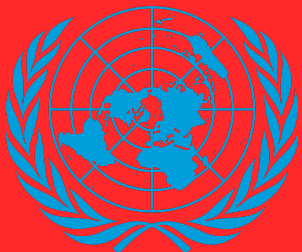


Special Conference 1

The Militarization of Artificial Intelligence



Forum:
Issue:
By:
Position:

Special Conference 1
The militarization of artificial intelligence
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Secretary General

Introduction

The rapid pace at which technology advances today is, in many ways, a double-edged sword. The 21st century has seen many controversial technological and scientific debates draw worldwide attention - none of which are more relevant than artificial intelligence. Perhaps the most potentially limitless tool in mankind's arsenal, AI's existence poses both a threat and opportunity to humanity, and it's critical that its usage is approached with the utmost caution and open-mindedness. Although we seem to be a step away from seeing androids capable of true independent thought, artificial intelligence is no longer a far-off concept, and it's critical to erase the belief that it is. Today, AI in many forms is used to perform tasks more efficiently and fervently than any human could. Social media uses AI algorithms to personalize advertisements based on the user's online activity. In the healthcare sector, machines capable of diagnosing patients see a large degree of success. Tech giants such as Google and Microsoft own functioning facial recognition tools. Furthermore, innovations such as autonomous cars and capable digital assistants are on the front page every other day. However, AI can be equally deadly as it is productive - if not more - when used in the wrong ways. The questionable and unregulated application of AI into the battlefield is a topic which concerns the very near future of warfare. In 2017, Harvard's Belfer Center predicted that Artificial Intelligence may be as transformative to common warfare as nuclear weaponry and even weaponized aircraft. Internationally, there is huge interest and funding in R&D regarding the militarization of AI. Fiscal reports for 2022 have shown \$874 million in funding allocated to 'artificial intelligence projects' by the US Department of Defense. Furthermore, a recent study by the Georgetown University Center for Security and Emerging Technology reported that the People's Liberation Army (PLA) of China spends an average of \$1.6 billion on AI-related projects. In his 2018 agenda on disarmament, *Securing Our Common Future*, Secretary General António Guterres stated that, "Arms control has always been motivated by the need to keep ahead of the challenges to peace and security raised by science and technology." AI is here now, there's no question about it. As recently as June 2022, China's Sunway supercomputer AI ran 174 trillion parameters - rivalling the capacity of our own human brain. It's of the utmost importance that we race against the rapid development of AI to plan for potential issues, and protect those involved from the great threat to peace AI could pose - if used in the wrong ways.

Perhaps the most troubling prospect is the possibility of a new global arms race in which the U.S., China, Russia, Iran, Israel, the European Union and others rush to develop fully autonomous drones. The U.S. Air Force is already testing an AI-controlled fighter jet.



Key Terms

Narrow AI vs Artificial General Intelligence (AGI)

Artificial Intelligence is an umbrella term which encompasses a vast branch of computer science, concerned with the creation and development of machinery capable of replicating human behavior and intelligence. AI can be generally categorized into two forms: Narrow AI and AGI. The latter is purely theoretical; AGI describes a program's ability to be applied to virtually any scenario, capable of adapting to the problem presented to it. Narrow AI describes instances of adaptable programs created for very specific scenarios - a chatbot, for example. As such, we'll be dealing with Narrow AI when discussing its application into military endeavors.

Machine Learning

Machine Learning is one of the most fundamental types of AI generally used today. Machine Learning is used to complete minimally difficult tasks humans are also capable of; albeit at a faster pace than us. When given a set of data, an AI can cluster the items into groups, seek out and detect anomalies, identify association between variables, and even - given time - eliminate redundant/repetitive variables. Machine Learning AIs can fall into several subsets, including supervised, semi-supervised and unsupervised learning. This describes the extent at which humans aid in the AI's 'learning' process.

For example, the AI could be given labeled data, or it could be given unlabeled data and required to draw its own conclusions. Today, Machine Learning is most used in tasks such as detecting instances of fraud/spam, personalizing social media feeds, and even to prioritize messages and emails based on previous interactions. This in mind, Machine Learning is no doubt used in hundreds of targeting systems and navigation tools for the military, even if most of these end up undocumented.

Lethal Autonomous Weapons (LAWs)

LAWs are likely the most common militaristic application of AI. LAWs are capable of independent target-seeking and engaging. Although the majority of advanced LAWs today are Anti-Airdevices, LAWs may also operate on water or in the air.

Examples of currently operating LAWs include Israeli 'Trophies' as well as the US-based 'Patriot' missile systems. Currently, most LAWs are made use of defensively - however, they hold huge potential for offensive use, and so must be regulated before they become mainstream.



Militarization

Militarization is the cultural, symbolic, and material preparation for war. As recent research in anthropology has shown, militarization and the presence of state militaries influences much of the ‘everyday life’ in many societies and cultures around the world, both explicitly and subtly. Most importantly, militarization is an intentional process, something a state or group must set out to do; as Margaret Mead wrote, war – and in this case, the preparation for war – is not a ‘biological necessity’. Rather, militarization and the development of military institutions are explicit projects, but are often cloaked in discourses of biological inevitability. Militarization programs often trade in and promote ideas about innate violence and the naturalness of military values.

General Overview

Artificial Intelligence (AI) has the potential to improve the health and well-being of individuals, communities, and states, and help meet the UN’s Sustainable Development Goals. However, certain uses of AI could also undermine international peace and security by raising concerns about safety and security of the technology, accelerating the pace of armed conflicts, or loosening human control over the means of war.

The Danger of Human Absence

The political and social implications of AI are very rarely considered - discussions usually fall under scientific and technological headings. Although AI is a very exciting tool for humanity, with potentially limitless benefits, it’s important to think of what that means for us. What exactly does a world where humans don’t make decisions look like?

Releasing any form of independently capable machines into battle is a huge risk. Today, gun control in the US is a mainstream topic: it’s argued that guns don’t belong in the hands of untrained citizens. How then, would we feel safe putting weapons in the hands of apathetic, emotionless machinery? Removing our involvement completely is a concept which shouldn’t be in debate - humans should always have the final say. In fact, in a 2021 report, Michelle Bachelet, UN High Commissioner for Human Rights, affirmed this sentiment - warning that applying Artificial Intelligence to areas involving human rights could ‘have negative, even catastrophic effects’.

Potential Risks of Military Applications of Artificial Intelligence

The risks of introducing artificial intelligence into national militaries are not small. Lethal autonomous weapon systems (LAWS) receive popular attention because such systems are easily imagined and raise important security, legal, philosophical, and ethical questions. Multiple other risks from military applications of AI that pose challenges to international peace and security can be identified. Militaries are likely to use AI to assist with decision making. This may be through providing information to humans as they make decisions, or even by taking over the entire execution of decision-making processes. This may happen, for example, in communications-denied environments or in environments such as cyberspace, in which action happens at speeds beyond human cognition. While this may improve a human operator’s or commander’s ability to exercise direct command and control over military systems, it could also have the opposite effect. AI affords the construction of complex systems that can be difficult to understand, creating problems of transparency and of knowing whether the system is performing as expected or intended. Where transparency is sufficiently prioritized in AI design, this concern can be reduced. Where it is not, it becomes possible that errors in AI systems will go unseen—whether such errors are accidental or caused deliberately by outside parties using techniques like hacking or data poisoning.



One can wonder whether AI can be used effectively to hack, distort, or corrupt the functions of command-and-control structures, including early warning systems for nuclear weapons.

Increasing complexity could make AI systems harder to understand and, therefore, encourage the use of trust rather than transparency. Increased trust means that errors and failures are even less likely to be detected.

The potential for lone actors to use AI-enabled tools, these concerns are moderated by their inability to apply them at large scale. More problematic is the potential for an arms race on an international level. The potential ill effects of AI arms racing are threefold. First, arms race dynamics have in the past led to high levels of government spending that were poorly prioritized and inefficient and an increase in tensions. Second, arms racing can generate an insecurity spiral, with certain nations perceiving others' pursuit of new technologies as threatening. Third, the development of AI tools for use by national militaries is in a discovery phase, with government and industry alike working to find areas for useful application. Competition at the industry and state levels might, therefore, incentivize fast deployment of new and potentially insufficiently tested capabilities, as well as hiding of national AI priorities and progress. These characteristics of arms racing—high rates of investment, a lack of transparency, mutual suspicion and fear, and a perceived incentive to deploy first—heighten the risk of avoidable or accidental conflict.

Potential Benefits of Military Application of Artificial Intelligence

Although AI, in its current juvenile state, poses immense threats if applied irresponsibly and hastily, there are also many benefits to consider. Chief among these is the concept of fully automated warfare - and the elimination of human involvement from conflicts. In fact, in situations such as American involvement in Middle-Eastern conflicts, the use of unmanned and automated weapons have seen immense backing for this reason. Why send one's own men and women overseas to fight, when a nation could simply send machines with minimal risk?

Although flawed, this is a very valid argument. Countless deaths in conflicts worldwide could be prevented in the future through mutual usage of autonomous weapons by both parties. Entire wars and battles could end with not a single drop of human blood spilled. Of course, there then arises the issue of a gigantic global imbalance of power, but it stands to reason that economic superpowers are aiming for military dominance regardless of AI involvement.

For national militaries, AI has broad potential beyond weapons systems. Often referred to as a tool for jobs that are “dull, dirty, and dangerous,” AI applications offer a means to avoid putting human lives at risk or assigning humans to tasks that do not require the creativity of the human brain. AI systems also have the potential to reduce costs in logistics and sensing and to enhance communication and transparency in complex systems, if that is prioritized as a design value. In particular, as an information communication technology, AI might benefit the peacekeeping agenda by more effectively communicating the capacities and motivations of military actors.



Applications of AI in the military

The military use of drones dates back to the reactions to the 9/11 attacks, specifically to October 2002, with a huge increase during the Obama administrations. We know that the United States uses them in Afghanistan, Yemen, Iraq, Pakistan and Somalia, and that purchases of drones or research to obtain them is steadily on the rise. In fact, between 30 and 76 states already possess drone technology.

Some sources date the military use of drones as weapons directly for attack to 2001, to the war in Afghanistan, and it is estimated that some 40 states now have drones or have decided to get them in the short term. With respect to the United States, although drones went hand in hand with the two terms of George Bush Jr. (particularly in Afghanistan and its eastern border), with Barack Obama drone use has risen substantially (in terms of quantity, of the number of civilian casualties caused, etc.) and has been extended to other scenarios (Pakistan, Yemen and even Somalia). As a result, from 2004 to 2013, drones killed 3,460 people in Pakistan alone, at least 35% of which can only be described as 'innocent civilians', according to Pakistani sources (which have their own criteria for these cases on who is and who is not "civilian").

Drone strikes have had a serious radicalizing impact on public opinion in the country, with a serious shift to the right in the last few years. The cricketer turned politician, Imran Khan, has used these attacks as examples of American hubris, blaming them for massive collateral damage and death of innocent civilians. Khan believes that the use of American unmanned aerial vehicles has not been very effective, as the situation in Afghanistan and Pakistan is far worse than it was when the strikes were initially employed in 2004.

Drones are theoretically used so that troops do not have to be put on the ground to enter and occupy the land and search for and pursue the enemy, with results that are in theory more efficient. As a result, fewer casualties of one's own and a maximisation of enemy casualties takes place. Israel's armed and security forces have already integrated these many uses of drones: especially to watch, follow, identify and conduct deadly attacks with other means like air-to-ground missiles in places like Gaza and areas of the West Bank.

Ukraine's use of Western information technology, including artificial intelligence (ai) and autonomous surveillance systems, has also had a powerful, if less visible, impact on Russian forces and has changed the way Ukrainian troops target the enemy, and even the nature of counter-terrorism.

When Russia invaded last February, its air campaign initially looked to be a central part in Russia's war strategy: Russia sent waves of pilots in advanced fighter jets to bomb Ukraine. The near universal assumption was Russia's powerful air force would quickly overwhelm Ukraine's much smaller force and establish air superiority.

However, Russia is relying on missiles and drones, which are much cheaper and easier to replace. As this is a war where it's much more sustainable to use **unmanned** assets, whether those unmanned assets are drones or missiles

Drones have been an integral part of Ukraine's war strategy. For instance, the January 2nd Ukrainian drone attack on Makiivka, a town in the partially Russian-occupied eastern Donetsk region saw emergency crews sifting through the rubble of a building struck by Ukrainian rockets, killing at least 63 Russian soldiers.



Major Parties Involved

United Nations Office for Disarmament Affairs (UNODA)

Launched in 1998 as part of former Secretary General Kofi Annan's UN reform plan, the UNODA aims to achieve the 'ultimate goal of general and complete disarmament'. Its mandate is derived from the 10th Special Session of the General Assembly, the first disarmament-centered GA session.

The UNODA works alongside other UN bodies such as the First General Assembly and the Disarmament Commission. Through diplomacy and transparency, the UNODA consistently sets the golden standard for disarmament efforts on a regional and international scale.

As well as encouraging disarmament, the UNODA also serves as an impartial information hub on disarmament issues. It spreads objective and up-to-date information to UN Member States, as well as governmental institutions, the general public/media, and NGOs.

Key Manufacturers

Throughout the arguments for and against the implementation of AI in the military, it's essential to include prominent and key manufacturers in this field.

In the United States, market leaders involved with the military include Lockheed Martin, L3Harris Technologies and Northrop Grumman.

UK-based BAE Systems plc is Europe's biggest defense contractor, and the seventh largest in the world as of 2021. Rafael Advanced Defense Systems, the Israel-based manufacturer, was Israel's Defense R&D Laboratory before it became a limited company.

Leaders in Innovation

While they may not directly cooperate with international militaries, tech giants such as Google, Amazon and IBM are all major parties in this discussion. Google's DeepMind AI has been groundbreaking for research and development in AI worldwide, becoming the first computer to beat human champions in games such as Chess, Go and Jeopardy.

Meanwhile, Amazon Web Services (AWS) consistently makes use of its top-of-the-line Machine Learning and AI systems to serve personalized advertisements and even develop further AI solutions. Neglecting market leaders in political discussions is common, but in such a critical situation, it's essential to consider how AI's transformative potential can even shape the market.



Timeline of Key Events

Date	Description of event
1950	Alan Turing develops Turing Test to evaluate machine intelligence
February 22nd, 1978	Successful launch of Navstar 1, first GPS-oriented satellite
January 1994	Under US contract, General Atomics develops first Predator drone
March 22nd, 2003	Destruction of RAF Tornado Jet ZG710
November 15th, 2013	117 countries at the UN CCW agree to tackle autonomous weaponry



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UN involvement, Relevant Resolutions, Treaties and Events

- Meeting of the High Contracting Parties to the CCW, 13 November 2019, (CCW/MSP/2019/9-Annex III)
 - Impact of rapid technological change on the achievement of the Sustainable Development Goals, 22 December 2017, (A/RES/72/242)
 - Role of science and technology in the context of international security and disarmament, 4 December 2017, (A/RES/72/28)
 - Letter from the Panel of Experts on Libya to the Secretary General, 8 March 2021, (S/2021/229)



Previous Attempts to solve the Issue

United Nations' Convention on Conventional Weapons (CCW)

In its efforts to gain a handle on growing AI fears, the UN has focused its efforts to regulate Artificial Intelligence through its Convention on Conventional Weapons.

The CCW is the perfect stage upon which the humanitarian benefits and risks of AI can be considered. Members of the CCW are very varied and balanced, bringing together various different perspectives on the issue. Every country with notably functioning AI weaponry is a High Contracting Member, and so are several independent institutions and organizations such as the Human Rights Watch and the International Committee of the Red Cross. Furthermore, the inclusion of young entrepreneurs and prominent business and industry leaders aids in combating the exclusion of the industry from ethical debate, as there are many stakeholder companies majorly involved.

Although the CCW has not yet produced a complete, substantial treaty signed by its members, it has served to foster constructive debate on the legal and ethical aspects of Artificial Intelligence.

The CCW's Group of Governmental Experts (GGE) meet annually, with a large-scale CCW Review meeting every five years.

Possible Solutions

Enforcing Human Involvement

As previously stated, AI is in its juvenile state. However, it is also no longer a theoretical far-off problem, so we must now rapidly develop means of controlling and regulating the forms AI can take shape in.

After World War 1, the international community banded together to utterly ban biochemical warfare - an international agreement of this sort is now necessary. At this time, it is very improbable if not impossible to achieve a full global ban on the militarization of AI. However, it is plausible to totally and completely ensure that there must remain human involvement.

A treaty, likely UN-formed, should be written on the issue, and the international community should halt all instances of totally independent machine weaponry - at least for now. There yet remains the possibility in the future of perfecting AI to the point where these concerns no longer exist.



Technology Controls

Military technologies can be controlled or restricted at a number of stages along their development cycle. Nonproliferation regimes aim to limit access to the underlying technology behind certain weapons. The Nuclear Non-Proliferation Treaty, for example, aims to prevent the spread of nuclear weapons, promote cooperation on peaceful uses of nuclear energy, and further the goal of nuclear disarmament. Some weapons bans, like those on land mines and cluster munitions, allow access to the technology but prohibit developing, producing, or stockpiling the weapon. Other bans only apply to use, sometimes prohibiting use entirely or proscribing only certain kinds of uses of a weapon. Finally, arms-limitation treaties permit use but limit the quantities of certain weapons states can have in peacetime. Updating pre-existing legislation is an imperative. For instance, old arms control convention could be used such as the Convention on Certain Conventional Weapons. Known during the Cold War as the “Inhumane Weapons Convention,” it focused on conventional weapons deemed to have indiscriminate effects, adding an additional protocol on the use of drones could be useful.

Building Safe and Secure AI Systems

Ultimately, the most powerful tool states have at their disposal for mitigating the risk of military AI systems comes from building safe and secure AI systems themselves. Militaries have an incentive to keep their systems under effective operational control. AI systems that slip out of human control could not only cause an accident, possibly harming third parties, but are also not very useful to the military that deploys them. Military systems that may not work or could be hacked by the enemy are not very useful or valuable. Conducting better tests and evaluation and maintaining humans in overall operational control of the system through a human machine centaur command-and-control model may be the best approach for mitigating the risks of military AI.



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Appendix

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- <https://www.un.org/disarmament/the-militarization-of-artificial-intelligence/> - UN paper on militarization of AI
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- <https://www.icip.cat/perlapau/en/article/the-military-use-of-drones-and-their-use-in-acts-of-war>
- https://www.economist.com/the-economist-explains/2022/10/19/will-russias-drone-attacks-change-the-war-in-ukraine?ppccampaignID=&ppcadID=&ppcgclid=&utm_medium=cpc.adword.pd&utm_source=google&ppccampaignID=18151738051&ppcadID=&utm_campaign=a.22brand_pmax&utm_content=conversion.direct-response.anonymous&gclid=Cj0KCOjw2cWgBhDYARIsALggUhpxUIpyC9jNfWG6GbcMCj4USVdNDEA-1B8siVgHo4qAOC_QwFcFO-YaAp0FEALw_wcB&gclsrc=aw.ds
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