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**IT 104-003**

**Research Paper**

### **Artificial Intelligence and National Security**

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## **Introduction**

Artificial intelligence (AI) is a modern technology where computer machines mimic human behavior, specifically learning from experience and adjusting to new inputs. For the most part, the current AI depends on deep learning to simulate the human experience, with the AI devices possessing the ability to process large amounts of data as well as identifying patterns in data fed to them. The benefits of AI cut across industries, with almost all economic sector identifying specific uses of the technology. The government has not been left behind. Apart from the government embracing AI, it is working towards laying down the necessary legislative infrastructure for the seamless rollout of the technology.

## **Background of Artificial Intelligence**

The word artificial intelligence was first coined in 1956. However, it has become more famous recently after there were increased data volumes, enhancement in computing power and storage, and advanced algorithms in computers and other devices. In the early 1950s, AI studies explored topics such as problem-solving and symbolic approaches (Armstrong, Bostrom & Shulman, 2016). Ten years later, the US Department of Defense became interested in this AI topic and started training computers so that they can imitate basic human reasoning. The Defense Advanced Research Projects Agency (DARPA) completed street mapping project in the 1970s. In 2003, long before Alexa, Siri, or Cortana were familiar names, DARPA had already produced intelligent personal assistants (Russell & Norvig, 2016). It was this early work of DARPA that paved the way for formal reasoning and automation that we see in computers today, which include DSS and Smart Search Systems. Science fictions and Hollywood movies have depicted AI as human-like robots which have powers to take over the world (Dietterich, 2017).

However, the current evolution of technology is not that smart and scary. AI has been evolving to offer several benefits in every industry in the world.

### **The Significance of Artificial Intelligence**

The AI is used in a human-centered manner to help to support and to protect the U.S. servicemen and the citizens in general. The incorporation of AI in the Department of Defense will help in decision making and reducing the risks of the fielded servicemen. The use of AI will also generate military advantage as they will be in a better position to improve their readiness, maintain their equipment as well as reduce operational costs. The incorporation of AI will also help in implementing the Law of War (Hurley, 2018). This will be done through improving the accuracy of mission precision as well as military assessments hence reduced civilian casualties. AI will also help the U.S. government to protect and safeguard its citizens as well as enabling the stronger protection of the U.S critical infrastructure. This will be done through predicting, identifying, and responding to any physical and cyber threats from several external sources. This will protect the country as well as its citizens. Due to its support and protection of the military and the protection, AI will offer to the country, and its citizen makes incorporation of AI in the DoD an opportunity.

Implementation of AI creates an efficient and streamlined organization due to its ability to reduce inefficiencies from laborious, manual, and data-centric tasks will be tackled across the DoD to simplify and enhance the accuracy as well as the speed of repetitive activities. As the AI simplifies and does a lot of the work that was initially done by people, it will enable the human to shift their attention to tasks that require a high level of reasoning and judgment (Hurley, 2018). This makes incorporation of AI technology to an opportunity in matters of national security.

The incorporation in the Department of Defense will enable new technologies to help modern warfighters to automatically analyze big data faster with short timelines than what people can manage. Specifically, deep learning (DL) is an important technology in the new AI revolution. The deep learning revolution has been able to show that its machines are not only able to classify more accurately but also faster compared to human beings (Zhao & Flenner, 2019). The DL technologies have been applied in several commercial applications, and though they not currently designed to solve security issues, its implementation in the DoD will be a good opportunity for U.S. military personnel.

### **Evaluation of Artificial Intelligence from Legal, Social, Ethical, and Security Perspectives**

As stated, the significance of AI in national security cannot be underestimated. However, AI causes several legal, social, ethical, and security issues to humankind. Each issue will be evaluated independently below.

#### **Legal perspective**

Although AI robots are not as smart as science fictions and Hollywood films, depict them, they able to learn from the information that is fed to them from the outside world and thus act differently from what its creators had predicted. Predictability is very important to modern legal approaches, and thus if the AI robots can behave differently to what was expected by the creators, then it will cause serious legal concerns in the world. For instance, the U.S. Defense Department has found that some autonomous weapon systems also referred to as killer robots once activate can select and engage targets without any intervention of a human operator. This would pose a legal challenge to international security due to the threat of international humanitarian law and laws of war.

#### **Social Perspective**

The incorporation of AI has led to cyber-attacks. Internet is vulnerable to hostile intruders through spreading misinformation, disrupting vital infrastructure, or stealing of valuable data. Cyberattacks have several social impacts on the society such as cyberbullying, computer viruses, hacking, cyberstalking, cyber terrorism, cyber photography, botnets, spam, identity theft and even service attacks (Klare, 2018). Due to this, advancement in AI technologies is leading to increased malicious attacks which are becoming a major national security concern. Socially, though the DoD can use cybersecurity to protect its cyberspace, cyberattacks will make AI be a threat to national security.

### **Ethical perspective**

Artificial intelligence poses serious ethical issues to human beings. The issues can be categorized into machine ethics and robot ethics. Ethical concerns under machine ethics are the probability that robots and computers may acquire autonomy and to what extent can they use the capabilities and possible threats that they can cause to people (Veruggio, Operto&Bekey, 2016). Robots ethics will arise due to the requirement of robot rights, which are the moral obligations that society has on its machines, which include the right to liberty, freedom, life, and equality before the law. The use of robots will lead to ethical concerns since robot rights will be required to govern the above aspects, just like human beings and this will be a threat as the DoD cannot hold robots or machines accountable to any unnecessary attacks that may be made by robots or machines such as hypersonic weapons that are being produced due to AI technological development. Ethically, the implementation of AI technologies in the DoD will pose a threat to our national security if not controlled probably.

### **Security Perspective**

The innovation of AI has led to many security concerns all over the world. A report that was published by Cambridge University showed that AI could be used in the creation of cyber-weapons, where computers using AI can impersonate and cause terror during the war. With the use of AI, hacking will also become more sophisticated as the machines can read and obtain data from different software easily (Hamet & Tremblay, 2017). This means that terrorists can easily hack military software and use the data to plan how they will attack them. If through cyber-terrorism, DoD's plans are going to be accessed by the terrorists through hacking, then the implementation of AI technologies will become a threat as its systems will become compatible to those of terrorists who may be using AI to carry out their attacks.

### **Conclusion**

This paper has discussed the importance of AI to the national security and some of the legal, social, ethical, and security issues associated with the use of AI. AI has proved to be beneficial to human beings, especially when supporting and protecting the servicemen, the country, and its citizens. It will also lead to an efficient and streamlined organization in the DoD as it reduces ineffectiveness from manual and laborious tasks harnessed across DoD quicker and accurately. Finally, it will help warfighters in analyzing big data faster, and this gives human beings time to engage in tasks of decision-making and judgment. However, the use of AI poses some problems to humans such as doing things that cannot be held accountable, increased security concerns such as making hacking easier, creation of Cyberweapons and hacking of DoD's data by terrorist and thus plan ahead of the military in countering of the attacks that servicemen may have planned on them. Though the use of AI will pose some challenges, with strict regulation, most of legal, social, ethical, and security concerns can be addressed. Even so far, there have been very few cases of the issues discussed and therefore based on the

significances of AI discussed in this paper; I believe AI will be more of an opportunity to the national security than a threat.

#### **Citation**

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