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AI WARFARE: ETHICAL DILEMMAS AND LEGAL IMPERATIVES

AUTHORED BY - PRIYA RATHI

ABSTRACT

Humanity's relationship with technology is transforming, particularly in the realm of warfare. There has been a shift from normal human combat warfare to Artificial Intelligence (AI) combat warfare, where sophisticated algorithms and codes can devastate the country's infrastructure, necessitating new regulations and a thorough examination of existing laws. The application of AI in warfare is somewhat complex due to the stakes and its ethical dilemmas. The rise of AI has significantly altered the landscape of cyberattacks, introducing new levels of sophistication and automation. AI weapons would create a new arms race that would put everyone at risk. The capability of AI systems to identify and distinguish between civilians and combatants remains an ethical concern. Effective AI governance demands robust international cooperation to establish global standards and norms.

This paper explores the central role of ethical considerations in the development and deployment of AI in warfare, examining the legal challenges associated with its application within the framework of International Humanitarian Law (IHL). It argues that a proactive, internationally coordinated approach is essential to mitigate the humanitarian risks posed by AI in conflict and ensure adherence to fundamental legal principles. The paper examines the challenges presented by integrating AI into warfare, specifically concerning compliance with International Humanitarian Law (IHL) and broader international legal frameworks.

Keywords: Artificial Intelligence, Algorithms & Codes, Warfare, Cyber-Attack, Automation, AI weapons, AI governance, International Humanitarian Law.

INTRODUCTION

The evolution of warfare with the integration of AI into its landscape represents a transformative shift in military strategies and operations, as it significantly influences decision-making processes. With technological advancements accelerating around the globe, AI-based targeting systems are designed to revolutionise battlefield operations, yet this system compels

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us to ask, is this ethical? Is it legal? Is it safe? Furthermore, the question of control: Could empowering it with more and more information and decision-making abilities lead to unintended consequences? Will AI make war more manageable and quicker, or will removing humans from the process make it less humane?

If we produce things more intelligent than humans, how do we ensure that we can keep control. The integration of AI into warfare demands strict compliance with International Humanitarian Law, and the ethics of AI impose challenges in formulating regulations addressing these concerns while fostering innovation. Ultimately, striking a proper balance between human judgment and AI capabilities remains vital within the ethics of AI in warfare.

1. TRANSFORMATION OF WAR BY INTEGRATING AI INTO ITS SYSTEM

The act of warfare, strategic planning, and tactical execution, fundamentally requires human decision making, from the advent of gunpowder to the introduction of tanks, each era has witnessed transformative technologies reshaping the battlefield, each era of technological advancement has shaped the military strategy to combat warlike situations, yet the ultimate authority to initiate, direct and control of warfare remained firmly within the human domain. In contemporary settings, cyber warfare, drones, and Artificial Intelligence fundamentally alter the nature of war and redefine military strategies. The very notion of military power is evolving, with automated weapons systems increasingly taking the place of traditional, and even nuclear, arsenals in some strategic considerations, diminishing the role of humans in real-time war decision-making.

In an AI war, everything boils down to data. The AI-enabled systems can execute attacks with algorithms that process vast amounts of information much quicker, facilitating attacks at an exceptional speed, highlighting the critical role of software and algorithms in modern warfare. It is undeniable that Artificial Intelligence is the most powerful weapon. The weaponization of AI refers to using AI in military and warfare contexts, such as autonomous weapons and cyber warfare. It offers opportunities for battlefield technological advancement, but it poses potential dangers and raises a significant question regarding its effectiveness and compliance with the principles and rules of International Humanitarian Law.

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2. APPLICATION OF AI IN WARFARE

2.1.Lethal Autonomous Weapons System

The increasing reliance on AI in warfare has led to the advent of the development of Lethal Autonomous Weapons Systems (LAWS)[1], posing both opportunities and challenges to adhere to the principles of IHL. There is presently no definition under international law, but it can be understood in simple terms that it is the system that utilizes sensors and algorithms to independently identify and engage targets without human intervention.

2.2.Levels of Autonomy

These systems are categorised into three categories: semi-autonomous, supervised autonomous, and fully autonomous systems, each representing a distinct level of human control and decision making.

- Semi-Autonomous System: Systems that, once activated, can select and engage targets but only with human control and authorisation.
- Supervised Autonomous System: There is no requirement for human authorisation. Once the system is activated, it can select targets and apply force, yet the human can supervise the actions and can override the command.
- Fully Autonomous System: When the system is activated to select and engage targets, no human authorisation, supervision, or intervention is required.

Lethal Autonomous Weapons Systems (LAWS) represent a potentially transformative yet deeply concerning advancement in military technology. These systems leverage AI, robotics, and machine learning to conduct combat operations with minimal or fully autonomous systems without any human intervention. Fully autonomous systems offer the potential to execute missions in environments too hazardous for human soldiers, potentially reducing collateral damage to combatants. However, the system must weigh the grave risk of unintended targeting of civilian non-combatants by these systems, which raises ethical and legal questions of accountability and compliance with International Humanitarian Law.

Applying these systems to the real world, it becomes evident that different levels of autonomy have their distinct purposes and benefits. In environments where rapid decision making is

[1] "Mary Ellen O, *Banning Autonomous Weapons: A Legal and Ethical Mandate*, Ethics and International Affairs (2023) Banning Autonomous Weapons: A Legal and Ethical Mandate | Ethics & International Affairs | Cambridge Core

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essential, increased autonomy can be advantageous, whereas in complex combat zones, where civilian presence is high, greater human oversight is critical to minimize unintended harm. This practical application highlights the need for flexible frameworks that can adapt to the varying demands of different combat situations

Despite increasing advantages of these systems, there has been an increase in initiatives calling for restrictions on the development of these systems. For Example, in 2015[2]At the International Joint Conference on Artificial Intelligence, over 3,000 AI and Robotics researchers, along with prominent thinkers such as Elon Musk, Steve Wozniak, Stephen Hawking, and Noam Chomsky, warned that the development and deployment of LAWS would constitute the third revolution in warfare, following the advent of gunpowder and nuclear weapons. As LAWS evolve, the capacity for intelligent warfare grows, raising concerns about whether these systems can be trusted to adhere to the rules of IHL and other international legal frameworks.

3. PROS AND CONS OF AI AUTOMATED WEAPON SYSTEMS:

The use of AI weapons and robots in military software and technologies can reduce human labour and improve the speed of decision-making, while also providing safety to soldiers. However, it also presents challenges and ethical concerns.

I. Advantages of AI Weapons Systems:

AI-enabled weapons have the potential for warfighting and minimizing civilian casualties. It significantly enhances weapon systems, introducing capabilities that revolutionize traditional military strategies. Current applications of AI in weapon systems include autonomous drones, AI-enhanced surveillance systems, and smart munitions, each contributing to greater operational efficiency. Further, it enhances precision and rapid decision-making capabilities on the battlefield. These systems can analyse vast amounts of data in real-time, enabling swifter responses to changing threats.

II. Challenges of AI Weapons Systems:

a. Risk of Over-reliance

Decision-making is an essential element in warfare, be it traditional warfare or AI-driven

[2] Chris Pash, *Elon Musk and Steve Wozniak Lead AI Experts Who Want Killer Robots Banned*, (July 28, 2015), https://www.sciencealert.com/elon-musk-and-steve-wozniak-lead-a-team-of-ai-experts-who-want-killer-robots-banned.

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warfare. The very nature of warfare involves nuanced human judgment to distinguish between civilians and combatants. Fully autonomous AI systems offer increased speed in rapid decision-making and vast data processing without human intervention in the loop. The risk of over-reliance on these systems cannot be ignored, as these systems create a tendency to highly trust the systems and make decisions thereon. While semi-autonomous and supervisory autonomous systems deployed in an armed conflict maintain some degree of meaningful human control, mitigating this risk, fully autonomous AI systems present a distinct challenge.

Fully autonomous systems, the inherent design of these systems is to make decisions, removing human authority and intervention. The military commanders may develop trust and can rely on the ability of these systems to comply with the principles of distinction, proportionality, and military necessity under IHL and can conduct an armed conflict without human rights violations. These systems have the potential to make predictions that have a profound effect on society, raising ethical concerns. It is difficult to ensure transparency in AI decision-making mechanisms.

AI can surpass human intelligence[3], as it is constantly learning and advancing, and the erosion of critical thinking of military commanders becomes a pressing concern. The challenge for future military commanders is determining what is truly relevant for engaging in an armed conflict. The advantage of AI is that it operates on data and algorithms, enabling leaders to rely on the decisions made by these systems. Still, it lacks true intuition, contextual awareness of the presence of civilians and direct combatants, and the ability to account for unintentional harm caused to civilians, these systems could make catastrophic mistakes. The absence of human understanding poses a significant risk to IHL compliance and civilian protection.

b. Ethical concern

The ethical concern raised is the preservation of human dignity and morals in warfare. It also raises profound questions of delegating life and death decisions to an AI system. The use of these systems in warfare raises a significant concern and risk by distancing the decision makers from the human costs of war; it could lead to dehumanisation of conflict, eroding empathy for engagement.

[3] Editorial Team, *Ethical Considerations in Military Applications of AI*, Total Military Insight (July 31, 2024), https://totalmilitaryinsight.com/military-applications-of-ai-ethics/.

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AI weapon systems can cause dehumanization through several key mechanisms[4]:

1. Distancing Decision-Makers from Consequences**:** By delegating the act of killing to machines, human operators and commanders are physically and psychologically removed from the direct act of violence and its immediate human cost. This distance can reduce empathy, desensitize them to suffering, and make it easier to initiate force.
2. Reducing Humans to Data Points**:** AI systems process information algorithmically, reducing complex human beings (combatants and civilians alike) into mere data points, patterns, or threats to be neutralized. This analytical approach cannot recognize inherent human dignity, individual context, or the full spectrum of human experience.
3. Erosion of Moral Deliberation**:** The speed and efficiency of AI can lead to "automation bias," where human operators over-rely on the machine's judgment, potentially deferring their moral reasoning. This diminishes the human's active role in ethical deliberation, effectively outsourcing moral responsibility.
4. Impairing IHL Principles**:** If AI struggles with nuanced judgments required for principles like distinction (identifying civilians) and proportionality (weighing civilian harm against military advantage), it can treat human lives as quantifiable metrics, further dehumanise the impact of conflict, and potentially lead to indiscriminate harm.
5. Perception of Being Hunted by Machines**:** For those on the receiving end, being targeted and killed by an emotionless, autonomous machine, rather than another human combatant, can be profoundly dehumanizing, stripping away any last vestiges of human interaction, even adversarial, in warfare.

c. Case Studies in AI-Warfare

The preceding challenges related to distinction, proportionality, necessity, and over-reliance on AI will be further illustrated through the following case studies.

The potential for autonomous AI systems to cause unintended harm is not just a theoretical concern. Recent incidents such as, Kabul Drone Strike, the Nagorno-Karabakh conflict, and the use of AI systems to target civilian infrastructure by Ukraine demonstrate the urgent need for robust governance frameworks.

[4] Pum, Mengkorn. (2024). Autonomous Weapons Systems: Ethical Concerns and International Regulation in the Use of AI in Military Applications.

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In 2021, the Kabul drone strike[5] was conducted by the U.S. Drone. The strike by mistake targeted a civilian vehicle based on an algorithmic assessment and intercepts, resulting in the deaths of ten civilians, including seven children. This devastating error underscores the critical need for human oversight and highlights the inherent limitations of AI in complex, real-world scenarios. The Kabul drone strike demonstrates that military commanders must not over-rely on AI systems, as such overreliance can lead to severe violations of IHL principles, particularly the principles of distinction and proportionality.

The violation principle of proportionality was also seen in the Nagorno-Karabakh conflict[6], where the Harop Drone was deployed to strike at civilian and military targets, causing extensive damage to civilian infrastructure and raising concerns about compliance with proportionality and necessity.

Further, the conflict between Russia- Ukraine[7] has demonstrated the role of autonomous AI weapon systems, using drones like ZALA Lancet to target civilian energy facilities, plunging the city into darkness during winters. This violates the principle of proportionality by exacerbating the humanitarian crisis. The weaponisation of autonomous AI systems can increasingly facilitate the destruction of infrastructure.

4. THE PRINCIPLES OF INTERNATIONAL HUMANITARIAN LAW

The AI weapons system, like LAWS, given control of national military and security systems, is poorly and unethically designed, could cause great harm, and violate global norms, like the laws of war. [8]The basic rules of distinction, proportionality, and necessity are the fundamental tenets of IHL. These principles strike a balance between military necessity and respect for humanity in situations of armed conflict. The fundamental purpose of these principles of IHL is to ensure that the dignity of humans is preserved even during the time of warfare or armed conflict. The object of the States to accomplish during war is to weaken the military forces of

[5] *Algorithms of war: The use of artificial intelligence in decision making in armed conflict*, (Oct. 24, 2023), https://blogs.icrc.org/law-and-policy/2023/10/24/algorithms-of-war-use-of-artificial-intelligence-decision-making-armed-conflict/.

[6] *Nagorno-Karabakh conflict: Bachelet warns of possible war crimes as attacks continue in populated areas*, United Nations (Nov. 2, 2020), https://www.ohchr.org/en/press-releases/2020/11/nagorno-karabakh-conflict-bachelet-warns-possible-war-crimes-attacks.

[7] Kateryna Bondar, *Ukraine's Future Vision and Current Capabilities for Waging AI-Enabled Autonomous Warfare*, CSIS (2025) https://www.csis.org/analysis/ukraines-future-vision-and-current-capabilities-waging-ai-enabled-autonomous-warfare

[8] Inioluwa Olaposi, *Basic Rules of IHL: Distinction, Proportionality, Precaution*, LawGlobal Hub https://www.lawglobalhub.com/basic-rules-of-ihl/.

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the enemy and not to cause intentional or unintentional harm to civilians and non-combatants.

i. Distinction

When a smart robot or AI weapons system is made, the first rule should be *"do not harm people"* and this is the principle of distinction, the military shall always distinguish between civilians and combatants. This is one of the cardinal principles of International Humanitarian Law and thus requires that civilians are never made objects of attack. The failure of the armed forces to identify the target and thereby harass civilians who do not participate in any hostilities is considered a heinous crime.

AI-driven targeting systems rely on sensors and algorithms to identify targets. In complex scenarios, these systems may have limitations in distinguishing between civilians and combatants. AI can have difficulty understanding the context of the battlefield.

Autonomous AI systems are trained on historical data and operate within rigid circumstances, it may struggle to adapt to rapidly changing situations or the presence of irregular combatants, and the speed of AI decision-making may outpace the speed of human decision-making, making it harder to distinguish between targets and difficult to follow the distinction principle.

ii. Proportionality

The principle of proportionality is prevalent in Article-51(5)(b) of Additional Protocol I[9] the principle of proportionality demands that the least harm is caused to civilians. Still, when harm is unavoidable, it needs to be proportional to the military advantage; this harm is described as "collateral damage." This principle prohibits the civilian attacks in excess of the military advantage sought and emphasizes that the use of force must balance military advantage with civilian harm. The principle of proportionality imposes restrictions on what actions can be taken during armed conflict.

This principle poses challenges for AI systems, as proportionality assessments require nuanced, qualitative judgments about factors like value, risk, and military necessity decisions that AI may struggle to make effectively. Proportionality can, however, not be used as an excuse to attack civilians or civilian objects, except that such an object has lost its protection. this

[9] Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I), art. 51(5)(b), June 8, 1977

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principle is relevant only when a military target is attacked.

The autonomous AI systems can be useful for the data they are trained on, but they may struggle to replicate human intelligence for contextual understanding, particularly in dynamic and unpredictable circumstances. Data bias is a crucial concern; if the data used to train AI is prejudiced, then it can produce unfair or discriminatory results, causing more harm to civilians than was anticipated. It becomes difficult to ensure the proportionality principle, as there is also the risk of errors in AI's data interpretation, which could lead to excessive use of force.

iii. Necessity

Beyond the principles of distinction and proportionality, the principle of necessity also presents significant challenges in the context of AI-driven warfare.

The principle of necessity[10] , dictates that the use of force in armed conflict must be limited to what is genuinely required to achieve a legitimate military objective. It is a principle that seeks to prevent unnecessary violence and suffering, and war is a legitimate consideration.

While these principles were crafted for human-directed warfare, the use of AI introduces questions about whether autonomous systems can adhere to these provisions and how violations should be addressed.

Under IHL, military commanders are expected to demonstrate the reasonableness of their attack decisions to explain and justify their conduct, but the opaqueness of these autonomous AI systems prevents humans from making wartime decisions, poses severe ethical problem as one cannot predict how an AI would pursue its task. The prospect of autonomous weapons systems making critical decisions without human oversight raised concerns about accountability, transparency, and the potential for unintended consequences. Traditional IHL assigns responsibility to military commanders and states for the violation of laws of war.

But when autonomous AI systems cause unintended harm, it creates a diffusion of responsibility between the programmer who built the algorithm, the military commander who deployed it. The lack of clear lines of accountability could create a dangerous situation where no one is held responsible for the actions of these systems.

[10] Inioluwa Olaposi, *Basic Rules of IHL: Distinction, Proportionality, Precaution*, LawGlobal Hub https://www.lawglobalhub.com/basic-rules-of-ihl/

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5. AI GOVERNANCE

Having thoroughly examined the challenges and advantages of AI-enabled autonomous systems and illustrated their real-world implications through the case studies in the above section it is now time to discuss the potential solutions and the need for amendment in the existing governance framework. The adoption of new technologies in warfare presents challenges under the IHL framework, particularly the Geneva Conventions and their Additional Protocols, which regulate the conduct of warfare. The principles and rules of IHL should and shall apply to AI weapons.

The four principles of distinction, proportionality, necessity, and precaution are the cornerstone of IHL, which seek to protect civilians from unnecessary harm and regulate the conduct of hostilities. The use of these autonomous AI systems raises question about whether these principles can be effectively applied to these systems, making independent decisions on the battlefield. Machines will never be able to bring genuine humanity, no matter how good they get at faking it.

The call for regulation and governance of AI is not just about ensuring compliance with IHL but also about protecting human dignity in warfare. Prevention of humanity is the central tenet of IHL, so ensuring that these technologies comply with the core principles is crucial.

The United Nations Group of Government Experts on Lethal Autonomous Weapons system (GGE on LAWS)[11] has highlighted these issues, stressing the necessity for regulating these new technologies, however, current IHL instruments lack the specific provisions to address such automated AI technologies.

The ICRC[12] has recommended an amendment to Article 36 of 1977 Additional Protocol I of the Geneva Convention of 1949[13] mandates that new weapons must be reviewed to ensure compliance with IHL, and the new criteria for evaluating the humanitarian criteria of autonomous technology before its deployment should be included, but the review process is

[11] John Cherry, *Enhanced distinction: The need for a more focused autonomous weapons targeting discussion at the LAWS GGE*, blogs.icrc.org (Mar. 28, 2019), https://blogs.icrc.org/law-and-policy/2019/03/28/enhanced-distinction-need-focused-autonomous-weapons-targeting/.
[12] *Review of new weapons*, International Committee of the Red Cross (May 19, 2016), https://www.icrc.org/en/document/review-new-weapons.
[13] Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts, 8 June 1977 (hereinafter Additional Protocol I), Art. 36

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insufficient to address the challenges of autonomous AI systems.

At the 28th International Conference of the Red Cross and Red Crescent, States party to the Geneva Conventions declared that "in light of the rapid development of weapons technology and to protect civilians from the indiscriminate effects of weapons and combatants from unnecessary suffering and prohibited weapons, all new weapons, means and methods of warfare should be subject to rigorous and multidisciplinary review.

Article 48[14] of the A.P. I to the Geneva conventions and the principle of distinction emphasizes the importance of distinguishing between civilians and military targets, the autonomous AI system often fails to meet this requirement.

An adaptive AI governance framework is essential, as AI technologies keep evolving. AI has the capacity of self- learning and can adapt to the changes in different scenarios without human intervention, which means the static governance frameworks will quickly become obsolete.

The case studies of Kabul Drone Strike and how Russia-Ukraine are using pushing for reforms that arose from ICRC, and GGE on LAWS, the legal frameworks remain inadequate for governing autonomous AI technologies remain inadequate. International cooperation is necessary to establish common ground for ethical concerns and a robust AI governance framework.

While the establishment of legal norms and principles remains crucial, an underexplored foundational challenge for effective AI governance lies in the task of verification[15] and compliance. This challenge is fundamentally different from verifying traditional weapons, where components are visible and functions are more straightforwardly predictable. Modern AI systems are incredibly complex, with millions of parameters, making comprehensive testing and verification computationally intensive and challenging, and if an AI can learn and adapt in real-time, its behaviour can change after deployment, making pre-deployment verification insufficient.

[14] Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts, 8 June 1977 (hereinafter Additional Protocol I), Art. 48
[15] Matthew Mittelsteadt, "AI Verification: Mechanisms to Ensure AI Arms Control Compliance," (Center for Security and Emerging Technology, February 2021). https://doi.org/10.51593/20190020

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The so-called 'black-box problem', the inherent opacity of many AI systems, directly impedes verification efforts**.** This raises critical questions for monitoring bodies: How can they truly ascertain an AI system's actual level of autonomy, effectively identify its pre-programmed ethical constraints, or determine if it has been covertly designed or modified to violate legal and humanitarian norms?

Given these unprecedented challenges, international cooperation becomes the *sole* viable path for establishing credible verification. This necessitates the call for international cooperation and coordination to establish legal frameworks that are adaptive to the evolving military AI technologies at an unprecedented pace, and must possess the capacity for evolution and revision.

- Collaborative efforts are required to define common and universal standards for AI transparency, auditability, and safety that apply across military contexts.
- Creating international bodies composed of independent AI ethicists, engineers, and legal experts. These bodies would research and propose viable verification methodologies for AI, moving beyond traditional inspection models.
- Encouraging states to implement voluntary transparency measures, such as sharing data on AI development, participating in peer reviews of AI safety protocols, or conducting joint scenario-based exercises to build trust and demonstrate adherence to norms.

A coordinated international effort is essential to establish binding norms, legal frameworks, and enforcement mechanisms. International organisations such as the United Nations can play a vital role in facilitating dialogue and cooperation regarding AI governance. This cooperation must encompass diverse stakeholders, including governments, international organizations, technology companies, and civil society, fostering a collaborative dialogue to shape the future of AI in warfare.

AI governance is a global issue, not just a national one. Effective governance of AI systems necessitates international cooperation, as AI systems and their effects do not respect national boundaries. States must collaborate to establish global standards and norms for AI usage.

The international community must work toward establishing binding treaties and norms to regulate the development, deployment, and use of AWS[16]. These agreements should emphasize

[16] Oluwaseyi Kolawole Oladele, *The Ethics of Autonomous Weapons Systems: AI in Warfare and Global Governance*, 8-9 (2024). https://www.researchgate.net/publication/390033169_The_Ethics_of_Autonomous_Weapons_Systems_AI_in_Warfare_and_Global_Governance

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meaningful human control and compliance with ethical and legal standards. Further, the mechanism for regularly reviewing and updating the existing treaties is essential to keep up with the pace of rapid evolution of AI technology.

I. Meaningful Human Control – A Possible Solution?

As AI transforms the landscape of warfare, the question of meaningful human control becomes essential, hinges on the predictability and understandability of AI systems. This mechanism is precisely intended to prevent dehumanisation and ensure human responsibility for life and death decisions. For effective human control over these systems, the commanders are required to understand how AI systems will behave and understand the rationale behind the system's decisions.

The concept of meaningful human control refers to the degree to which humans can understand, direct, and ability to comprehend how the system perceives its environment, makes decisions, and selects targets, and to intervene or override its actions when necessary. These components of predictability, understanding, and intervening are interconnected and essential for effective human oversight.

AI systems can be broadly categorized into two types: 'explainable' or 'transparent' models, often employing simple rule-based algorithms that enhance understandability, and 'black box' or 'opaque' AI, where decision-making processes are less transparent. Furthermore, the capacity to understand AI systems in a combat situation can vary significantly between individuals, adding another layer of complexity to the challenge of meaningful human control.

The principles of IHL mandate that human judgment and control must always be applied. According to Article 57[17] of the Additional Protocol I of the Geneva Convention states that those who plan or decide upon an attack, to take constant care and make predictions concerning the civilian population and civilian objects.

Theoretically, it is possible to establish human control over the fully autonomous AI weapons with the potential of explainable AI technology (XAI)[18] which aims to make AI decisions clear. However, whether this is possible is still a big debate. It is complicated by worries about

[17] Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts, 8 June 1977 (hereinafter Additional Protocol I), Art. 57
[18] Heather M Roff, *Key Elements of Meaningful Human Control*, Article 36 3-6 (2016)

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how these systems would perform in real wars, the difficulty of making complex AI predictable and easy to understand, and the moral problems of letting AI make life-or-death choices.

6. ESTABLISHING ACCOUNTABILITY

The issue of accountability is central to the debate of AI in warfare. The core issue, that the autonomous AI weapons system decides targeting, tracking, and giving commands to combat the situation without human intervention and authority, raising the question of who is responsible when these systems cause unintended harm or violate International Humanitarian Law (IHL). Further, it raises another question: who would be held accountable, the state, or would it be individual responsibility?

[19]Generally, under international law, states would be held responsible for internationally wrongful acts such as violations of IHL committed by their armed forces for using autonomous weapons systems. A state would also be responsible if it were to use an autonomous weapon system that has not been adequately tested or reviewed before deployment.

To make individuals responsible under IHL and International Criminal Law, it would be difficult to establish human control over the development stage and deployment stage of autonomous weapons systems. It would further be difficult to held programmers liable, as they might not know the concrete situations in which, at a later stage, the weapon system might be deployed and in which IHL violations could occur and, at the point of activation, commanders may not know the exact time and location where an attack would take place. If it has been programmed or the commander has operated with the help of these systems intentionally to violate the principles of IHL, they may be held criminally responsible for causing any serious violations under IHL.

7. CYBER WARFARE

Having discussed the above, we can say that Artificial Intelligence is the future of warfare, leading to faster decision-making and greater autonomy in weapons. AI-driven warfare also increases the risk of cyberattacks. Beyond the concerns surrounding lethal autonomous weapons systems, artificial intelligence presents novel challenges in the realm of cyber warfare. AI is transforming the offensive capabilities of cyber actors.

[19] (Nov. 9, 2017), https://www.icrc.org/sites/default/files/document/file_list/autonomous_weapon_systems_under_international_humanitarian_law.pdf.

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Cyber warfare[20] refers to the use of digital technologies such as computers or networks to conduct military operations. With the advent of AI in the current era, the risk of cyber warfare has exponentially increased, new domain of warfare has come into existence. This evolution signifies that warfare is no longer confined to the traditional battlefield but now extends into the digital realm, creating new challenges for defence and security.

AI has the potential to become a major factor in the field of digital security, as it provides cybercriminals with powerful tools that can be used to exploit cybersecurity. States can misuse these attacks by using deepfake technology and facial recognition to track and target individuals, thereby deceiving and manipulating them or other military AI systems. The proliferation of digital disinformation could lead to wrongful arrests, ill-treatment, discrimination, and even attacks on civilians.

AI technologies have been central to cyber defence; the autonomy in cyber warfare has evolved from anti-malware programs to bots conducting Distributed Denial of Service (DDoS)[21] attacks. The growing prevalence of AI-driven cyberattacks is increasing. For example, Russia has used a deepfake video of Ukrainian President Vladimir Zelensky surrendering to the conflict, illustrating this danger.

[22]Artificial intelligence is transforming the offensive capabilities of cyber actors. The next generation of cyber weapons will be powered by machine learning algorithms that allow them to autonomously learn, adapt, and evolve. AI-driven malware, for example, will be capable of dynamically changing its code to evade detection, complicating efforts to attribute attacks and raising complex legal and ethical questions. The potential for autonomous cyber weapons to launch attacks without direct human intervention challenges existing legal frameworks and ethical norms governing the use of force.

[20] Chukwudumebi O Joseph-Asoh, *The Rise of Cyberwarfare: The Applicability of International Humanitarian Law for the Protection of Civilians and Civilian Objects*, 10 International Journal of Law (2024) The rise of cyberwarfare: The applicability of international humanitarian law for the protection of civilians and civilian objects

[21] Devrrat Pandey, *The dark side of artificial intelligence: Emerging threats in cyberwarfare*, India Today (Mar. 23, 2023), https://www.indiatoday.in/india/story/the-dark-side-of-artificial-intelligence-emerging-threats-in-cyberwarfare.

[22] Nadir Izrael, *Cyberwarfare 2025: The Rise of AI Weapons, Zero-Days, and State-Sponsored Chaos*, Cyberprotection-magazine (Dec. 3, 2024), https://cyberprotection-magazine.com/cyberwarfare-2025-the-rise-of-ai-weapons-zero-days-and-state-sponsored-chaos.

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AI-enabled cyber warfare makes it challenging to comply with the principles of distinction between military and civilian infrastructure are rapidly blurring in the cyber domain, proportionality, necessity, and precaution under IHL and other international legal frameworks. The risks posed to civilians, whether through disruption of essential services or direct harm via compromised healthcare systems, are no longer secondary concerns in cyberwarfare, but key objectives. A robust and adaptive international legal treaty or agreement is required to mitigate these challenges posed by these systems.

8. CONCLUSION

The integration of Artificial Intelligence into warfare presents a profound transformation, ushering in an era of AI-driven combat and fundamentally altering military strategies and operations. While AI offers potential advancements in speed, efficiency, and the ability to operate in hazardous environments, it also raises critical ethical, legal, and humanitarian concerns. Autonomous AI systems should be utilized for strategy planning and data processing, but decisions relating to life-and-death situations should remain within the authority of military commanders, ensuring human control.

Moreover, the rise of AI has dramatically reshaped the landscape of cyber warfare, introducing new levels of sophistication and automation to cyberattacks. This convergence of AI and cyber capabilities creates a complex and dangerous threat environment where the lines between traditional warfare and digital conflict are blurred. Addressing these challenges requires a comprehensive and proactive approach, and a collaborative effort is paramount. Existing legal frameworks, such as the Geneva Conventions and their Additional Protocols, are inadequate to fully govern the use of AI in warfare. Therefore, international cooperation is essential to establish global standards, norms, and adaptive legal frameworks that can keep pace with the rapid evolution of AI technology.

The future of warfare hinges on our ability to navigate these complexities responsibly and ethically, prioritizing the protection of human dignity and adherence to fundamental legal principles. Accountability for the wrong decisions taken based on these autonomous AI systems is yet to be established under the current framework of International Humanitarian Law. A robust international legal framework is necessary to mitigate these challenges, particularly with the advent of emerging AI technologies.