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Artificial Intelligence, Armed Conflict and International Peace and Security: Challenges and Opportunities

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Abstract: *During the last few years a significant role has been played by autonomous weapons in the field of armed conflicts. In recent years Artificial Intelligence (AI) is dominating in the military domain. Artificial Intelligence (AI) is a novel digital technology. AI brought change in every field including the ways wars are fought. Artificial Intelligence means using a computer system to carry out tasks that would normally be done by humans. Unmanned Aerial Vehicles like Drone are noteworthy examples. Drone attack is widely and popularly in use during armed conflicts, whether in international armed conflict or non- international armed conflict, does not matter. Till today there is no generally accepted definition of AI under International Law. The use of this technology is raising new questions as it creates a barrier to human ability to deal with the outcome.*

Keywords: Artificial Intelligence (AI)

I. INTRODUCTION

During the last few years a significant role has been played by autonomous weapons in the field of armed conflicts. In recent years Artificial Intelligence (AI) is dominating in the military domain. Artificial Intelligence (AI) is a novel digital technology. AI brought change in every field including the ways wars are fought. Artificial Intelligence means using a computer system to carry out tasks that would normally be done by humans. Unmanned Aerial Vehicles like Drone are noteworthy examples. Drone attack is widely and popularly in use during armed conflicts, whether in international armed conflict or non- international armed conflict, does not matter. Till today there is no generally accepted definition of AI under International Law. The use of this technology is raising new questions as it creates a barrier to human ability to deal with the outcome.

Artificial Intelligence, Armed Conflict and International Peace and Security

Russia Ukraine armed conflict is the best example in today's era regarding use of modern technology. In this conflict facial recognition software was used with the help of AI. In March 2022, the Ministry of Defense of Ukraine began using facial recognition software produced by the American company Clearview AI, which allows Ukraine to identify deceased soldiers [4], by July 2022, 7 agencies, and over 600 military personnel were actively using the Clearview AI platform, conducting over 60,000 searches.[1] AI is used in the military field for military logistics, intelligence , surveillance and development of weapons. Careful consideration is necessary when it comes to AI. For example image recognition algorithms can be used for civil purposes (identifying individuals on YouTube Video) as well as for military purposes(Full Motion Video).

[1] Álvaro Andrés Erices Bravo, SPACE RESOURCES: A NEW BALANCE OF INTERESTS FOR THE 21ST CENTURY , Technology and Legal Challenges of Contemporary Armed Conflict, 2024, available at https://law.nau.edu.ua/wp-content/uploads/2025/01/yuv_3_72_2024verstka.pdf#page=68, last visited 27/02/205.

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There is an increase in utilization of AI technology like drones on the battlefields for offensive missions. With the help of AI, these low-cost robots could form highly autonomous swarms capable of striking multiple targets simultaneously on a large scale, possibly challenging the principles of proportionality and precaution under IHL.[2]

In 2022, a group of researchers revealed that they had developed an AI tool that could develop potential new chemical weapons. By adapting a machine-learning model originally used to predict the toxicity of components of new drugs (to avoid them), the researchers ended up with a tool that could design new toxic molecules. In fact, it could do so incredibly quickly: suggesting 40,000 in only six hours. In the life sciences, the risks stemming from the misuse of peaceful research are a well-recognised problem, thanks in part to a long history of engagement between scientists and arms control experts. In this case, the researchers publicized their work to demonstrate just how easily a peaceful application could be misused by malicious actors. Unfortunately, the same level of engagement between practitioners and the arms control community, and awareness of the risks civilian technology can present, are not yet present for AI.[3]

dual use technology is not a new problem but become complicated when it comes to AI for example it is difficult to control the proliferation of fast changing nature of AI algorithms, secondly civilian workers in AI field are some time remain unaware about the potential implication and misuse of their work on international peace and security, AI system are unpredictable because even a small malfunction may lead to harm innocent people, in connection with malfunction of AI no human can be held responsible for unseen and which is not foreseeable, unpredictability of AI system presents a potential obstacle for holding individual responsible for serious violations of human rights, international humanitarian law and international peace and security.

The valid target in armed conflict is combatant and they can be identified by their uniform , weapons they carry and others but unpredictability of AI systems will lead to risks in identification selection and engagement of target, biases, privacy risks and loss of control, which paired with the technology's unpredictability.

Another point that needs to be considered is lack of diversity in AI datasets which may cause AI systems to single out. Lack of diversity in datasets may cause AI systems to single out, for example,individuals from different ethnic backgrounds as subjects, or even view all civilian males as combatant because of ingrained gender prejudices.The problem is that AI systems could misclassify individuals as "targets" if they perceive linkage to the adversary combatants, however remote or irrelevant. For example, they could have simply studied in the same school, have a mutual connection or worse, invent inexistent patterns, prompting the targeting of innocent civilians.[4]

To begin with, the use of AI throughout the targeting process relies on predictions based on pattern recognition and classification, through the generalization of data used during the system's training. Hence, its ability to recommend targets depends on its capacity to "spot" similarities between the available and circumstantial information on the population, and the data it was trained with. This raises a plethora of legal concerns because AI systems will never be perfect, and thus will always be prone to "failure", especially when facing complex real-life battlefields. This, despite developers' best efforts, simply cannot be pre-designed in a laboratory as there are endless possible scenarios within the "fog of war".[5]

AI's speed and scalability is another matter of concern as it enables mass production targeting. This mass production targeting raises the possibility of bias among human operators by automation reducing diminishing genuine human supervision , human machine collaboration, or cognitive independence to little more than pressing a button. Use of AI in targeting systems may impact people's decision making power rather than on autonomous weapons. Another impact

[2] United Nations, Regional Informantion Centre for Eastern UN addresses AI and the Dangers of Lethal Autonomous Weapons Systems, 6/01/2025 available at https://unric.org/en/un-addresses-ai-and-the-dangers-of-lethal-autonomous-weapons-systems/

[3] Charles Ovink, AI risks for International Peace and Security, Observer Research Foundation, 31 Jan 2024, available at https://www.orfonline.org/expert-speak/ai-risks-for-international-peace-and-security, last visited on 20/2/25.

[4] Jjimena Sofia Alarze, The risks and inefficacies of AI systems in military targeting support, Humanitarian Law and Policy, September 4 2024, avvailable at https://blogs.icrc.org/law-and-policy/2024/09/04/the-risks-and-inefficacies-of-ai-systems-in-military-targeting-support/

[5] Supra 4

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of this AI targeting system is not only on civilian casualties but it may give armed forces a justification claiming system default and avoiding accountability.

This AI use affects the basic principles of International Humanitarian Law that are applicable to the parties to an armed conflict. These basic principles are the principle of distinction, proportionality and precaution in attack. International Humanitarian Law imposes obligation on a commander while the use of weapons and weapon systems during armed conflicts like distinction between military and civilian object, to determine whether the attack may be expected to cause incidental civilian casualties and damage, and to stop such attack which may cause unnecessary suffering and unwanted discriminating impact. this obligation cannot be transferred to a machine , or a computer program or computer weapon systems. So before going for an AI attack it must ensure the ability of the machine to make judgment . For example, if a mobile autonomous weapon system searches for targets over a wide area and for a long duration, without human supervision and communication, the commander who authorized the launch of the weapon and the operator who activated it will not know exactly where and when an attack will take place. This raises questions of whether they will be able to ensure distinction, judge proportionality or take precautions should the circumstances change.[6]

Article 36 of Additional Protocol I to the four Geneva Conventions ensure State's armed forces are under international obligations to conduct hostitties in accordance of IHL however , the questions remains on the use of AI generated weapons and weapons system and compliance of IHL

AI generated weapon systems are developed at different stages like development and testing, decision making to activate the weapon system and actual use or operation of the AI weapon system. Different stages require different sets of limitations for example at activation depends upon technical support and operational parameters. So there is a need for rules that include a combination of technical performance and operational constraints. Additional human control is a basic necessity during the activation stage for avoiding the violation of the IHL norms and to control unwanted damage.

Predictability is another factor related to weapons and IHL. The commander generally has an idea about the performance of the weapons and its impact on the environment and international peace and security. This predictability is uncertain with respect to AI systems and weapons and the great risk that IHL might be violated.

under International Law and IHL State is liable for violation of IHL so it can be also liable for AI weapons that are not adequately tested.

Under the law of State responsibility, a State could be held liable for violations of IHL resulting from the use of an autonomous weapon system. Indeed, under general international law governing the responsibility of States, they would be held responsible for internationally wrongful acts, such as violations of IHL committed by their armed forces using an autonomous weapon system. In relation to AI weapon systems it is not clear and still underexplored about its implications on states' practical ability to investigate IHL violations and to hold humans responsible accordingly. A State would also be responsible if it were to use an autonomous weapon system that has not been adequately tested or reviewed prior to deployment.

Challenges and Opportunities

AI weapon systems are developed through software, so the machine algorithm understands inputs and outputs but does not necessarily understand the process in between, for example how the system arrived at a conclusion. This also includes problems from an evidence gathering perspective.

In Russia Ukraine armed conflict 2022 self detonating drones (Swarms of Shahed-136) were used to destroy energy facilities located in the city of Odesa. This attack on the power grid left millions of people without access to electricity in the winter season. Shahid -136 is a Lethal Autonomous Weapon System , an advanced AI system, can independently identify and destroy a target without human operator or intervention and use computer algorithm that expedite machine decision making.

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[6] Neil Davison, A Legal Perspctive : Autonomous Weapon System under International Humanitarian Law, International Committee of Red Cross,INODA Occasional Papers, No.30, available at https://www.icrc.org/sites/default/files/document/file_list/autonomous_weapon_systems_under_international_humanitarian_law.pdf , last access 3/2/25.

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The UN General Assembly passed Resolution A/78/L.49, the first-ever resolution on AI. This resolution recognizes the positive impacts of AI on economic, social, and environmental aspects, particularly in achieving sustainable development goals (SDGs). At the same time, it acknowledges the potential adverse consequences of AI misuse and emphasizes the need to adhere to international rules and regulations.[7] There are no common languages or standards among these resolutions and previous AI international instruments. So, in legal, ethical or technological terms, among others, it is very hard to define what is fairness, safety, explainability or transparency. In the same way, many emerging standards are not grounded in a common understanding of meaning or are directly divorced from the values that they were intended to uphold.

the problem comes with the AI :1) difficulty in controlling the transfer and proliferation due to vast changing of AI algorithms and datta; 2) interest of private sector in safeguarding data and algorithms and competition;3) Civilians sector working in AI are generally unaware of potential diversion and misuse of AI technology ;4) misuse or dual use technology of AI creates risk in arms controlling and increase the chances of proliferation;5) Unable to follow International Humanitarian Law and even basic international law to maintain international peace and security protected under the United Nations Charter. All these directly affect international peace and security , the UN Charter and International Humanitarian Law.

International Opportunities: Work Need to Be Done

For the AI industry professional associations and standards need to be developed around the world under the risks management practice firstly to give information about the dual use technology of the AI system , data and algorithm and secondly how AI creates risks to international peace and security. With educators , formal training on responsible practices how risks can be mitigated , and with AI practitioners to give responsible and careful approach to development of AI to maintain international peace and security.

With the AI industry, including through work with professional associations and standards bodies, to connect with multi-stakeholder expertise from around the world to establish how risks to peace and security can be included in existing risk management and mitigation practices, and where necessary, what new practices might be needed. With educators, to support the mainstreaming of peace and security risks as part of formal training on responsible practices With future generations of AI practitioners themselves, to embed responsible approaches to peace and security risks as a natural element of AI development and risk management.

Any weapon development and technological development in warfare must be capable of use in compliance with existing rules on international law, the United Nations Charter and international Humanitarian Law for maintaining international peace and security. Military application of AI is not clear and therefore inevitable. Controls on weapon parameters, which can inform limits on types of autonomous weapon systems including the targets they are used against, as well as limits on their duration and geographical scope of operation, and requirements for deactivation and fail-safe mechanisms; . Controls on the environment, which can inform limits on the situations and locations in which autonomous weapon systems may be used, notably in terms of the presence and density of civilians and civilian objects; and . Controls through human–machine interaction, which can inform requirements for human supervision and ability to intervene and deactivate autonomous weapon systems, and requirements for predictable and transparent functioning.

Building a responsible culture for AI can play a critical role. This can be done through transparency and coherence in national policies, understanding the impacts , risks and harms of AI systems and their use. Self assessment is a tool to achieve international peace and security.

[7] Peace and Security Council, Looking into the future: Artificial intelligence and its impact on peace and security in Africa, 12 june 2024, avilable at https://amaniafrica-et.org/looking-into-the-future-artificial-intelligence-and-its-impact-on-peace-and-security-in-africa/