IMPLEMENTING ARTIFICIAL INTELLIGENCE TO THE MILITARY

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HUMAN BRAIN COMPARED TO ARTIFICIAL INTELLIGENCE

Arguably the most remarkable and underrated things in this universe would have to be humans. Nothing compares to the intelligence of the human race. This could be attributed to the most complex part of our body, the complex brain. The brain is the main part of the nervous system, and is responsible for handling all of the vital information the body needs to stay alive. Keeping in mind that no other living organism compares to humans, the human mind is clearly unique, and it is next to impossible to replicate perfectly. However, with the recent technology advancements, humans might have invented a man-made version, that comes very close to it.

Over the past few decades the world has seen a huge advancement in technology. These advancements range from desktop computers to faster small portable laptops, and from telephones to touchscreen cellphones, and perhaps the most important artificial intelligence. Even though the human brain could never be perfectly perpetrated into technology, Artificial Intelligence is arguably the closest thing the world has seen to doing so. AI was first introduced in 1956, when Dartmouth College came out with a statement that had the idea that an aspect of learning or intelligence can be stimulated by a machine [1]. Now, almost 60 years later artificial intelligence, commonly referred to as AI, is defined as when computers or machines have qualities that include, but not limited to, behaving as human beings, being intelligent, and solving unstructured and complex problems [2]; ultimately trying to display characteristics that human brains have. Although previously stated that artificial intelligence will never perfectly act like a human brain, AI still has some advantages over the brain. These advantages include eliminating the very common human error. Truth be told, even though the brain is very smart, it is also very prone to mistakes. These mistakes include failure of retrieving correct information, calculations and memory encoding. In addition, artificial intelligence larger memory capacity and is able to run multiple applications in one instance; a time conserving advantage. Artificial intelligence is one of the fastest thriving fields in the world, playing a vital role in almost all American's everyday life.

CURRENT APPLICATIONS OF ARTIFICIAL INTELLGIENCE

The development of artificial intelligence is accelerating now more than ever. Americans are actually surrounded by myriad of types of artificial intelligence systems, though they might not even know it. These applications range from something like a car to health care, even to something that is important on a national standpoint, like security. Starting from the car aspect, companies such as Google and Tesla have launched what they refer to as intelligent cars, which are automobiles with the feature that allows the driver to choose when the vehicle will drive itself. The development of intelligent cars is also supported through big time automobile company Toyota, who recently invested an ambitious $50 million toward various artificial intelligent and robotics research with Stanford University and the Massachusetts Institute of Technology with the hope of developing intelligent cars [3].

AI's role in the government and health care

On the other hand, artificial intelligence is also being used by the United States government to ensure maximum safety for its citizens. This is achieved through multiple uses of artificial intelligence, including using a system that cross references people at the border with various social media to ensure that anyone who could be a potential threat does not come in to the United States. Many American companies are also starting to incorporate artificial intelligence and machine learning for cyber-security. This enables companies to identify and address any possible cases of fraud, and other vulnerable situations or suspicious activities that will protect their customer's confidential information [4]. Being as versatile as it is, artificial intelligence is also used in health care, one of the most data intensive industries, because of the importance of each and every one of the millions of patients health records. In health care, AI acts as data analytics in patient care, proven to be even more successful when compared to doctor performance. Even though artificial intelligence has proven to be extremely successful in all of these fields, the idea is still not accepted by the majority and is considered very controversial. One of the most controversial use of artificial intelligence is the proposal of developing artificial intelligence weapons.

ARTIFICIAL WEAPONS: WHAT IS IT?

When most people hear the idea of incorporating artificial intelligence into weapons they typically think of autonomous weapons, which is not the case. Although autonomous weapons are also very controversial on a similar aspect, it is not artificial intelligence, for autonomous simply means automated, and does actually incorporate anything with the idea of the human brain. Saying this, there are many ideas that incorporate both artificial intelligence and autonomous into the same weaponry. These weapons are commonly referred to as a type of Autonomous Intelligent Agents or AIA. AIA are robots that can sense and interact with the current environment they are in, and each type of AIA depends on what type of environment they are in and what their function is. Incorporating, AIA in the military would mean a program would be integrated into a physical system, most commonly referred to as robots [5].

IS DEVELOPING ARTIFICIAL INTELLIGENCE IN WEAPONS A GOOD IDEA?

When faced with a proposal of developing any type of new product it is a necessity to make sure that it will be beneficial, especially something that could potentially could change the world as we know it. Developing artificial intelligence in weapons would affect everyone in the world because it could theoretically alternate the way war is fought. In order to make sure that developing artificial intelligence is the best, we must take a look and understand both sides of the argument.

AI IN WEAPONS: BENEFICIAL OR DETRIMENTAL?

Most effective compared to Alternate Ways

In order to see if AI weapons would be in our best interest, we must compare it to the alternative methods. Our current war situations mainly consists of two different methods. The traditional way dates back to ancient times, which is just man versus man combat. Of course, this method does not mean two people physically fighting until death, because it involves various weapons like guns, tanks, ships, fighter jets, etc. However it still involves putting people's lives in danger, in fact over 5,000 U.S. soldiers were killed in action since 2003. AIA would save the lives of the people who are willing to protect their country, and could have saved those tragically killed 5,000 soldiers. Moreover, AIA is also more advantageous than the other method of war, the one that involves very recent chemical and nuclear weapons. This includes the space-based missiles, nuclear bombs and deadly lasers. The big problem with this method is that is impossible to control once it has been activated to deploy, meaning it could take the lives of innocent civilians that happened to be too close in proximity to set target of said munition. AI weapons could have an option of locating a specific target, and would save innocent lives, because it doesn't affect the same large-scale range as the same as the other weapons [6]. As engineers, we must keep these clear advantages in mind.

Code of Ethics for Engineers

In the previous statement comparing AIA to the traditional way, it is obvious that AIA has the potential to save many lives. If engineers could develop a program that could take a humans place in the line of action, it is hard to see why it is not done. In addition, the same can be said about the other method. If AIA would eliminate the number of civilian deaths, it should be developed. This is actually engineers' ethical duty to do, according to the National Society of Professional Engineering code of Ethics. In section III, Professional Obligations, the second statement says "Engineers shall at all times strive to serve the public interest," and has a sub section that specifies "Engineers are encouraged to participate in civic affairs; career guidance for youths; and work for the advancement of the safety, health, and well-being of their community." [7] This code implies that engineers are expected to do what is best for the public, and saving lives is definitely accounted for in that. If we were to develop autonomous intelligent agents, or any other type or artificial intelligent weaponry that could save lives, it is arguably our ethical duty to do so, as professional engineers.

How does real life Engineers feel about AI?

In order to understand if the code of ethics even more, we must also specify the code of ethics for the right branch of engineering. Since Artificial Intelligence involves developing a program that will implanted in other systems, we should look at the code of ethics for Software Engineering. Under the Principle 1, the public section there statements says "Software engineers shall act consistently with the public interest, In particular software engineers shall, as appropriate, [3] Approve software only if they have a well-founded belief that it is safe, meets specifications, passes appropriate tests, and does not diminish privacy, or harm the environment." [10] To see if a software engineer would develop AI weaponry, the only reasonable step is to ask a software engineer itself. Dennis Ferrer, a software programmer and computer engineer for over 20 years responded in a very professional way. He reasoned that this specific statement plays a large role in how he approaches different development programs. In the specific case of developing AIA's for the military, Mr. Ferrer reasoned that he would in face develop a program that did that. He believes that having it is his obligation to fulfill an opportunity to develop something that could potentially save thousands, maybe even millions of lives. If most other engineers has the same mindset as Mr. Ferrer, then it would only be reasonable to allow this project to go through.

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Role of Morality

Looking at the other side of the spectrum, there are definitely some cons to implementing AIA. The seriousness of AIA is quite startling, and most people are actually against it. If we strip everything back, and just look at the basics of AIA, it is a manmade program that has the power of life and death of a certain individual. Understandably, this concept does not sit well with most people. If there is one substantial thing humans have over AIA, it is morality. Although it may not seem like it, morality plays a huge role in the art of war. A soldier's morality determines the outcome of each and every single one of encounter. There are many documented instances where people's morality came into play, and a positive outcome arose. AIA on the other hand, although can be programmed to act moral, can never be moral. This difference is hard for people to accept, considering the death of someone is not thanks to another human, but to a machine. Having humans fight each other instead of machines allows humans to understand how serious the action they are taking are, instead for just putting someone's death in the blame of machines.

Does AIA Violate War Laws?

In addition to lack of morality, it is also argued that autonomous intelligent agents violated the war laws. One of the concepts of the law of war is on the basis of principles of humanity and AIA clearly violates this notion because it cannot have true humanity that AIA are a threat to global peace, ultimately violating the rules under UN Charter [8]. "They [AIA] are contrary to established custom, principles of humanity, and dictates of public conscience, and so should be considered as preemptively banned by the Martens Clause." Since, artificial intelligence agents do not follow the pre-established set standards, it would be a huge risk for a country, especially United States of America to start a project that involved developing different types of artificial intelligent munition.

What are Potential Outcomes of Implementing AIA'S?

In a letter written by the Future of Life Institute, a representative stated that "If any major military power pushes ahead with AI weapon development, a global arms race is virtually inevitable, and the endpoint of this technological trajectory is obvious: Autonomous weapons will become the Kalashnikovs of tomorrow." The same letter goes on to expand its statement by mentioning that even though AI does benefit humanity, starting a military AI arms race is a bad idea. [9] This letter brings up a good point that engineers must consider; what would happen if America develops AI? They must consider how other countries would react, which could result in anything, including a big retaliation and an AI war.

This open letter was announced at the opening of the International Joint Conferences on Artificial Intelligence conference in 2015. This letter received so much attention, both from supporters and adversaries. However this letter included an astounding number of endorsers, over 17,000, and even more impressive number signatories, over 20,000. As engineers, we must account for this letter and all of its supporters, for we are obligated to do what is in the publics' best interest.

CONCLUSION: ARTIFICIAL INTELLIGENT WEAPONRY SHOULD NOT HAPPEN

After reviewing all of the information it is clear that this project should not go through. The cons simply outweigh the cons. In order for AIA to be successful in this world today it would have to go through a set of impossible steps. It would first have to win over the public's favor, which it currently does not have at all. If for somehow that gets approved by the public, there would have to be millions of dollars to fund this project, to make sure these AIA's or any other artificial intelligent munition is powerful enough to fulfill the tasks given, but also safe enough where it would not be putting innocent civilians lives in danger. Again, even if this idea somehow gets through this nearly impossible development, the outcome could be absolutely dangerous. The reaction from other countries could not be predicted, and to play it safe Americans must play it safe. We cannot take the risk in seeing how they would retaliate, and must assume that worst situation possible; another world war, this time an AIA war. The only benefit that this project seems to bring up is the fact that many lives would be saved, and even though this is a big factor to consider, it does not compare to the disadvantages. Moreover, there are endless possibilities America can figure out to reduce the number of soldiers that are killed in action. Even though it might be hard to accept, it all boils down to the simple fact that the future is relying on the decisions America makes today. The argument simplifies to the decision of which one is more important of fewer casualties but with violating the laws of war set by the UN and the risk of starting another war, or to keep it how it is today. In my opinion, America most pass on this development, because even though there might be some immediate positive outcomes, the long term negative outcome will easily trump it.

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