The Ethical Implications of an Artificially Intelligent Controlled Defence System

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Abstract

This paper sets out to explore the possibility of having an artificially intelligent program run the nuclear defence program of the United States of America. The author explores how reasonable such a program would be and the overall benefits and possible destructive outcomes. The eventual conclusion results in a feasible solution to the problem of retaliation in the event of imminent nuclear impact.

Introduction

Our country is constantly defended against international threats by our military. More destructive technology is being developed and thus our military needs to develop more advanced technological innovations in order to counteract nuclear threats. Systems such as automatic targeting are used in drones and tanks already, but those programs are not sentient, or artificially intelligent. The use of sentient artificial intelligence is a future possibility, although a possibility which should not be considered. Artificial intelligence, the ability for a machine to be self-sentient and also feel human emotion, is able to do what it wants despite original intentions of its creators, because of the ability of self-thinking [1-3].

Literature Review

Nuclear weapons hold the power within them to cause massive damage to people, buildings, cities, countries, or even the world itself. Possibly the most horrifying is the damage to people as they can be damaged from the blast, burns, and nuclear radiation. Damage from the blast can result in internal hemorrhaging, blunt trauma, and suffocation from airborne dust, and ultimately death (Glasstone 554-555). Burn damage is caused by the fireball itself, or secondary fires caused by the explosion; burns which are deadly up to 12,000 feet away (Glasstone 564-565). Thermal radiation can result in burns and extreme temperatures hot enough to set clothing ablaze and develop third degree burns on exposed subjects (Glasstone 565-567).

The known power and pure destruction able to be caused by nuclear devices has led to an increased desire for a defence against them. President Reagan went as far to suggest a laser satellite capable of destroying nuclear missiles after they were launched; showing the fear of nuclear weaponry was so gratuitous that the fantastical was a practical solution (Graham 1). A more practical development has taken place under the Bush administration in which a dome like missile defence system has started to be developed, a system which is capable of intercepting intercontinental missiles (Glasser 1) [4-7].

Defense needs to be quick and effective, in identifying and neutralizing a threat quickly and effectively. Machines are capable of running operations faster than any human, and therefore are a valid candidate for defending our country from imminent threats. Although this seems farfetched the military already uses unmanned drones and tanks which can select and destroy their own targets (Landa 1). However, machines are only able to follow protocol and in an event where a sun glare is mistaken for a nuclear missile, the same event which Stanislav Petrov was faced with, the machine would retaliate, causing nuclear destruction (Kraig 1). Although accidental launching could be avoided through human oversight.

The task of whether a machine should be capable of defending and taking human life is a well-known ethical dilemma. A machine which is capable of deciding whether a human gets to live or die is a terrifying thought, but may be necessary in defending our people. An easy solution would be human oversight, a solution which Robert Sparrow argues, that because of the fast pace of war, would be too slow to be practical ("Killer Robots" 68). However, the 7 km/s speed of an ICBM would result in a 20 minute wait for a launch from Russia, meaning human oversight would not be a problem. Thus a defense system run by machine, capable of response faster than any human, would be ethical as long as human oversight was involved.

Destructive Consequences of an AI Defence System

Defence is arguably the most essential aspect of the United States, whether fighting wars or defending against terroristic threats, danger persists. Danger, however, was never as present as it was during the Cold War, when nuclear threats were a very real issue. Nuclear missiles have the ability to destroy cities, countries, or even the world itself. As Oppenheimer said upon the creation of the atomic bomb, "Now I am become Death, the destroyer of worlds". If Oppenheimer said this about an atomic bomb (15 kilotons TNT), then the nuclear bomb (10,000 kilotons of TNT) would be the destroyer of solar systems. Ever present danger of the nuclear bomb leads to the necessity for a nuclear defence system, which can stop nuclear missiles before they reach their target. Without protection there is the constant threat of destruction of our country. Ergo, a defence system is necessary, but who, or what, should control the defence system?

Humans are slow to react, and upon receiving knowledge of an imminent nuclear threat it takes minutes before retaliation. Minutes of

time allow for the missile to travel hundreds, if not thousands, of miles, enough time to reach a neighbouring country. In contrast, machines are able to run through processes in milliseconds, incredibly fast compared to humans. Time, in terms of a nuclear threat, is crucial and is not to be wasted. Action must be swift and effective, without the possibility of error. Being so, a machine is highly more effective than a human and is faster at making choices, concluding that a machine operated defence system is necessary in order to protect our citizens.

Machine operation of weaponry already exists within our military, as seen in auto-enemy seeking tanks and drones (Landa 1). However, taking the element of human error out of the defence system and replacing humans with machines still allows for some areas of concern. If the machine were to receive a message saying a nuclear missile was inbound then it would retaliate, however if that warning was a sun glare, like the Russians experienced, then the nuclear launch would be unprecedented and we would start nuclear war (Kraig 1). In order to counteract this protocol could be set in place where a human has to authorize the launch sequence (Sparrow, "Twenty Seconds to Comply" 15).

Hacking is another concern for our wellbeing. If our enemies or a terrorist were to hack into our arsenal then they could start war and cause havoc. To prevent this machine would be on a military grade server along with it being encased in lead and having the server not able to be accessed through the internet. These precautions prevent any possible hacking that might take place, while protecting the citizens.

The main area of concern would be the allowing of full autonomy, or making the machine Artificially Intelligent. Artificial Intelligence (AI) in this case would not be necessary and would create the problem of control over the machine. AI would not be necessary because of two key aspects: a defence system does not need to be self-aware and furthermore has no need to feel human emotions. The defence system does not need to be self-aware as it is only destroying incoming missiles and retaliating (Glasser 1). The defence system does not need to feel human emotion, as it is not able to launch without a human allowing it to, and does not need human emotions in order to defend against missiles. Furthermore, with AI control the machine would be able to make its own decisions; this would put the nation at risk and would not allow for human intervention in the machine's decisions.

Conclusion

Thus, it is not ethical for an Artificial Intelligence to control our military defence system, as it can have disastrous consequences. AI controlled weaponry could lead to unknown consequences, although the most likely would be world encompassing warfare. A machine controlled defence system, on the other hand, provides relative safety and would allow faster reaction than one operated by humans. So while it is a feasible, probable, and an effective course of action for our nuclear defence system to be operated via machine, it would bring great peril to the world as a whole to allow the machine to be artificially intelligent.

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