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Art and Algorithms

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Through the common study of human nature and evolution, we have come to assume that our personality, morals, and genetics are a collection of all the creatures that came before us. Just like any conscious being, we have learned through interaction, whether that be through means of communication with objects, nature, or people. This aspect of interaction derived from our innate need to be comforted through engagement since birth. In recent years, our desire to be comforted has been revolutionized through the development of Artificial Intelligence and other sources of synthetic intimacy. Through the historical lens of cybernetics, artists, and scientists are questioning how humans might interact with such inventions during times of isolation. By studying works of art that deal with the connection between humans and cybernetics, we can investigate our emotional and physical necessities in collaboration with the purpose of A.I.

Since the dawn of time animals have developed senses and characteristics that assist in their survival and reproduction process. Specifically, mammals have evolved to inherently nurture their offspring, due to the primal need to reproduce. Unlike most species, mammals, and humans alike take care of their offspring until they can become independent. In today's world, we have modernized past our evolutionary qualities. For example, we have been able to create newborn babies without the act of sex or a mother's whom. Cybernetics are another have

become implemented into our society and culture. Today's generation has become reliant on technology and it has transformed how we engage with each other on many levels. This fact has people wondering if we're about to embark on a new evolutionary path. This path would be altering the ways we function and communicate as humans as well as with technology. By introducing new forms of A.I. and cybernetics, we might start to deny our evolutionary senses and characteristics, and begin to merge with our own creation.

To fully understand how our species has fallen into this rabbit hole we have to go back to the origins of cybernetics. Cybernetics began in the 1940s as an interdisciplinary study connecting the fields of control systems, electrical network theory, mechanical engineering, logic modeling, evolutionary biology, and neuroscience. Cybernetics is defined as “the science of communications and automatic control systems in both machines and living things.”¹ There were a few scientists and mathematicians who worked on the development of cybernetics, including Norbert Wiener, who established the term cybernetics and theorized about future intelligent behaviors. In 1948, his book *Cybernetics; or, Control and Communication in the Animal and the Machine* was published.² He was inspired by studying the theory of predicting stationary time series during World War II, attempting to understand the problem of aiming gunfire at a moving target. This event introduced specific statistical methods into control and communication engineering, which became extremely popular in the science community.³ The first uses of

¹ Wiener, Norbert. *Cybernetics: or Control and Communication in the Animal and the Machine*. Cambridge (Massachusetts): The M.I.T. Press, 1971.

² Wiener, Norbert, and Walter A. Rosenblith. *The Human Use of Human Beings: Cybernetics and Society*. New York: Avon Books, 1967.

³ “Norbert Wiener.” Wikipedia. Wikimedia Foundation, April 27, 2020. https://en.wikipedia.org/wiki/Norbert_Wiener.

cybernetic models were performed attempting to understand the language of relationships that were generated by systems during changes of environment. This response later became adapted into one of the most iconic versions of cybernetic testing; the "Turing Test." Alan Turing was an English mathematician, computer scientist, logician, and cryptanalyst who was highly influential in the development of theoretical computer science. He provided a formalization of the algorithm and computation to assist in the decryption of the enigma code that was used by the Nazis during World War II. In his test, he was asking the simple question: "If machines can think independently of themselves?" The test was presented in a way where the human subject couldn't see the computer, this allowed them to ask questions to each and see if their responses were detected as artificial.⁴ Turing referred to the test as the "Imitation game" because of how it became an observation of questioning psychological behaviors and awareness. The machine is imitating in a way that compares to how the human brain is programmed. It perceives things through comparison and that's how it differentiates between positive and negative expressions or experiences. Since we based early forms of computing and new forms of A.I. on basic human principles, we tend to feel a sense of connection to them; connecting to how A.I.s are meant to evoke a human presence and think systematically. They are designed to be appealing, so it makes it easy for humans to interact with. All forms of cybernetics take on this human connection because humans were the ones who created them emphasizing the idea that we unconsciously relate to ourselves. This has influenced how we have learned to treat them and how they have become integrated into our everyday lives.

⁴ Oppy, Graham, and David Dowe. "The Turing Test." Stanford Encyclopedia of Philosophy. Stanford University, February 8, 2016. <https://plato.stanford.edu/entries/turing-test/>.

By using these assets of cybernetics artists and scientists are finding alternative methods of weaving art and technology together to investigate new approaches in which humans might benefit from. A genuine example of this mindset is contemporary artist Lucy Mcrae. She is a British born artist that uses non-traditional methods of art-making to create works that range from edible and wearable sculptures to immersive films. Her work is surrounded by the idea of interacting with the human body and mind in ways that question the future. She created a work called the “Institute of Isolation” in 2016, it’s a film that is based on a fictional research and training ground that focuses on analyzing the psychological and physical capabilities of a hypothetical human that would take on the task of deep space travel.⁵ By working with NASA, she was able to run a series of tests that would put the test subject (her) in a predicament in which she had to deal with isolation. Through these tests, she was able to discover ways of manipulating the body to withstand a critical mass of gravity and learn what the human body requires for an extended loss of physical comfort. By studying biomechanics and cybernetics, she created an “isolation pod” which acts as a chamber that someone would sit in and the material would conform to their body and temperature delivering a sense of warmth. Another part of the project that dealt with questioning human’s physical capabilities was a piece that is a huge hamster wheel that is rotated on its side. In this work, she was trying to “offer alternative methods to condition the body and adapt fundamental aspects of human biology.”

In this same project, the works can be seen through a lens, which offers an understanding of human emotions and psychological behaviors in certain isolated spaces. In another work, she encloses herself in a series of rooms which she referred to as sensory chambers and she was

⁵ “Institute of Isolation - World Renowned Sci Fi Artist and Body Architect.” Lucy McRae. Accessed May 8, 2020. <https://www.lucymcrae.net/institute-of-isolation/>.

trying to understand what spending time in silence during microgravity conditioning has on humans. The spaces were implemented with different textures and equipment; for example, one room was coated with soundproof walls trying to recreate a sensory deprivation space. These works interpret ways of how we cope with loneliness and how we have become oblivious towards our personal attention.

In the contemporary day, social media and technology consumes our general world and has warped our perception of what we think is appropriate. The average amount of time a predicted person spends on any form of technology-based media throughout their predicted 14-18 hour days is about +10 hours.⁶ I honestly don't blame people for this either because of our over-advertised social economy and how we have become reliant on it to communicate with one another. To be relevant in this modern world, you have to stay up to date with technology to perform on a realistic level, but understanding that the human body and mind need specific ingredients to function.

Presently, dealing with the harsh reality of a global pandemic people are forced to stay isolated, secluding them from any forms of physical contact with another person. The challenges that the social distancing act has brought resulted in an increase in the rates of suicide and depression.⁷ With the understanding that the only way we created a sense of sanity is through the interaction with other humans. Knowing that our morals began to shift with the lack of communication means it is more important than ever to engage with one another, but due to the

⁶ Richter, Felix. "Infographic: Always On: Media Usage Amounts to 10+ Hours a Day." Statista Infographics, January 16, 2019. <https://www.statista.com/chart/1971/electronic-media-use/>.

⁷ The Treatment Specialist The Treatment Specialist offers personalized assistance to adults. "Effects of Social Isolation Caused by Coronavirus COVID-19 Pandemic." The Treatment Specialist, May 6, 2020. <https://thetreatmentspecialist.com/effects-of-social-isolation/>.

circumstances, we have to rethink. This issue has led people to wonder about the future purpose of Artificial Intelligence and how they can become a savior during these climates. Forms of synthetic intimacy can offer a sense of entertainment through acts of emotional, physical, or social support. This response is one's solution to resolving humans' need for comfort, but how would this affect us and where would it leave us?

Since the earliest forms and depictions of A.I. professionals have wondered if this is going to be something they regretted. We know that A.I.s can be beneficial at times like this, but would that lead to a replacement in true human interaction? A prime example of this question is focused on in the movie "Ex Machina". Ex Machina is a science fiction psychological thriller film written and directed by Alex Garland in 2014.⁸ The general plot of the story is that the CEO of a worldwide search engine company, named Nathan, has been working on a secret project where he is creating intelligent humanoid robots. A representative of his company, named Caleb, was selected to help him perform a Turing test on Nathan's latest model. Both of these characters are white heterosexual males and the setting of the story takes place in the present-day in Nathan home which is an isolated research facility deep in the mountains of a random location. Nathan lives by himself with his realistic female robots that he has been running tests on, the latest model is a white female named "Ava". Seeing how the movie progresses and understanding the interaction between the characters, the film confronts the topic of gender politics in a really intriguing way which reveals a lot about the type of people who will be interacting with A.I. and what they might look like.⁹

⁸ "Ex Machina (Film)." Wikipedia. Wikimedia Foundation, April 28, 2020. https://en.wikipedia.org/wiki/Ex_Machina_%28film%29.

⁹ Expanded Cinema. Accessed May 8, 2020. http://www.vasulka.org/Kitchen/PDF_ExpandedCinema/ExpandedCinema.html.

Comprehending the fact that all early forms of A.I.s were created by men resulted in a warped portrayal of feminine or female qualities. This idea was evoked by perceiving females as more forgiving and caring than men. This type of design of A.I. women will continue to support the stereotype that women are submissive servants, if not thought about properly or designed by people who are keeping that in mind. We are undoubtedly on that path right now, a perfect example would be the use of female voices for Apple's "Siri" and Amazon's "Alexa". The most intelligent A.I. up to date was created in 2016 by Hong Kong-based company Hanson Robotics.¹⁰ The robot is named "Sophia" she is based after the ancient Egyptian Queen Nefertiti and Audrey Hepburn; both iconic women of power and beauty. In 2017, she gained citizenship in Saudi Arabia and was the first robot to gain citizenship. The creator designed Sophia to be a suitable companion for the elderly at nursing homes, which entail that act of caring and serving. Continuing down this confusing path has already led to the questions of what is ethically right and wrong in creating an A.I. as a woman, and where the boundaries begin and end.

This is all rooted back to the dynamics of how we have developed viewing and interacting with each other on multiple levels; whether it be race, gender, or religion. This collection of data creates a mixture of what is being seen today and cybernetics offers a view into the future of human nature. Due to our inherent desire to be nurtured, is telling of how the future of realistic A.I. will evolve. It's impossible to ignore how we have developed and why we are this way, but by understanding our evolutionary origins it creates an honest depiction of ourselves. Until now, we have been rapidly modernizing in a way that has given birth to a new

¹⁰ "Sophia." Hanson Robotics. Accessed May 8, 2020. <https://www.hansonrobotics.com/sophia/>.

generation of technologies and humans, but soon the challenge may become integrating and developing this new creation of humankind.



