

Forum: The First General Assembly

Issue: The Question of Creating a Framework to Regulate the Military Use of Artificial Intelligence

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Introduction

It is assumed that artificial intelligence is a fairly new form of technology, and in its own way it is. The basis of the concept has existed since 1956 in a conference at Dartmouth college, however the mass propagation and use of artificial intelligence into daily human life has only begun recently.

Sales for Artificial Intelligence in the enterprise world have skyrocketed by 172% in the past few years and this is only because of its applicability in almost every field, and its various uses that it pertains, which is mostly due to its customization ability, and one of those fields is military usage. Although according to the U.S. director of the Information Innovation Office at the Defense Advanced Research Projects Agency, the military use of A.I is still in its early days, as global conflicts rage on, the progression of artificial intelligence pushes forward, such as with the creation of The State of Israel's Iron Dome.

However, although A.I. in the military is becoming more prevalent, humanity must take significant note of the ethical concerns of its use. In 2020, the world saw the United States use artificial intelligence within a drone to kill one of Iran's top leaders and the world understood the capabilities of A.I. in combat.

During the 1960s, the world saw the two major global powers fight in the arms race in the rush to make as many powerful nuclear warheads as possible; in the 2010s, the world is now seeing the world fight in a new arms race - the race to develop artificial intelligence for military usage. Military usage of artificial intelligence is a subject that must be taken as critically as previous arms races to avoid another MAD (Mutually-Assured Destruction) doctrine.

Definition of Key Terms

Arms Race

The arms race refers to a competition between nations in the feats and accumulation of weaponry for strategic advantage. The arms race was a significant event in the 1960s between the two global superpowers at the time; The United States and the former Union of Soviet Socialist Republics (USSR) in which both nations raced to accumulate and develop the most amount of nuclear warheads in the time they both had.

Artificial Intelligence

Artificial Intelligence is an abstract concept that denotes the development of computer systems and machine learning in order for technology to perform tasks that would usually require human intelligence. The term 'artificial intelligence' is often shortened to its initials, "A.I." and its basis mainly consists of complex algorithms designed specifically for a certain scenario.

Casualties

Casualties refer to the people that have been killed or injured in a war or accident

Data

Data refers to facts and statistics that are accumulated together for reference or analysis. In terms of artificial intelligence, it is the information that gives an A.I. system its life, and dictates what actions the A.I. must be outputting for a specific scenario

Framework

A framework is defined as a set of rules or guidelines of a certain concept, and aids to give it its primary structure. The purpose of a framework is to give clarity to a concept, and outline how a concept would be used and what it's forbidden to perform. These are usually voted into by the international community.

Ground Forces

The term 'ground forces' refers to a section of the military that operates on land, rather than the two other common forces in the military: sea (naval), and aerial. Ground forces are primarily considered the main forefront of a battle, with the ground forces often operating equipment such as hand weaponry, turrets and tanks.

Lethal Autonomous Weapons

Lethal autonomous weapons refers to artificially-intelligent weaponry that, through their embedded algorithms and inputs, can control themselves and shoot. The term 'lethal autonomous weapons' is often shortened to its initials, LAWs. They're primary goal is to simply locate targets and engage with them based on what the algorithm and underlying program asks for. They often come in the form of sentry guns.

Military

A national group of armed forces and soldiers for the sole purpose of global offense or defense. The military has multiple branches of combat (ground, naval, aerial), and multiple branches of research (such as Defence Research and Development Organisation, Defense Advanced Research Projects Agency, etc.).

Military Advantage

A military advantage or edge refers to a military's ability to counter anything classified as a military threat from any state, coalition of states, or non-state actors

Servers

A server can be described as the central hub for all things that have to do with computational programming. Its purpose is to manage access to centralized resources in a network, and allows for coordination between computer systems.

Targeted Killings

A targeted killing refers to a killing of a specific person that was initiated by another nation through certain motivations. These motivations might consist of evidence of an attack, for the motif of ethnic cleansing, etc.

Key Issues

Access to Classified Data

One of the key components of Artificial Intelligence which makes it what it is, is its primary use of data which enables computer systems to perform the necessary or needed actions. However this comes with an issue; the data needed to perform military action is mostly classified and involves information regarding military endeavours, and so those who are tasked with building artificial intelligence have

access to classified data.

Selling Classified Data

Data has become very volatile as military information becomes more and more crucial to be kept classified, usually for the purpose of military advantage. With this being said, data can often be sold to opposing nations to gain an edge on their competitors, especially in situations such as an arms race. One instance of selling data came in 2021 when two men, Sarfraz Yousuf and Marc Chavez, were arrested for illegally acquiring and selling U.S. Air Force technical orders and aerospace data to foreign customers for profit.

Unlawful Targeted Killings

One of the most famous uses of A.I. in the military is the creation of military drones, which have been used for multiple uses, such as surveillance through its unmanned aerial vehicle (UAV), or combat through its unmanned combat aerial vehicle (UCAV). However, these drones have often been the cause of unlawful targeted killings to give a certain country a military advantage.

Possible Motivation

If the nation of the victim of a targeted killing sees the killing as unlawful and uncalled for, the nation may utilise this as a motivation for war or a general attack. One recent example of a targeted killing that the United Nations deemed unlawful was the death of Iranian general, Qasem Soleimani, on the 3rd of January, 2020, initiated by the United States.

Ethical Concerns

Another major concern that comes with implementing artificially intelligent machines are the many ethical concerns. In the field of artificial intelligence, a sub-field has been under development, aiming to tackle issues that come with ethical implications. One of the major philosophies within A.I ethics is Asimov's Three Laws of Robotics: A robot may not injure a human being, a robot must obey the orders given it by human beings and a robot must protect its own existence

Potential Violations of Privacy

As stated earlier, A.I. is predominantly based on the premise that data must be accessible at all times, however the extent of the data may cause an issue. A major ethical concern is privacy, causing the general public to raise questions regarding the intentions of the military with data of said general public, and how much they know about every person.

Algorithmic Errors Causing Bias in A.I.

Societal A.I. Bias refers to an output of an artificially intelligent system that reflects social intolerance and institutional discrimination which is usually caused by issues within an A.I's underlying algorithm. One infamous example of this is Twitter's image-cropping algorithm, in which if you upload two images of two people, one being a Caucasian and the other being a person of color. Twitter's algorithm would automatically only center the image of the Caucasian person, no matter how you order the images.

Environmental Concerns

Although A.I. has currently been under development to be used to detect carbon emissions and to reduce them in its fight against climate change, A.I. still emits lots of carbon dioxide itself. According to a study from the University of

Massachusetts, training a large A.I. model to learn and deal with human language can lead to emissions of nearly 300,000kg of carbon dioxide, which is roughly equivalent to five times the emissions of an average car in the US. These kilograms of carbon emissions come from the servers that help to operate and power artificially intelligent systems and autonomous weapons.

Major Parties Involved and Their Views

United States of America

The United States of America is a leading power in artificial intelligence development and has often used it for the pursuit of training their soldiers, such as through the development of flight simulators to simulate the harshest conditions a pilot would have to endure in times of war. According to the Pentagon, the United States military has been devising methods that would allow artificial intelligence to control weapons when needed which would seemingly result in a downfall of casualties in war for those using A.I. They have used their many technologies to track international criminals or to initiate strikes, rendering A.I. as an offensive tool for the United States, however often their actions have been considered unlawful by the international community which has increasingly raised the stigma of A.I.

People's Republic of China

The People's Republic of China has made significant achievements in artificial intelligence through the development of unmanned surface vessels in its pursuit to dominate its presence in the South China Sea. China has also been documented to have been testing unmanned tanks and weaponry as part of its research and development into ground forces. China's developments into cyber and A.I. warfare has caused members of the international community that China's military will

utilize artificial intelligence to dominate in cyber and outer space. This offensive mechanism allows them to stay dominant in its region and to push combat to any front they will.

State of Israel

The State of Israel's main military endeavours revolve around defense against its surrounding nations and borders in preparation for any form of attack from any nation due to its controversy. Henceforth, Israel has made significant feats in the military use of artificial intelligence, such as through the invention of the aforementioned Iron Dome, a metaphorical dome that refers to an air-defense system designed to intercept and destroy short-ranged rockets from 4km away. In fact, Israel's recent operation against Hamas and Palestinian non-state actors in the Gaza Strip was considered as the world's first A.I. war, in which Israel's main component and power multiplier in the conflict was its artificially intelligent devices.

Islamic Republic of Iran

The Islamic Republic of Iran has primarily been putting their research and development of artificial intelligence into their air and navy forces. Iran's primary feat in artificial intelligence is their A.I. LAWs that allow for the coordination of boats, tanks, planes and drones in an attack. This A.I. system has been proven to be useful in war after tactics involving the system were utilized against the Islamic State in 2019. Iran is considered as a considerable power in the feats of weaponry and its development, using most of its money to be moved towards nuclear warheads and artificially intelligent based LAWs. In fact, the United States' sanctions on Iran and the death of one of their highest generals have further motivated the country to invest more money into their A.I. sector in their military.

Islamic Republic of Pakistan

In 2014, the first informal meeting of the Group of Governmental Experts (UNGGE) led by Ambassador Simon-Michel of France had begun and it pertained to one main purpose; to review the Convention of Certain Conventional Weapons. Within the review, the GGE discussed LAWs, and there were five countries who opposed this concept and called for a preemptive ban on autonomous weapons; Cuba, Pakistan, Egypt, Ecuador, and the Vatican. The primary reason why Pakistan opposed the idea was due to its long-lasting history with the United States, in which the US has ordered many drone strikes on Pakistan and used many LAWs on Pakistani soil, and that the concept of autonomous weapons would make the strikes even more harsh for Pakistan.

Republic of Korea

The Republic of Korea has been a strong nation in the feats of developing LAWs and other systems in the military embedded with artificial intelligence. South Korea has consistently been ahead in the arms race when it comes to dealing with A.I.. This statement comes with the fact that in 2015, an arms manufacturer in Daejeon, South Korea, was able to develop a gun turret that had the capability to identify targets and perform the necessary engagement that it had been intended to perform from 4km away. These forms of innovation prove that South Korea is a leading figure in the race for developing artificially intelligent LAWs and allows the nation to have a military advantage against its northern counterpart, North Korea.

Development of Issue/Timeline

Date	Event	Outcome
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1950	Alan Turing, the English scientist known for cracking the Nazi Enigma Code, publishes a paper regarding the possibility of autonomous machines.	This would soon lead to the creation of the Turing Test, a test to examine the intelligence of a machine based on conditions and instructions
1956	In a conference at Dartmouth University, John McCarthy coins the term ‘artificial intelligence,’ and its concept is discussed for the first time	This would soon lay the building blocks of modern-day artificial intelligence and machine learning
1958	The United States Department of Defense creates the Advanced Research Projects Agency (now named DARPA) to fund the research and development of using A.I. with military strategies	This would be the beginning of the United States’ endeavors into artificial intelligence application into the military
1991	The United States military uses the A.I.-based Dynamic Analysis and Replanning Tool (DART) funded by DARPA to schedule transportation of personnel or supplies. The system also aids in solving logistical issues.	This advanced usage of artificial intelligence allows for a gateway into daily use of A.I., and allowing to become an integral part of the military’s endeavors
2006	The Republic of Korea’s Samsung Group develops the first ever autonomous sentry gun turret to be placed outside the 38th Parallel’s	With Korea developing the first ever sentry gun turret that is capable of operating itself, Korea places itself at the head of the A.I. arms race, and

	Demilitarized Zone (DMZ), capable to identify and engage targets	proves itself to be a threat to North Korea due to its advanced technology.
2017	The Russian Federation unveils a set of A.I.-powered robots with guns	This sets the stage of A.I.-powered armies and soldiers, eliminating human casualties
2018	The United States' Department of Defense develops Project Maven, a combination of deep and machine learning to autonomously find objects of interest from drone videos or images	This allows the United States to use artificial intelligence to perform human tasks, nearly completely eliminating the existence of human error
2020	The United States launched a drone strike near Baghdad international airport targeted and killed Iranian general, Qassem Soleimani	The United States violated the international human rights law and the United Nations termed this strike as 'unlawful'
2020	In Libya, a Kargu 2 drone engaged an enemy and attacked him according to the UN Security Council's Panel of Experts on Libya. This was the first recorded event of an autonomous robot armed with lethal weaponry attacking human beings.	From this event onwards, the world will begin to see the transition of utilizing drones in battles and wars, and will witness more and more of such deaths in the coming future.

2022	The European Union Legal Framework for A.I. will be officially put into action within every nation in the European Union. This will be the first ever legal framework voted into law	With this framework being initiated in 2022, the world will see a major shift into the fourth industrial revolution (Industry 4.0) and implementing A.I. into daily use and refined to be used in the military.
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Previous Attempts to Solve the Issue

The European Union Legal Framework for A.I.

The EU Legal Framework for A.I. is a framework that aims to provide a clear set of definitions and ethical principles, including its use in the military. It suggested three main aspects to be taken into note with the development of A.I. - it is obligatory for nations to ensure that A.I. is under human oversight, A.I. should not replace human contact in any form in the public sector, and to look over rising issues of mass surveillance and deepfake technologies. The Framework's purpose is to address risks specifically created by A.I. applications, provide guidelines around certain assessments prior to an A.I. system being put in service, and propose enforcement after such an A.I. system is placed in the market. This was a good idea to unite the European Union under a new front, however it does have many limitations that only support a quarter of the private sector of a country.

Possible Solutions

Abiding by Ethical Concerns

One key piece of a framework to regulate the usage of artificial intelligence in the military is to abide by ethical concerns and ensure that the A.I. that is in question does not violate any ethical issues. By doing this, multiple issues can be

avoided, such as eliminating any issues with discrimination and bias, and emphasizing the implementation of Asimov's Laws, and additions to said laws.

Abiding by ethical concerns and implementing new and developed laws would aid heavily in removing the stigma around lethal autonomous weapons around the globe, especially to nations such as Pakistan, Egypt and Cuba, all of whom are known for calling for the preemptive ban on LAWs. Removing the stigma will aid the international community in moving towards Industry 4.0

Ensuring Safety of Data

Since data is a very precious asset in the field of artificial intelligence, it must be very secure and kept as safe as possible. Hence there are many ways to ensure its protection - one would be to develop a form of encryption only understood by those who have been authorized to access A.I. data.

Another method of protection would be to conduct background checks on all those who handle A.I. data. This would give a better sense of security when handling data of high priority and importance, and would also reduce the chances of said data being misused or mishandled by foreign powers.

Development into Greener Sources of Servers

As stated earlier, one of the significant key issues that come to utilizing artificial intelligent systems are their environmental concerns. Although the amount of its carbon emissions vary on how large the system (and its server is), it is still a problem for those who are looking to implement greater amounts of artificial intelligence into the military. Hence a framework that aims to regulate military usage of artificial intelligence should outline methods on either two concepts.

Either a framework should provide a cap that would limit the amount of carbon emissions coming from servers of A.I. systems, or a framework should provide methods on how to implement energy-efficient servers that take their energy from renewable sources, such as solar or hydroelectric, depending on the region the servers are located.

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Appendix

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