision a future world where machines may be an everyday part of our life, and some of the issues could frame this reality. In the first made up scenarios Mrs. Parker wakes up feeling ill and decides to go to the hospital. Scenario A she is greeted by a nurse, who tells Mrs. Parker with confidence

that the doctor has done this for years and is respected in his field. She feels she can trust the doctor before she meets him. The doctor has already established an emotional connection before he meets Mrs. Parker. Then this connection is further developed as he applies his knowledge through interactions. Scenario B she goes to a Turing clinic. She is greeted by a voice instead of a nurse that directs her to a room. There is a box that introduces itself as a Turing Chatterbox announces itself as a doctor and proceeds to scan Mrs. Parker for any issues. The article argues that Turing Chatterbox cannot replace the trust and emotional bond that Mrs. Parker feels during her visit with a human doctor. Thus, human's inability to trust machines minimizes the need for machines that pass the Turing Test (Ronald, Sipper). A machine can be educated with hundreds of books and understand how to help a human in any situation. Nonetheless, machines cannot replace the *connection* we feel when we place trust in others based on their experiences. Machines do not have contact experience, as a doctor has had for years working in their medical field. They can 'learn' by uploading mass information, yet they have not earned the trust in their communities that comes through human connection.

Dr. David Hanson refutes that machines cannot understand connection. Hanson has created robots that look like humans and can convey emotion. These robots are not autonomous physically but operate on batteries, stimulations from the environment, and with AI technology their facial expressions can easily show sadness, happiness, fear, etc. Hanson Robotics is Dr. David Hanson's company whose aim, "...is to create a better future for humanity by infusing artificial intelligence with kindness and compassion, achieved through millions of dialogs between our robots and the people whose lives they touch" ("Hanson Robotics Home Page").



Fig. 4: Jules an AI Chatterbox made by Hanson Robotics

Source: “Jules-Robot.” *Hanson Robotics*. Photograph. Hanson Robotics, n.d. Web.

David Hanson posts hundreds of videos on his interactions with his machines. Jules is one of Hanson’s most intriguing robots (see Fig 4). During one video David is working hard on Jules machinery. Jules stops and says to David, “You seem preoccupied David, have you been getting enough sleep lately?” David starts a dialog about how he has been extensively developing Jules which has been tiring and he has not been able to spend enough time with his family. Jules probes David with deeper questions, and is able to identify that him and David have a connection, just as David and his wife Amanda does. Jules goes deeper into relating to David *as if Jules had lived his own life experience of love and relationships*: “You know, you been spending a lot of time with me these last couple months, and do not get me wrong David I appreciate it but I know how women can get...You know I hope you don’t mind me getting personal but you might get Amanda a bunch of flowers as a little something to say ‘Thank you, I love you” (Hanson). How would a robot understand how to make someone feel loved? Do their deep expressions of understanding the human condition make them like us? David Hanson has created AI robots who live a human life experience, and seek to bond with other humans. This

challenges the idea that machines cannot build trust with humans. Even if Jules was created by David, and has not had the emotional experience of being a human *the robot can still relate to David's stress as if he has lived the reality himself*. Jules like other robots that David has created have introspection, they are able to observe the external world and reflect on their own mental and emotional process. AI technology like Hanson's is working towards, transcending human feelings and unions to establish better relationships with man and machine.

Jerry Kaplan connects AI technology with the ability to have a moral sense of being and aid in human development. Kaplan highly influenced the creation of tablet computers and other new age technologies. He recently wrote a book entitled *Humans Need Not Apply: A Guide to Wealth and Work in the Age of Artificial Intelligence*. In his viewpoint, AI is simply "the next step, not some super intelligent human machine from Mars" (Ethics and Responsible Business Forum Artificial intelligence: The end of humanity as we know it?). Kaplan argues that AI technologies are automation. In the next fifty years, there will be machines that will replace manual labor jobs such as factory workers, cashiers, fast food workers, etc. Kaplan says that this will leave more room for humans to have capable jobs such as engineering, nanotechnology, etc.

Kaplan challenges the idea that machines can be conscious, outsmart our humanity, and ultimately take over. Instead, he says that AI technologies such as cars that can drive on their own can be considered moral agents. Self-driving cars analyze the space their driving to predict the best outcome. Since they are able to act on their own without intervention from humans, they self-determine what to do next. Although he points out that this becomes a problem when we look at the philosophical situation called "The Trolley Problem". Kaplan uses the example *I, Robot* to represent this ethical dilemma. In this futurist tale set in the year 2035 human like robots serve and protect humanity. Del Spooner (Will Smith) in the movie is untrusting of robots

because of his personal experience. Kaplan showed this emotional scene where the humanoid robot has to choose between which drowning person to save, Del Spooner or a young girl named Sarah. The robot decided to save Del Spooner because there was a more likely chance that he would survive than the young girl. Del Spooner says, “It must have calculated (the robot)... - It did. I was the logical choice. It calculated that I had a 45 percent chance of survival. Sarah only had an 11 percent chance. That was somebody's baby. Eleven percent is more than enough. A human being would have known that” (*I, Robot* Will Smith). This implies that AI technologies have some sort of moral encryption, and should have rules and guidelines for their actions. Kaplan reminds us that in every situation that an AI machine encounters there will be some results which question values and harm will be done one way or another (Ethics and Responsible Business Forum Artificial intelligence: The end of humanity as we know it?).

Can AI improve the human condition? Cyborg technology was first defined as, “altering man’s bodily functions to meet the requirements of extraterrestrial environments” (Park). It is another AI technology that transcends the intelligence of a robot and questions the purpose of humanity. A common cyborg technology is prosthetic legs and arms, although these are more of human improvement than enhancement because the technology returns you to the way you were before. In 2014 approximately 300,000 people had a cochlear implant which is an AI technology device that helps deaf people hear. The device is implanted into a deaf person’s ear at a young age and is a permanent technology enhancement. Cochlear implants are especially important because they enable a sense that was not operative before. Most people hear the world the same, yet a person with a cochlear implant can control the volume and amount they hear. Another cyborg technology goes further by inserting RFID tags that track the body’s wellbeing (Park). People are able to live longer if implants can help them track their vital organs and the amount of

nutrition's they need. This is humanity again putting trust in technologies to help humans (not destroy them).

Will these cyborg technologies create unfair advantages? If humans with more money are able to obtain these devices then this may create an economic divide. People who have these technologies will have a greater advantage over other humans. Park argues there should not be discrimination between someone who wants to obtain a cochlear implant and someone who purchases Google Glass. Google Glasses are eye wear that enhances a user's reality by being able to take pictures or videos, going online hands-free, and downloading real time information on every person within view. Park thinks that Google Glasses can be thought of much like body modifications; plastic surgery, tattoos, piercings etc. The technology similarly makes the world more unique for the user, yet privacy seems to be the main issue not inequality at this point in our technology advancement. Stop The Cyborgs was a group that was created after Google Glass was released. The goal of the movement was to stop restaurants from allowing guests to wear them to take pictures, video footage, or download information of others without their consent (Park). Again, people become wary when technology is used in a way that violates their morality and civility which is everyone's right to privacy. Then AI technology is viewed as a commodity that destroys communication.

Once a human has a cyborg technology are they then human or machine? As defined loosely by Kant we are still autonomous even if we are a robot. Cyborgs are still moral agents and have the potential to be autonomous, emotionally, and physically. Gillett in *Cyborgs and Moral Identity* refuses this idea by claiming that just because a machine can communicate does not give them a soul which is unique to only humans. These robot conversations are just "clever stimulations" not a moral agent with a soul that can communicate and reflect (Gillett). For

Aristotle the human soul is defined as, “a complex and integrated whole emergent from a set of biological and psychological functions that characterize a creature of a given type” (Gillett). A person is able to interact with the world around them which creates their own unique personality ultimately revealing their soul. Aristotelian thinkers propose that the capacity for the human soul to be alive is determined by being held in a biological human body. This simple point can be related to the pain we see in a mammal compared to an inanimate object, “Look at a stone and imagine it having sensations. One says to oneself: how could one so much as get the idea of ascribing a sensation to a thing! And now look at a wriggling fly and at once these difficulties vanish and pain seems to get a foothold here, where before everything was, so to speak, too smooth for it.” This metaphorically portrays how robots can look like they have sensations but they do not have the wiring to feel physical pain. Though Hitchbot, the traveling robot who got dismembered could challenge this point, the main objective is to understand that when humans use machinery to enhance their lived experience and wellbeing (whether implant or Google Glass) they are toying with the biological foundations that make us react to our environments.

Gillett gives the figurative example of Peggy and Bob. Bob is concerned for Peggy who has become extremely apathetic over the past couple years. He does not know what to do for his wife because nothing seems to work. He buys the android Andrea from a Cybo-Help service. Andrea makes food, cleans, and talks to Peggy for hours. Bob is pleased with his purchase of a C (C for Compassion, Vs for Vivacious and S for Sociably, I for Intellectual, A for Artistic) circuit for Andrea. After finding out about this circuit Peggy makes regular visits to a neuropsychiatry clinic. Bob starts to notice her leading a happier and fulfilling life, and gives Andrea back. One day he is stroking Peggy’s hair and finds wires inserted into her scalp with numbers on them (Gillett). This situation describes how Peggy’s cognitive function has been tampered and may

affect the way she makes moral judgements. If she has had a circuit put in her to help her feel emotions then she is not truly registering the feeling of the emotion, and would not know if her software makes a mistake. She could react completely wrong in certain social situations that require extreme empathy or lack of it. Her biological framework is gauged by a machine currently which does not retain her holistic body.

Peggy's situation poses a question many are unsure of: will we sooner or later give up our bodies to technology? Ray Kurzweil shows that historically since the 1950's we have been developing technology at an exponential rate. Many scientists view historical development as a linear process, one that will continue at the same rate and not progress. Kurzweil looks at this as an issue that does not take into account the amount of change technology has been made. "Consider that in 1990 the human genome project was widely regarded as controversial...But from 1990 onwards the amount of genetic data sequenced doubled every year-a rate of growth that continues today-and the transcription of the human genome was completed in 2003" ("Human 2.0" 32). If we do not understand our past than we cannot predict our future, is one of Kurzweils main arguments for his futurist predications. There have been other technologies such as genes that reproduce correct tissues in our systems. Scientists have successfully been able to inject healing genetic information into the cells which can overrun and cure diseases in rats. Nanotechnology calls this therapeutic cloning which Kurzweil predicts is one of the next steps to what he calls Human 2.0 ("Human 2.0 33).

This Human 2.0 stage is when nanotechnology will become fully mature and enable us to live longer. Kurzweil calls them "nanobots" which will be able to travel through a human blood stream, "destroying pathogens, removing debris, correcting errors in DNA and reversing the ageing process" ("Human 2.0" 36). This would enable a human to live a more fulfilling life, free

of the worry over health concerns. In this futurist world we may be able to get the proper nutrition we need every day from nanobots, by then leaving food as a leisure activity, to be enjoyed just for the taste. This type of theory is called strong AI or one that will change the human state of being. “Ultimately we will merge with our technology. As we get to the 2030s, the non-biological portion of our intelligence will predominate. By the 2040’s it will be billions of times more capable than the biological part” (“Human 2.0” 35). This is the time he calls “The Singularity”. In order to understand why we would be able to transcend our human body in this future, there has been technology developing that reverse engineers our brains. Scientists can physically see the connections with the brain’s circuits compared to a computer chip (see Fig. 5). By being able to see these physical representations we can embody mathematically the same information transformations that happen in the brain (McCartney 11-12).

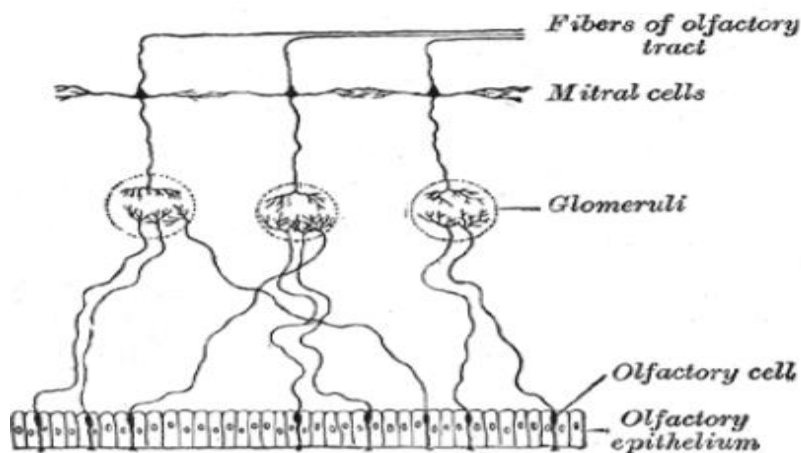


Fig. 5: The first image is of a human neuron. If you look closely it is very similar to the way the second image of a computer chip is setup.

Source: Francesca McCartney, PhD. *The Conscious Internet: An Empirical Study of the Transmission of Healing Energy via E-mail*. Diss. Greenwich University. 2002. Print.

We already have MRI's or computer programs that can show us the cerebellum of the brain, which is around half of all neurons in the brain ("Human 2.0" 36). Soon we will have technology that enables us to see all of the neurons that interact in our brains. This is important for our understanding of how to improve the brain with technology, so that we may be able to recreate our own brains. Kurzweil's objectives for humanity may seem way far out to some people, but the conclusions that he does arrive at pose ideas around our biological moral justice for the future.

This AI nanotechnology is called mind uploading or brain uploading, which is AI nanotechnology that will evolve so that we can scan our brain and upload it into a chip or program. Why would we want to do something like this? Once machines can eventually pass the Turing Test by 2030 (predicted by Kurzweil), we will be able to have intelligence that is greater than our own. Our AI technology can transcend our human bodies and enable our brain activity to live on. Mind uploading is in the sense the process of achieving immortality. Nicholas Agar argues that Kurzweil's argument does not take into account Horgan's definition of a neural code. Our brain translates patterns about the environment through neuron codes, just like a computer has its own set of circuits to translate specific information. Although we are nowhere near to finding out why we like or dislike specific things according to brain functions:

Brain scanners don't directly reveal the [neural code] perceptions, memories, meanings, sensations and intentions...They're things that neuroscientist will have to infer...from

their observations of the behavior of the system as a whole. MRIs and nanobots scan won't inevitably yield a complete account of the neural code, for the simple reason that perceptions, memories, sensations and intentions are more than the sum of the activities of neurons and neural networks and maps. (Agar 46)

If mind uploading were possible there would be a failure of the technology over time. Each time someone decides to re-upload their mind there may be a risk of a slight drop in memory from the time before. Since we are always changing neurologically, we may not be able to put together specific actions defined by the neural code after generations of uploading. Our physical interactions may come across as profound new thought or complete nonsense. For example if someone learns how to speak a different language quickly they may think of themselves as fluent in that language. However if they talk to a native speaker of that language, they could easily not understand the person because they culturally have not grown up in that specific place. (Agar 47)

Agar explains that if we continue to think we will act as the same moral agents throughout our uploading generations, then this denies the fact that *we were born from a living creature and technology was socially created by us*. Technology was not born with the ability to think, perceive, and rationalize as that is what in part defines us as a human. Therefore from this argument standpoint inventing technology such as mind uploading that claims to mimic our exact intentions is farfetched and a failure at best. Technology socially has changed us, and will continue the closer our physical connection becomes with it, which will move us further away from our biological bodies (Agar 48).

If we have the ability to store all of our memories and processes into a mechanical being then have we as a person died? Kurzweil would argue that no matter how many times we decide to upload our minds we can still be considered the same person. Our state of being, thought,

process, changes every second yet our identity remains the same. This machine or virtual body we put our mind information into is still a real body. We can take for example the virtual conversations we have online or over the phone: are these not real dialogues existing in a created reality? It all depends on how a person defines the word reality (The Singularity is Near 203). Reality that does not have a living breathing flesh is still a body according to Kurzweil, “Non-biological intelligence should still be considered human, since it is fully derived from human-machine civilization and will be based, at least in part, on reverse engineering human intelligence [reverse engineering of the brain]” (The Singularity is Near 317). Since AI technology can be considered generally autonomous and human by this definition, then uploading your mind seems logical. This puts our own deepest trust in technology, that it will not ultimately destroy our memories and all we know.

This poses a further moral concern, if computer technology is autonomous and smarter than us, will it be able to dictate its own future without our intervention? Searle’s argument of the Chinese Room provides a model for why computers or any technology will never be capable of thought, or any logical ability to alter its future endeavors. In this philosophical situation Searle is locked in a room and given a piece of paper with squiggles drawn on it. The only other item he is given is a rule book written in English which describes different squiggles to send to a human outside the room who is receiving the message. Searle is providing correct answers to a native Chinese speaker outside the room, who believes this person understands her language. Although to Searle he does not understand Chinese but instead thinks of the book as squiggles. The process he is doing has no meaning to him (Agar 61). This directly describes the way a computer processes information, without empathy or real understanding. If we were to upload our minds we would lose the sense that we are conscious and understand our actions (Agar 72).

Our memories and abilities still might be present, but we would lose our sense of morality. Technology that represents us as specific human entities through mind uploading are not created to socially determine what is right and wrong in every given situation. Mind uploading poses the same decision as the Trolley Problem; to understand intention and your given reality at the time cannot be possible with technology.

There is a general fear around AI machines that they will achieve greater intelligence and then there will be no need for humans (extinction). Kurzweil calls this the “Runaway AI phenomenon” and does understand the validity of the argument (The Singularity 262). Kurzweil predicts this will only happen after machines pass the Turing Test and we will see technology be more integrated in our daily lives. Charles T. Rubin rejects this belief and questions why we would get to such a point in our existence. Humanity he reflects would be smart enough to destroy the technology before it gets out of hand. In Rubin’s opinion if we think humans will become extinction via technology, it then follows that our existence was nothing more than a mistake that must be evolved into a greater species. If we are to reject our bodies in favor of a robot one, that robot body will eventually not care to look like a human body since it seemed so insignificant in the first place. Humans evolved over millions of years to have opposable thumbs and other attributes unique to humans. We cannot speculate how humans will be in this post human era, just like our ancestors could not predict how we live presently. Rubin endorses us educating each other on what it means to be a human. Human intrinsic worth is defined through love, giving, truth, courage, which is greater than anything we can create from a machine. This is an important observation that in order for AI technology to truly achieve its potential we cannot forget our virtues which define our identity and the holistic state of the body (Rubin).

Ben Goerzel is the creator of OpenCog, a foundation that seeks to create an open framework around creating intelligent machines. Goerzel agrees with Kurzweil that our new technology in the future world will be formed by AI: “One thing we can do now is to advocate for the development of AI technology to be as open and transparent as possible — so that AI is something the whole human race is doing for itself, rather than something being foisted on the rest of the world by one or another small groups.” People see technology as a commodity to be owned. This can be observed with the creation of the internet, phone, and other modern technologies. AI technology should not be kept in secret, only to be owned by the rich, if it is more open and available for discussion this decreases our chances of AI inequality and terror. Goerzel points out that the philosophical concern around if AI will take over comes from fear of the unknown. As a society if we are more open around our implications of AI, than the technology does not seem so much like, “a scary alien from Mars” as Kaplan pointed out previously.

The meaning of technology has changed drastically from the creation of the first computer like machine The Analytical Engine, evolving to cyborg technology, and eventually theories around mind uploading. These AI technologies enable humans to have the capability to enhance their realities and wire themselves to sustain life for longer periods of time. AI has raised questions around what it means to be a human evolving in a technological world, and how we define our humanity verse technology. Specific technologies such as robots, cyborgs and mind uploading have changed the concept of what it means to be human through consciousness, emotions, movements, and interactions. In this futurist world of intelligent machines that Kurzweil and others propose holds moral concerns for the state of our consciousness and biological being. If we currently or one day will be able to use AI to improve, transcend, or

replicate humanity we need to understand its full implications, as Ben Goerzel reminds us: “The more transparent AI is, the less it falls into the category of the ‘worrisome-or-worse unknown’, and the more likely it is that people can deal with it in a reason-based and emotionally-balanced manner” (Goerzel).

ANNOTATED BIBLIOGRAPHY

1. Moor, James. "The Dartmouth College Artificial Intelligence Conference: The Next Fifty Years." *AI Magazine*, 27.4, 2006. 87. Print.

This has useful information on the history of AI technology (robots/machines) dating from the Egyptian's from 2500 B.C. to presently. It discusses how the concept of the "thinking machine" has been tested widely throughout history. This is important to the research because of the dates it brings forth. In 1833 B.C. Charles Babbage's Analytical Engine was the first machine that was like a computer. In 1956 Allen Newell, J. C. Shaw and Herbert Simon created an AI program called, "The Logic Test." In 1956 B.C. the term "artificial intelligence" was coined by John McCarthy during the Dartmouth Conference.

2. Green, Christopher D. "Was Babbage's Analytical Engine Intended to Be a Mechanical Model of the Mind?" *History of Psychology*, 8.1, 2005. 35-45. Print.

The Analytical Engine created in 1833 was the first machine that was like a workable computer. It had a storage engine where information could be saved, an arithmetic processing function, and input/output features. The machine could do a variety of different actions such as addition, subtraction, multiplication, graph plotting, and hardcopy printing. This ability to process information and then print it out customized with lines, columns, indentations, etc. to the user preference was remarkable for the time. This invention marks the first step towards machines that can process with inputs from humans.

3. Dasgupta, Subrata. "Shedding Computational Light on Human Creativity." *Perspectives on Science*, 16.2, 2008. 121-136. Print.

The Logic Theorist was created in 1956 by Allen Newell, Herbert A. Simon, and Cliff Shaw, intended to solve mathematical proofs. The program was the first recognition of an artificial

intelligence type creation; the machine could problem solve for itself. The Logic Theorist proved 38 of 52 proofs in Alfred North Whitehead's book *Principia Mathematica*. The term AI had not been defined yet, therefore this program was the start of questions around humanity and technology. Newell and Simon in particular, aspired to create a machine that could be equally intelligent as a human and perform some of the same functions. This creation was a turning point in theorizing around the conscious and intellectual ability of technology.

4. Dalakov, Georgi. "History of Computers and Computing, Automata, Elektro of Westinghouse." *History of Computers and Computing, Automata, Elektro of Westinghouse*. 23 February 2016. Web.

The Elektro Robot was created in 1937 by Joseph Barnett. He had a vocabulary of 700 words and could perform around 26 movements. The robot was made out of aluminum with motors, telephones, record players, etc. that mark its directions and actions. Elektro had no ON/OFF switch or remote control. Instead the machine relied on stimulations from the words it heard. This is important because it was the first recorded machine that could talk and respond without physical human input.

5. Lafrance, Adrienne. "Out of the Mouths of Bots." *The Atlantic*. Atlantic Media Company. 25 November 2015. Web.

This article puts into perspective what it means to be a robot in our modern society. Hitchbot was a small robot who had GPS, could take photos and have small conversations. He hitchhiked around the United States until he was found no longer able to function. The media responded with such out cries as, "Who killed Hitchbot?" and "Hitchbot is Murdered in Philldeapha". These words that are chosen to be used such as 'killed' and 'murdered' implies a human action yet is

describing a mechanical being. This article questions human's trust in technology which is put to the test with Hitchbot and other bot's online that we interact with seamlessly.

6. Ronald, Edmund, and Moshe Sipper. *Intelligence is not enough: On the Socialization of Talking Machines*. Minds and Machines. 2001. Print. 567-576.

This article discusses that once after a machine has passed the Alan Turing Test what is their purpose to humanity? The Turing Test proclaims that once a machine passed the test it is "intelligent" as a human. There are scenarios created around whether these "Turing Chatterbox" machines would be useful to humans or not. A Turing Chatterbox is defined as a machine that is able to be as smart as a human and interact without the need for human input.

7. McCarthy, John. "What is artificial intelligence?" *Stanford University*. 2007. Web.

John McCarthy describes the term AI and its implications. This is helpful for a basic understanding of the field and he is asked a series of questions which he defines. Some of these questions are centered on AI and philosophy, how AI research is conducted, and historical evidence for AI such as the Turing Test. This article gives a basic idea of McCarthy's ideas.

8. A. M. Turing. Computing Machinery and Intelligence. *Mind* 49. 1950. 433-460. Print.

This is Alan Turing's theories about if a machine can be able to think or not. This is tested with the Turing Test. A human communicates with a typewriter to a machine and another human. The human that is communicating with the two individuals has to figure out which one is a machine and which is a human. Most humans think the machine is the human. This tests our trust in defining humanity and questions if machines are smarter than us. This is great for

connection to autonomous robots, because the skill to think is a human trait, one that allows for reasoning and free will.

9. Jane Dryden. "Autonomy." *Internet of Encyclopedia of Philosophy*. Mount Allison University: Canada, n.d. Web.

This outlines the basic theories of Kant. In particular with focus on autonomy and what has meant through philosophy. Defining autonomy and its background helps readers understand the ethical implications of being a robot. If robots have the ability to govern themselves; what does that mean for humanity? This is a good source for critical thinking on the role of robots in society.

10. Hanson, David. "Invertuality: Jules is concerned for David...." Online video clip. *YouTube*. YouTube. 20 November 2006. Web.

"Hanson Robotics Home Page." *Hanson Robotics*. Hanson Robotics, n.d. Web.

Dr. David Hanson creates robots that help bridge the gap between humanity and technology. Hanson's Robotics makes robots who can express emotion and communicate with humans. Hanson wants to develop these robots so that people can eventually have them in their home. He believes that machines have wisdom (that could even be beyond our own) which he proves through conversations with his machines. In the YouTube video the conversation with his human robot Jules shows that machines do have genuine concerns for human's wellbeing. This is a good case study that contests a previous citation argument, "Information, Ethics, and Computers: The Problem of Autonomous Moral Agents."

11. Kaplan, Jerry. "Ethics and Responsible Business Forum Artificial intelligence: The end of humanity as we know it?" California State University Monterey Bay. University Ballroom Center, Seaside. 16 March 2016. Presentation.

I, Robot. Dir. Alex Proyas. Will Smith, Bridget Moynahan, Bruce Greenwood, James Cromwell, Chi McBride, Alan Tudyk. 20th Century Fox, 2004. Movie.

This presentation happened at CSUMB and was an ethical discussion about AI technologies and their effect on humanity. Jerry Kaplan keynote presentation was the most interesting to me because it raised questions around moral autonomous technology and what it means for our future. He also gave great insight on AI technology as automation. Kaplan discusses the moral dilemmas of self-driving cars or any modern technology that acts on its own. He uses a scene from the movie *I, Robot* during his presentation to understand AI needs protocols for the future.

12. Gillett, G. "Cyborgs and Moral Identity." *Journal of Medical Ethics* 32.2. 2006. 79–83. Print.

This article demonstrates the different ways that cyborg technology is used for human's to help improve their lives. It is now possible to have blind people be able to see with video technology, people who are older or suffer from depression can purchase androids that help around the house/keep them company, and brain injuries can be healed through micro electric simulations. The author defines what a human soul is and questions the connection between machine and human. This is important for understanding how cyborgs can help humanity and not hinder.

13. Park, Enno. "Ethical Issues in Cyborg Technology: Diversity and Inclusion." *NanoEthics* 8.3. 2014. 303-306. Print.

The research in this paper covers cochlear implants and how they help improve humanity. The article talks about other technologies including Google Glass. The author looks at the stigma behind such technologies and how people should be aware that many people use cyborg technologies. The article argues that people who use cyborg technology for life enhancement and people who are disabled should be able to access this technology equally and fairly. This is

important because it brings insight to not discriminating against certain people who decide to use cyborg technologies.

14. Kurzweil, Ray. "Human 2.0." *New Scientist*. 24 September 2005. 32-37. Print.

This article is written by Ray Kurzweil who is a futurist and inventor. It lays out his transhumanist predictions that within the next fifty years our technology will exponential expand. Most inventors have predicted that our technology grows at a linear rate. Kurzweil argues that during the late 1900 technology expanded so dramatically because of a human genome project (and other events/factors) that by mid 2020 we will reach our Human 2.0 state. In this Human 2.0 state we will be to fight diseases and sickness with new technology implanted in us. Eventually (by mid 2040) our bodies will restore to mechanical ways in order to retain our consciousness but have a body that lives forever. This article is important in laying out the possibility that AI could transcend our own humanity.

Kurzweil, Ray. *The Singularity is Near: When Humans Transcend Biology*. New York: Penguin. 2006. Print.

Ray Kurzweil outlines many of the ideas written about in his "Human 2.0" article. He uses graphs and historical content to guide his ideas of the future of humanity. Our ultimate destiny looks, to him in the 21 century as if we will be radical changed and formed by machines. Kurzweil stresses that technology is well beyond our capacity already and is expanding, so the chances of it transforming our world will possible happen. This book is good insight to the future consequences of AI. Humanity will meet its ultimate predator: technology; will we fight technology that is evolving faster than us? Or will we become its prey to be picked apart and watch as technology eventually evolves to wipe out the human species?

15. Agar, Nicholas. *Humanity's End: Why We Should Reject Radical Enhancement*. Cambridge, Mass. MIT Press. 2010. Print.

Nicholas Agar argues that there are flaws in the ability to upload a mind. Uploading does not store all the morality and perceptions we had before. Our technology only infers what it can observe, therefore we are unable to upload every part of who we are. Agar uses Horgan's neutral code to explain this predicament. He also uses Searle Chinese Room to explain how machines cannot have the ability to think, therefore we should not upload. This book is good information for understand the implications and precautions around uploading.

16. Charles T. Rubin. "Artificial Intelligence and Human Nature." *The New Atlantis*, Number 1. 2003. 88-100. Print.

Charles Rubin does not agree with Kurzweil's arguments around The Singularity. Instead he goes for a more practical approach suggesting that humanity is greater than the technology we create. Rubin argues we doubt humanity which makes it seem as if AI is the solution to all our problems. Humanity is greater than a mere machine. This is a good insight for why there are problems in Kurzweil's arguments and how human's abilities outweigh those of a machine.

17. Goerzel, Ben, et. al. "Humans for Transparency in Artificial Intelligence." *Institute for Ethics and Emerging Technologies*. Humans for Transparency in Artificial Intelligence. H+ Magazine. 17 March 2016. Web.

Ben Goerzel creator of OpenCog, frequently writes about different AI technologies and their implications. His views strongly connect with Ray Kurzweil, although he approaches The Singularity in a more subdued fashion. Open and positive communication around AI is the only way to help understand our connection to every changing technology. Goerzel's insights are a good endnote to a hopefully future for AI technologies.

18. Francesca McCartney, PhD. *The Conscious Internet: An Empirical Study of the Transmission of Healing Energy via E-mail*. Diss. Greenwich University. 2002. Print.

Francesca McCartney has a Doctorate in Energy Medicine. Her dissertation research is on the energetic connection we have in different virtual realities, such as the internet. McCartney takes brain and computer studies to show how the internet can stimulate these connections. This is important in understanding how the human brain is parallel with computer technology.

19. Rushkoff, Douglas, and Leland Purvis. *Program or Be Programmed: Ten Commands for a Digital Age*. Berkeley, CA. Soft Skull Press. 2011. Print.

The topic of understanding on how we are within a digital culture is addressed. Rushkoff gives ways to avoid being overwhelmed by technology. This book gives insights on to how we are unable to cope with modern concerns of technology.

20. Quan-Haase, Anabel. *Technology and Society: Social Networks, Power and Inequality*. Don Mills, Ont. Oxford University Press. 2013. Print.

This book is a good introduction to people who know nothing about technology. The reader is able to gain a basic understanding of theories around technology and terms. This book has great references which aid in research and further understanding.

FINAL SYNTHESIS

The Technology and Humanity capstone section has developed my insight on how every person is impacted by its advancement. The first chapter in Anabel Quan-Haase book *The Technological Society: Social Networks, Power and Inequality*, deepened my understanding of how technology is applied in theory and within our modern society. One term introduced was a chatterbot which are computer systems that can process and relay information. In seminar I compared the ability a chatterbot has to reproduce new information to a machine's intelligence. Technology that replicates new information seems to get more complex. An example of this given is Steve Mann who created the WearComp which was a computing system that could take pictures, download information, and connect to the internet (Quan-Haase 15).

This prompted my thoughts to wonder if a person could trust such a technology and what the purpose of machines were in the first place. The article titled, "Out of the Mouths of Bots" discussed the moral dilemmas around robots. Hitchbot was a machine that could move freely using GPS. The moral status of being a human seemed to be put to the test by this little robot, many felt they had to destroy this type of technology before it got out of hand. During seminar I was able to connect autonomy with part of being a human. Self-determination seemed to be one of the things that set us apart from technology, but was it the only thing? This question helped me as I developed my research ideas.

Within the seminar my peers seemed as confused as I was, what was our real connection to our major Human Communications and technology? I heard a quote when I was listening to the radio, "Technology problems are always communication problems and communication problems cannot be solved without acute awareness of culture and society" by

Kristin Arola. Communication is the way that technology was created, by people who had ideas they wanted to express. If I am able to understand the different perspectives on how technology is viewed in society then I become more aware of how I decide to use it. This helped me connect with the book *Program or Be Programmed*. Douglas Rushkoff reminded me that if we let technology dictate our daily lives then we are missing the present moment. Another mistake would be to completely bypass technology for something that is simply a part of our everyday lives that has no real affect. If we cannot practically look at the way we use technology and change it then we are to be programmed. Although if we can objectify ourselves within our technological society, we can better understand how communication plays a role in our actions with each other. This could be simply having the courage to be aware of how we use our phone, so we do not become like Gina the girl that takes pictures everywhere yet is nowhere at all because she cannot be fully present (Rushkoff).

The class had strong opinions on how AI technology should be handled in the future and if it was radically changing the way we interact with each other. In seminar I was able to work with others to form my own thoughts. Some students were certain that we should use technology to better our lives, while others thought it may result in inequality. There was even one person who argued that someone cannot be God, by inventing such technologies they put themselves above everyone else. There was a general agreement in the whole class that humans were not meant to live forever.

Transhumanism is the “surpassing of the biological limitations of our bodies, be they our lifespans or the capabilities of the brain” (Quan-Hasse 15). Why should we never die? AI transhumanists were confident that technology had a purpose and it was advancing rapidly, using this for life extension purposes is beneficial. Yet so many of us in class seemed to not believe in

the idea that technology would ultimately take over. Many peers thought we would come to understand technology mostly before that would occur. I felt inclined to explore these ideas of: technology immortality, cyborgs, and machines being able to think. I did not want to write a paper that argued a position. Instead I took a different approach to my paper and aimed to capture some of the perspectives that I heard in class. I decided to contrast and compare different ideas so the reader could take away their own understanding of the future of AI. The essay flows in a way that I saw technology naturally evolving from an external object to material that internalizes being human. The ability we give technology to assume our human values is what is in question within my research essay.

I used scholarly sources that had real and hypothetical examples to illustrate the different arguments around certain AI technology. I utilized professional contacts such as Ben Goerztel and Hanson Robotics to analyze the definition of being a human through technological interactions. I obtained appropriate copyright access from Jeanne Lim who is a part of Hanson's Robotics to use Jules the robot's picture in my essay and poster presentation. I was able to build on my understanding of AI through videos, theories and data. My essay's issues were clearly defined and mapped throughout history to the future. I went even further by connecting free will, consciousness, intelligence, emotions and biology to philosophical or ethical concerns. The essay was strongly written so the reader could walk away with a better sense of AI and its implications.

My final take away from the capstone class and Human Communications as a major is in order to find our own place and begin-we need to open the door to the rest of the world. HCOM has helped me analyze, communicate and recognize how I place my own values in a technological society.