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Artificial Intelligence Research Paper

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Introduction

Technology has been a part of our everyday lives and is constantly evolving. From the beginning of time, humans have created machines and objects to make their life easier, whether it be out of necessity or just plain curiosity. Through the evolution of the human mind we have gotten more intelligent and the field of artificial intelligence comes from this idea of evolving intelligence.

There are many interpretations of what artificial intelligence is but according to The New York Times, artificial intelligence is “the capacity of a computer to perform operations analogous to learning and decision making in humans”(Powers, 2011), meaning that artificial intelligence is basically a machine or computer that is able to make human like decisions. In this day and age artificial intelligence has already made great strides and will only become more prominent in the future. The purpose of this paper is to explain in more detail what the ethical, legal, and social implications are of artificial intelligence.

Background

The beginnings of artificial intelligence have many origins from philosophy and fiction to just pure imagination. According to AI magazine, the history of artificial intelligence is a history of “fantasies, possibilities, demonstrations, and promise” (Buchanan, 2005). The idea of artificial intelligence has been written in fiction novels since the time of Homer but it’s only in the last few years that we have actually made progress in creating these machines and programs. There are many science fiction novels written about the creation and use of artificial intelligence with *I, Robot* written by Isaac Asimov being a more well-known novel depicting artificial intelligence in the future.

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Before when artificial intelligence was just an idea, it was generally associated with robots. However, artificial intelligence is not just about robots, it is “understanding the nature of intelligent thought and action using computers as experimental devices” (Buchanan, 2005). Meaning artificial intelligence is not just about robots performing tasks that humans do, but to create a computer that can have and understand human thought.

Potential Benefits

The potential benefits of artificial intelligence is massive. Research in artificial intelligence is growing rapidly as technology is improving and the use of artificial intelligence can be helpful and useful in many fields. With the improvements in artificial intelligence, it can be seen that artificial intelligence could take place of the workers doing dangerous jobs. This could protect workers from harmful conditions and could also benefit the economy.

Using artificial intelligence technology can easily protect against cyberattacks and could help in national security measures like analyzing potential and known terrorists. Using artificial intelligence will reduce the mistakes that would be made by humans, increasing productivity. The goal of artificial intelligence is to have an artificial intelligent system perform cognitive tasks better than the human. This could potentially eliminate war, disease, poverty, and many other aspects that are hindering the world today. This could potentially eliminate war, disease, poverty, and many other aspects that are hindering the world today

Security Aspects

The aspects in which artificial intelligence can be incorporated are limitless. Security is just one area where artificial intelligence is used. Artificial intelligence have been used in home security as well as national security.

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One aspect in which artificial intelligence is implemented are in intrusion detection systems or IDS. The main goal of an intrusion detection system is to “detect unauthorized users attempting to enter into a computer system” (Frank, 1994). Before the implementation of artificial intelligence, the intrusion detection systems were being built by hand and the systems were having difficulty “identifying intruders and require a significant amount of computational overhead” (Frank, 1994), meaning that it was becoming difficult in creating the intrusion detection systems. The use of artificial intelligence decreased these issues in that it reduced human effort required to build the systems and it improved the performance of the system.

While artificial intelligence has been helpful in some aspects of security, in other aspects, it has been met with some resistance. One example of this is with domestic warrantless wiretapping program, artificial intelligence “is believed to be used in scanning the internal communication of domestic callers for keywords and other information that could indicate terrorism”(Borowski, 2010). While it may seem that it could be a helpful security tool, many are against it because artificial intelligence “has little effect on safeguarding privacy rights” which is why many people challenged the domestic wiretapping program when it was revealed.

Since there were many people against this type of artificial intelligence usage, the Obama administration decided to go another route where there was a balance in privacy and the issue of national security. One way artificial intelligence remained as a central role in national security was by using artificial intelligence to “analyze the raw communications traffic of known terrorists to identify potential domestic terrorists” (Borowski, 2010) which maintained a level of privacy for the public yet still held up national security. This use of artificial intelligence gathered the general routing information and the phone number but not the content of any phone call. The communication traffic can be acquired and analyzed by artificial intelligence to

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“discover recurring patterns” (Borowski, 2010) and this way it can ensure that wiretaps occur only by probable cause.

Ethical and Legal Implications

As technology is growing and the aspects of artificial intelligence are growing, there are many fears towards the growth of artificial intelligence. There are many ethical issues that arise with artificial intelligence but the biggest concern is the mass unemployment that could occur because of this new technology. As new technology is emerging, they are taking over many menial jobs and people are losing their jobs over it.

There has been a constant fear in the public’s mind over the fact that artificial technology could one day take over the world and this science fiction world becomes reality when important technological figures like Elon Musk, the co- founder of PayPal, warns that “artificial intelligence now poses the biggest existential threat to humanity” (Dutta, 2014) it creates a deeper fear. This threat of artificial intelligence becomes a reality for many when they start losing jobs to technology. According to Dr. Stuart Armstrong, from the Future of Humanity Institute at Oxford University, “artificial intelligence could spur mass unemployment as machinery replaces manpower” (Dutta, 2014). With a prediction that “machines are likely to take over 47 percent of today’s jobs within a few decades” (Kaplan, 2015), show that artificial intelligence will slowly obliterate human labor.

Ethical issues are not the only issues that arise when talking about artificial intelligence. Legal concerns also arise when talking about artificial intelligence. As it is becoming more and more clear that artificial intelligence in the form of machines or robots are going to take over jobs in the next few years, many questions arise on whether or not an artificial intelligence machine could get punished if it commits a crime and who exactly is responsible for the crime.

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While it may sound a bit farfetched, an incident like this has already happened. According to Hernaes, a “Swiss art group created an automated shopping robot with the purpose of committing several random Darknet purchases” (Hernaes, 2015) and was successful before it was arrested. This resulting to “no charges against the robot nor the artists” (Hernaes, 2015). This incident resulted in many legal questions for and artificial intelligence machine. It is a debate still going on today if these artificial intelligence machines should be given the same legal rights as humans.

Social Implications

The social implications and issues that arise with artificial intelligence align with the ethical issues that are posed. A major social implication that comes up is the threat to privacy by systems that can “find your spending patterns, track the movements of your car and credit cards, and correlate the many separate bits of information now held in computer form” (Vickery, 1997). While these issues do hold merit, there are many governments and entities that have created laws in light of the increase in artificial intelligence. For example the “Australian Privacy Charter sets out 18 key privacy principles that can be used in the design and implementation of new technologies” (Vickery, 1997). As technology and artificial intelligence continues to grow and improve, laws are continuing to change and adapt to protect the people.

Further Required Research

The growth of artificial intelligence is exponential. As our needs grow, technology grows and artificial intelligence will be used more prominently in the coming years. It is very important that research towards artificial intelligence continues. There are many issues that come to the public’s mind whether it be ethical, legal, or social and with the likes of Stephen Hawking and

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Elon Musk warning us about the dangers of artificial intelligence, the more research is conducted, artificial intelligence will be used in the benefit to humans.

Discussion and debates should be held so that artificial intelligence causes greater prosperity for society. Research towards artificial intelligence can answer many questions society may have. For example, there has been data from the “successes of industrial applications of AI, demonstrate a growing impact on the economy” (Russell, et.al, 2015). The real discussion then lies how we optimize the economic impact of artificial intelligence. More research needs to be done to answer the legal and ethical aspects of artificial technology and where there should be balance between intelligence and autonomy. According to Tony Walsh, “it is important to have these debates now, not just to avoid the potential pitfalls, but to construct a future where AI improves the world for all of us” (Walsh, 2015). Research should be conducted on all aspects of artificial technology so that the greater benefits are reaped from artificial intelligence.

Conclusion

Technology is always improving in the hopes to benefit society. Artificial intelligence has the potential to bring benefits to humanity. While there are many concerns made by the public, research should continue to make sure we do not fall into the possible pitfalls of artificial intelligence. Artificial intelligence has the potential to positively impact all aspects of our lives by increasing economic profit, cutting back on human errors, and most importantly, keeping us safe.

References

Borowski, S. M. (2010). Balancing privacy with national security is artificial intelligence the key to warrantless wiretaps? SciTech Lawyer, 6(4), 18. Retrieved from <http://search.proquest.com/docview/503100876?accountid=14541>

The article *Balancing Privacy with National Security is Artificial Intelligence the Key to Warrantless Wiretaps* written by Mark Borowski was published in the scholarly journal SciTech Lawyer. The article highlighted the security and privacy issues with artificial intelligence. With an increase in artificial intelligence, it is probable that it can be used to take warrantless wiretaps in the name of national security. This article was reliable as it is a scholarly article and is published in a scholarly journal. The article was also written relatively recently making this article even more reliable.

Buchanan, B. G. (2005). A (very) brief history of artificial intelligence. AI Magazine, 26(4), 53-60. Retrieved February 23, 2016, from <http://search.proquest.com.mutex.gmu.edu/docview/208132026?accountid=14541>

The scholarly article *A (very) Brief History of Artificial Intelligence* by Bruce Buchanan is feature published in AI magazine, a trade journal. This article mentioned the beginnings traces of artificial intelligence and voiced a few milestones listed in the field of artificial intelligence. This article is pretty reliable as is published in an artificial intelligence magazine. While it did have quite a bit of information, it was not as reliable as a scholarly article. The article has many references throughout the paper, and it was very helpful when writing about the background of artificial intelligence.

Dutta, K. (2014, Oct 27). Artificial intelligence is real threat to humanity, says founder of PayPal. *The Independent* Retrieved February 23, 2016, from <http://search.proquest.com/docview/1616396192?accountid=14541>

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The newspaper article *Artificial Intelligence is Real Threat to Humanity* written by Kunal Dutta, was published in *The Independent*. *The Independent* is a London based newspaper started in 2010. The article highlights some of the ethical issues that come with artificial intelligence. This mainly included the mass unemployment that could happen. This newspaper article is reliable as it published in a reliable news source. All information is also backed by references and events that have happened.

Frank, J. (1994, October). Artificial intelligence and intrusion detection: Current and future directions. In *Proceedings of the 17th national computer security conference* (Vol. 10, pp. 1-12).

The article *Artificial Intelligence and Intrusion Detection: Current and Future Directions* written by Jeremy Frank was published in the scholarly journal *Proceedings of the 17th National Computer Security Conference*. The article stated that the current use of intrusion detection systems were being slowly produced since they were being made by man and the system was not able to detect intrusions that well. The use of artificial intelligence would help in productivity as more machines would be made, there would be less manmade errors, and the machines could catch and analyze the intruders more efficiently. The article was pretty reliable as it is a scholarly article published in a journal. However it was published in 1994 and new information since then has been procured.

Hernæs, C. O. (2015, August 22). Artificial Intelligence, Legal Responsibility and Civil Rights. Retrieved February 23, 2016, from <http://techcrunch.com/2015/08/22/artificial-intelligence-legal-responsibility-and-civil-rights/>

The article *Artificial Intelligence, Legal Responsibility and Civil Rights*, written by Christoffer Hernaes, is an article published on the TechCrunch website. This article is about the legal and civil rights of an artificial intelligence machine. The article states that once crimes start

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occurring because of the artificial intelligence, we need to be prepared and have them be legally responsible for their actions. The article also goes on to question whether or not artificial intelligent systems should have the same rights as humans. While the article is written well and backs up their information with a real life situation, this article is not as reliable as the others because it is published on just a tech website.

Kaplan, J. (2015, August 4). The Age of the Robot Worker Will Be Worse for Men. Retrieved February 23, 2016, from <http://www.theatlantic.com/business/archive/2015/08/women-men-jobs-automation/400364/>

The website article *The Age of the Robot Worker Will Be Worse for Men* written by Jerry Kaplan was published on the Atlantic magazine website. This article talked about how artificial intelligence is going to take more jobs from people in the next few decades. It also mentions that the jobs generally held by women are safe in comparison to those held by men. This magazine has been around since 1857 and produce high quality articles. I think this is a reliable article as it backed up their claims with facts and statistics.

Powers, R. (2011, Feb 06). What is artificial intelligence? *New York Times (1923-Current File)* Retrieved February 23, 2016, from <http://search.proquest.com.mutex.gmu.edu/docview/1645421965?accountid=14541>

The article *What is Artificial Intelligence* is written by Richard Powers and was published in the New York Times. This article is about explaining what artificial intelligence is. Since it is a newspaper article it had more personal views and anecdotes than actual research. However, the article did have a good definition of what artificial intelligence is. I think this source is reliable as it was published in a reliable newspaper publication.

Russell, S., Dewey, D., & Tegmark, M. (2015). Research priorities for robust and beneficial artificial intelligence. *AI Magazine*, 36(4), 105-114. Retrieved February 23, 2016, from [http://search.proquest.com.mutex.gmu.edu/docview/1756174799?accountid=14541\(magazine\)](http://search.proquest.com.mutex.gmu.edu/docview/1756174799?accountid=14541(magazine))

The article *Research Priorities for Robust and Beneficial Artificial Intelligence* written by Stewart Russell, Daniel Dewey, and Max Tegmark was published in the AI Magazine in 2015. This magazine article highlighted the many reasons why artificial intelligence research should continue. The authors gave reasons from economic stand points to security aspects. The article was very well written and had many references and statistics to back up their claims. Since the article was published in the AI magazine it is pretty reliable as it is a magazine only dealing with artificial intelligence.

Vickery, B. (1997). Social implications of artificial intelligence. *Search*, 28(10), 316. Retrieved February 23, 2016, from <http://search.proquest.com/docview/209745551?accountid=14541>

The article *Social Implications of Artificial Intelligence* written by Bob Vickery was about the ethical and social implications of artificial intelligence. The main issue Vickery talks about is the threat to privacy and how that can change when artificial intelligence is used. I think this article is reliable because it is a scholarly article published in a scholarly journal. However there is one aspect in which the article loses a bit of reliability. This article was published in 1997 and there has been a lot of change in the field of artificial intelligence since this article was published.

Walsh, T. (2015, January 16). Artificial Intelligence should benefit society, not create threats. Retrieved February 23, 2016, from <http://phys.org/news/2015-01-artificial-intelligence-benefit-society-threats.html>

The article *Artificial Intelligence should Benefit Society, not Create Threats* was written by Tony Walsh and published on the phys.org website. The article mainly stated that there can be many eventual pitfalls and benefits when it comes to artificial intelligence. The only way to stay away from the pitfalls and to reap as many benefits as possible, is to continue research and have

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discussions on the topic of artificial intelligence. The article was well written and had many testimonies from various IT figures. I think the article was reliable as it was published on the domain of an organization.