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### Research Essay: Artificial Intelligence

Artificial intelligence is a captivating advancement of technology. There is great potential for artificial intelligence to assist humanity, especially since society is relying more on technology every year. As of now, we have Siri and Cortana on our phones, rumba on our floors, and Alexa on our kitchen counters. Many science fictions films and books have featured some form, or idea, of an artificial intelligence which is also known as AI. Some well-known films that involve AI in their plot are “The Terminator”, “The Matrix” or, “Star Wars”. Some authors who are well known for their development of the image of artificial intelligence are Isaac Asimov, Arthur C. Clarke and Robert Heinlein. Science Fiction has a sense of predictability although, the literature is not an oracle for the future; SF authors have shaped the way we view AI and have predicted AI or even helped gear society towards the future of AI. Seeing that before there was the invention of artificial intelligence, there was the idea of artificial intelligence. So, what exactly is AI?

“...AI is not just about robots. It is also about understanding the nature of intelligent thought and action using computers as experimental devices” (Buchanan,

54). Artificial intelligence is the extension of human intelligence into a computer, to be used as a tool. AI helps us to get what we need and where we need to be more efficiently. There is AI in the medical, automotive, finance, travel and marketing fields. It is a way we can make more use of our human intelligence. Some examples of ways we use AI in our daily lives: finding a specific restaurant through speaking to Google or requesting an Uber, our filtered email inboxes, smart replies, product recommendations, mobile banking, and google maps. These are just a few, more complex artificial intelligence is a self-driving car, recognizing data in a photo, or data security. Algorithms power artificial intelligence. Using techniques such as machine learning and deep learning. Machine learning algorithms feed computer data to AI systems, using statistical techniques to enable AI systems to learn. Through machine learning, AI systems get progressively better at tasks, without having to be specifically programmed to do so. Just like the human mind learns from experience. There are three types of artificial intelligence, narrow AI, strong AI, and artificial superintelligence (Kok, 1). Let us look at how science fiction authors have first developed the idea of artificial intelligence.

Mary Shelley, author of *Frankenstein*, is the first published novel that debatably is considered the first account of artificial intelligence described in science fiction literature. Reason being is that the creation of Frankenstein was a combination of chemicals, body parts from different people formed together, and a manmade spark. This creature is self-aware and tries to fit in with the society around him but fails because it does not have any programming and unfortunately turns evil because its thinking is irrational due to the poor programming. This creation qualifies to be AI because it has human-like appearance, actions and, behaviors, and thinks for itself. It

even has a desire to fit in, to have company and roughly expresses human emotion. Taking a gander at *Frankenstein* and comparing it to a properly programmed AI that learns from examples, and interests of its human and, expresses emotions of variety. Like Olly, an AI created in the UK that uses voice inflections and verbal patterns and an evolving personality like a human. The concepts and principles are not too far off. Olly is *Frankenstein* after years of research and development. This story was only a beginning for the introduction of AI.

Another example from Science Fiction literature is from the anthology, *The Road to Science Fiction*. Which features “Reason” by Isaac Asimov, which tells of an artificial intelligence called QT. Published in 1941, Asimov tells a story of a robot created by two men to help take over some responsibilities on their spaceship. Learning as QT goes, he becomes a leader for fellow robots, but learns about the two men’s characteristics and personalities and adjusts accordingly. Eventually, becoming rebellious and disobedient, QT coerces the other robots to rebel against the two men on board. When a computer is learning in a style of trial and error to improve results without any explicit programming to do so, we know as machine learning, that Asimov toys within his literature. A simple modern example of this is google translate, which improves the quality of translation from people using it over time. Again, like in *Frankenstein*, the theme of Artificial intelligence turning troublesome, or evil is developed. Although this short story was written before Asimov’s three laws of robotics, which set rules for how robotics must behave, this can be taken as a warning for future generations.

Science Fiction literature presents us with Robert Heinlein’s *The Moon Is A Harsh Mistress* published in 1966. In which there is a supercomputer named Mike

working for a moon colony overrun by Earth. This computer is in control of many systems and has gone through enough machine learning, that the computer has become self-aware. Like human behavior, it starts to formulate jokes and in which also the main character, a computer technician involved in the rebellion against earth, uses this self-aware computer to gain leverage in fighting against the powers of earth. Sadly, the program that has developed for Mike to become self-aware was discovered by the Luna colony officials and it was erased. This story was written in a time where society had not even had personal computers yet, this idea Heinlein had been extrapolated into a reality. If we can consider Lucid AI, a modern software that uses causal reasoning to solve big data problems, like "Mike". Comparing the two this story was a prediction. Nonetheless, there are many things Artificial Intelligence cannot do yet and one of them is to think freely like a sentient being or have creative thoughts and ideas like a human.

*Neuromancer* by William Gibson is another example from SF literature that develops the possibilities of technology and its basic principles. Published in 1984, the technology throughout the book is not an impossible idea considering the improvements, advances and widespread use of AI by the masses today. The examples show that technology and Artificial intelligence become a part of us, no longer separate. Gibson also created the word cyberspace and predicted what would become of that world... "Cyberspace. A consensual hallucination experienced daily by billions of legitimate operators, in every nation, by children being taught mathematical conceptions... A graphic representation of data abstracted from the banks of every computer in the human system. Unthinkable complexity. Lines of light ranged in the non-space of the mind, clusters and constellations of data..." (Gibson, 51). This idea is

just the beginning of it, so if we can compare it to the times we live in now. We are just commencing to be accustomed to the idea of living with artificial intelligence in our lives, and some are not even sure of what AI is yet. Society is already accustomed to using it for work, pleasure, and assistance.

Backtracking on the timeline from *Neuromancer* to 1964 when the book *2001: A Space Odyssey* was published, just before the age of space, by Arthur C. Clarke. He surpasses other examples of artificial intelligence with Hal, a character he created that is a representation of where AI robots are now. Saturday Night Live has made AI Sophia well known to society. She is an AI robot created by scientists at Hanson Robotics, that seeks to build a pleasant relationship with humans and seeks to learn from the science of our actions and expressions. A comparison between the two is evidence that a predication has come true. Arthur C. Clarke wrote the Three laws of predictions in his essay *Hazards of Prophecy: The Failure of Imagination*. And one of them was. When a distinguished but elderly scientist state that something is possible, he is almost certainly right. When he states that something is impossible, he is very probably wrong. Technological breakthroughs, before and since the development of the atomic bomb in the 1930s, have confirmed the truth of this dictum. So when the author of the standard textbook on artificial intelligence (AI), Stuart Russell, professor of computer science at the University of California, Berkeley, warns that the development of an artificial intelligence system vastly more powerful than the human intellect is possible and that such a breakthrough could bring with it very great risks, he should be taken seriously” (Winter-Levy, 106). From the start of AI in literature, of a context written

in a simpler society, will we forget what the forefathers of artificial intelligence foresaw and warned society about?

All these brilliant authors entertained the possibility of expanding the idea of systems to think and maneuver like humans, robots to think like humans and have behaviors like humans; so, what if these ideas became a reality? We can be grateful, as well as inspired and amazed that the principles in these works of SF have evolved into our daily routines. It is said humans only use 40% of their brains. So, if numbers are unlimited and computer systems and AI are powered by numbers, theoretically, and they use a system of ones and zeros to determine most efficient end results. As well as, without program, learn from experience at a rate far higher than any average person's lifespan. Then would it possible, if not foreseen, that artificial intelligence will supersede our intelligence and enslave or destroy us? Just an idea.

## Works Cited

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