



## The use of Artificial Intelligence in Warfare

General Assembly 1

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## Introduction

Artificial Intelligence (AI) is becoming a critical part of modern warfare. Compared with regular systems, military systems equipped with AI are capable of processing large amounts of data much faster. Additionally, AI improves self-control, self-regulation, and self-actuation of combat systems due to its inherent computing and decision-making capabilities. Although a seemingly perfect way to wage war with minimal human casualties on the battlefield due to the lack of actual human soldiers, AI and autonomous weapon systems are not without their critics. Currently, the effect of AI on warfare is nebulous at best, but as the Russian leader Vladimir Putin put it (2017) "Artificial intelligence is the future, not only for Russia, but for all of humankind. It comes with colossal opportunities, but also threats that are difficult to predict. Whoever becomes the leader in this sphere will become ruler of the world."

## Definition of Key Terms

### **Artificial Intelligence (AI)**

The science of making intelligent machines, especially intelligent computer programs. AI is designed to be able to learn, therefore making it far more effective with minimal human supervision

### **Autonomous**

Any weapon system that is capable of releasing a lethal force without the overseeing of a human supervisor, which raises the question of if humans have any control over a fully autonomous weapon that are actively killing people.

### **LAWs (Lethal Autonomous Weapons Systems)**

Weapons systems that use artificial intelligence (AI) have full autonomy when eliminating their target.

### **UAVs (Unmanned Aerial Vehicles)**

An aircraft piloted by remote control or onboard computers.

## General Overview

Warfare has always played a huge part in the history of humankind. And with it comes technological innovation. In the eyes of 'the World Economic Forum', the history of warfare and the history of technological innovation are one and the same. Regardless, it comes to no surprise that the introduction of AI at the battlefield will

have major consequences on how we engage in warfare and by extension diplomacy. We have seen examples of this throughout history. Take for example the Crimean war (October 1853 to February 1856) where the two of the five most powerful countries at the time went head to head: Britain and Russia. In the first large-scale battle since Napoleon, the world was about to realize how much had changed since then. Despite the technological advancements made concerning weaponry, the battle tactics stayed relatively the same. The British used the battle tactics of Napoleon, which soon proved to be useless against the new long-range guns of the Russians. With flamboyantly dressed generals on horseback being easily picked off, the thought to be a small skirmish was turning into a full-scale war. This was one of the clearest examples of how everything changes on the battlefield due to technology. Tactics, diplomacy, public support, and of course the weapons themselves, all would experience a sudden change where only the most adaptable countries would come out on top.

The other side of this problem is of course an ethical one. What happens if humans lose control over their autonomous weapons through AI during the course of a war? Indeed AI and modern/future technologies could potentially lead to the use of Lethal Autonomous Weapons Systems (LAWs), sometimes referred to as 'killer robots,' and for good reason. These LAWs would be capable of targeting and eliminating military targets without human intervention. What differs LAWs from UAVs is that there is practically no human decision-making. There is no one essentially 'pulling the trigger.' The fate of the person who has been targeted lies in the hands of an algorithm. When the weapon encounters someone the algorithm perceives to match the profile of their target, it activates.

Some of the defenders of AI development in the military field, such as U.S Defense Secretary Ashton Carter, argue that such technology will never truly be autonomous as AI will always need human intervention for decision making. Something that has been contradicted by the U.S multiple times. It is clear that countries all across the globe believe that AI is the future of warfare. Militaries have been incentivized to research and develop AI ultimately to improve the efficiency and effectiveness of their armies. These incentives are not only led by an atmosphere of increasing military competition but are also a result of internal political calls for the development of autonomous weapons systems. Most governments will seek to legitimize such research by suggesting that AI will be able to perform the same tasks as humans, but with a lower financial and human cost. By looking at the USA for instance, a country with a long history in military prowess, we can observe that its military has shifted from AI-related research and development to the deployment of these technologies with the objective of increasing its armed forces' operational effectiveness and efficiency on the battlefield. This increase has been clearly shown during the Bush and Obama administrations with the increasing development and deployment of drone systems in both Iraq and Afghanistan.

The USA spending on Unmanned Systems grew from \$283 million in 2000 to \$7.5 billion in 2018. Furthermore, the Department of Defense has requested a budget of approximately \$9.39 billion for unmanned systems and technologies for 2019 with the addition of almost 3,500 air, ground and sea drones to the USA's current arsenal. Furthermore, funding for projects to improve these UAVs are given readily, such as the Pentagon's Artificial Intelligence program and Project Maven. The USA has now entered its Third Offset Strategy aiming to "exploit all the advances in artificial intelligence and autonomy and insert them into DoD's (Department of Defense) battle networks to achieve a step increase in performance that the department believes will strengthen conventional deterrence." Unlike the two past Offset Strategies (First Offset Strategy involved nuclear devices and delivery capability, Second Offset Strategy involved conventional capabilities and precision strikes) the U.S. military will face a controversial aspect of this new technology: the potential autonomy of lethal weapons systems. Considering this it seems that the USA believes AI in warfare to be on par with nuclear devices, making regulations concerning the creation of these weapons of utmost importance.

However, the future of AI in the military is directly tied to our ability to design AI in general. If society wants AI in everyday life, AI in the war would be inevitable. This is an unusual but not unique side-effect of this issue. If the UN were to ban the development of AI completely for fear of powerful AI's in warfare, it would mean that the commercial side of AI's would be lost. Regardless there are no autonomous weapons (officially) yet, however, there have been huge efforts globally, especially for more militarily focused countries, in the research and development of autonomous weapons.

Considering that as far as we know none of them is operational yet, it is the best time to preemptively create rules and regulations concerning these weapons. A necessary component in the creation of these rules is properly defining the term "autonomous" in the context of AI. Organizations such as the International Committee of the Red Cross (ICRC) have attempted to do so: "Any weapon system with autonomy in its critical functions – that is, a weapon system that can select targets without human intervention." On the other hand, you have countries such as the UK's Ministry of Defense, defining it as "capable of understanding higher levels of intent." Both definitions are vague or insufficient. This issue presents a number of problems to the UN such as how might member states influence defence acquisitions reform initiatives that facilitate military AI development, or how should the UN oversee member states to make sure they follow the inevitable rules and guidelines that will be formed. In conclusion, there is a lot to work on with this issue. A lot of the AI's are still in their early stages of development so it is hard to predict what exactly the effects will be. Nevertheless using history as our example it is possible to make guidelines to at least make the AI's safer, if not ban them completely.

## Major Parties Involved

### The United States of America

They are very invested in the development of these advanced weapons. With projects such as Project Maven getting major investments in the first six months the USA seems determined to win what is essentially a modern-day arms race. America would in theory be in favour of restrictions to AI in warfare but would need a guarantee that the entire world would have to follow those rules. Since that is practically impossible, America might be hard to persuade concerning possible restrictions and be more interested in allegedly ensuring the safety of their country.

### The Russian Federation

As the leader of the Russian Federation, Vladimir Putin has expressed his beliefs on the topic of AI in warfare. As he stated he believes that the country that has the most advanced AI weapons will have the potential to essentially rule the world. It is, therefore, to be assumed that, just like the USA, Russia will be investing heavily in the research and development of AI weaponry. Regardless of their desire to develop the first AI's for warfare which would give them an incredible advantage in warfare, it is unlikely that the Russian Federation will want to engage in another Cold War like the situation with America and possibly the Peoples Republic of China. Considering the damage that did to their economy last time, they might be amenable to AI restrictions, as long as America and China follow these as well.

### Peoples Republic of China's

As a fast-developing major power, it is to be expected that China would show major interest in AI in warfare. China is already producing UAV's on mass and developing them quickly. China has been known to, knowingly or not, supply terrorist organizations these UAV's (see research report: "intercepting weapon flow to rebellion groups") and so if they develop AI's for warfare first, there is a very real risk that these groups would also get their hands on those weapons. Realistically it is unlikely that if China would acquire these weapons first it would be unlikely that they would go to war, the main reason China would want to acquire the weapons is to establish dominance on the world stage and assert itself over the USA.

### The United Kingdom

Before 2018, The United Kingdom wanted to "forge a distinctive role for itself as a pioneer in ethical AI." This decision seemed to be based on the fact that the UK would not be able to out fund richer countries like China or the United States in the research and development of AI. However, in an unexpected twist, the UK seemed to abruptly change its mind. Officially, the UK is still against AI, but they refuse to join

most other UN members that want to ban this technology outright. The Ministry of Defence has suggested that AI-powered autonomous weapons may be achievable to make and use in warfare as soon as 2030.

## Timeline of Key Events

1965	The field of AI is formally founded, this is also where the term “AI” was coined.
1974-1980	Known as the “AI winter”, developing AI proves more difficult than predicted and interest and funding decrease.
1980	Interest reignites as John Hopfield and David Rumelhart popularized “deep learning” a process where AI can learn using experience.
1997	Computer storage improved drastically and making more advanced AI’s suddenly becomes very possible.

## Previous attempts to resolve the issue

In 2019 the UN office for disarmament Affairs (UNODA), the Stanley Center and the Stimson Center partnered in a workshop and series of papers to facilitate a multistakeholder discussion among the Member States and experts from industry, academia and research institutions, with the aim of building an understanding about the peace and security implications of AI. This discussion mainly revolved around the perspectives of the USA, China and Russia. It is intended to be a starting point for further discussion about the issue.

Additionally, in December of 2021, the UN held the ‘Convention on certain conventional weapons’ in Geneva. This convention happens once every five years and this one was concerning the possible ban of autonomous weapons, commonly known as ‘killer robots’. Unfortunately, no resolution passed and it serves as a grim reminder of how difficult it is to make countries agree on this particular issue. Despite all this, it seems like the UN does want to move towards banning AI in warfare, but it will be a long and arduous process with no clear consensus in sight.

## Possible Solutions

Possible solutions could include stricter regulations and rules concerning the use of AIs. A clear definition of “autonomous” in AI is also crucial, ask to prevent countries

from using an extremely loose definition of the term to avoid rules and regulations. A more radical but effective strategy would be to completely ban the development of AI to ensure that AI will never be implemented in warfare. Another option could be making an NGO research how much AI would affect future warfare, to solve this issue information is key. It is also important to remember the commercial aspect of AI. To solve this issue you must find the right balance between funding for AI for (allegedly) commercial use only and how to regulate that.

## Appendix/Appendices

### **Appendix A.** The implementation of AI in modern warfare

- [\(PDF\) Artificial Intelligence and Modern Warfare | jean patrick clancy - Academia.edu](#)
- [8 Key Military Applications for Artificial Intelligence in 2018 \(marketresearch.com\)](#)
- [\(1\) \(PDF\) Pros and Cons of Autonomous Weapons Systems | Amitai Etzioni - Academia.edu](#)

### **Appendix B.** Definitions of AI throughout history

- [Homepage - Lethal Autonomous Weapons](#)
- [What is Artificial Intelligence \(AI\)? | IBM](#)
- <https://www.livescience.com/49007-history-of-artificial-intelligence.html>
- <https://sitn.hms.harvard.edu/flash/2017/history-artificial-intelligence/>

### **Appendix C.** Current standing of AI

- <https://www.un.org/disarmament/the-militarization-of-artificial-intelligence/>
- <https://www.livescience.com/49007-history-of-artificial-intelligence.html>
- <https://sitn.hms.harvard.edu/flash/2017/history-artificial-intelligence/>
- <https://sgp.fas.org/crs/natsec/R45178.pdf>

## Bibliography

8 Key Military Applications for Artificial Intelligence in ...

<https://blog.marketresearch.com/8-key-military-applications-for-artificial...>

What is Artificial Intelligence (AI)? | IBM

<https://www.ibm.com/cloud/learn/what-is-artificial-intelligence>

[\(1\) \(PDF\) Pros and Cons of Autonomous Weapons Systems | Amitai Etzioni - Academia.edu](#)



Homepage - Lethal Autonomous Weapons

<https://autonomousweapons.org>

The Militarization of Artificial Intelligence – UNODA

<https://www.un.org/disarmament/the-militarization-of-artificial-intelligence>

A Brief History of Artificial Intelligence

<https://www.livescience.com/49007-history-of-artificial-intelligence.html>

The History of Artificial Intelligence

<https://sitn.hms.harvard.edu/flash/2017/history-artificial-intelligence/>

Updated November 10, 2020 - Federation of American Scientists

<https://sgp.fas.org/crs/natsec/R45178.pdf>