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AI-POWERED AUTONOMOUS WEAPONS AND IHL

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Abstract:

The aim of this study was to delve into the contemporary challenges of international humanitarian law, namely AI-Powered Autonomous Weapons, which have become increasingly prevalent in current armed conflicts, while debates about their legal status remain highly controversial. Among these are combat robots that make independent military decisions without human intervention.

Systematic literature review (SLR) was used, during which we analyzed 31 relevant literature sources focused on intelligent weaponry and IHL out of 724 Search results. These sources included scientific articles and reports published through the year 2024. The results of the study showed that Self-operating armaments in their current form face many Lawful, Compassionate and moral challenges, which should be addressed in a way that is able to understand the rules of international humanitarian law, such as the principles of

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distinction, military necessity, humanity and Proportionality and others.

The study concludes with the necessity of introducing an additional protocol to the four Geneva Conventions of 1949, which examine new challenges to IHL, including private security companies, and modern weapons, especially Autonomous Weapons. Reaching this level requires There are several scientific fields that determine the inputs and outputs of this type of weapons, such as the field of international law, the field of knowledge economy, and the field of technology.
***Key words**: killer robots; artificial intelligence; armed conflict; modern weapons.*

Introduction:

Current armed conflicts have become a topic of deep debate among international law experts. Many experts and ICRC, are now addressing the compatibility of law of armed conflicts with non-traditional armed conflicts, where several Difficulties have emerged, including private security and Army companies and the emergence of modern high-tech weapons.

At a time when the Difficulties posed by these armed conflicts—largely overlooked by humanitarian law, particularly the four Geneva Conventions of 1949 and the two Additional Protocols of 1977—are being debated, modern technology is advancing rapidly. This includes the development of artificial intelligence, which is employed in both peace and wartime, and the emergence of highly sophisticated automated combat machines.

These Smart warfare technologies are characterized by their ability to make autonomous decisions without human intervention. The most significant example is autonomous lethal weapons, followed by drones and electronic warfare systems, where human involvement is relatively minimal.

One of the most significant Obstacles that experts continue to debate regarding AI-driven weaponry is the Legitimate, Altruistic, and Moral concerns they raise. From a Charitable perspective, these weapons lack human qualities such as morality, conscience, and

empathy, making it impossible for them to act humanely, especially towards civilians during war. Legally, these weapons are being used in the context of a clear Judicial gap or inadequacy. Morally, they cannot distinguish between civilians and combatants, nor can they comprehend the circumstances of surrender.

These issues are currently being raised due to the Authorized vacuum in relevant international instruments, with the rapid and remarkable development of AI. This underscores the urgent need to reach a Lawful resolution regarding the legitimate nature of autonomous weapons.

This study aims to focus on the Judicial, Benevolent, and Principled aspects of Robotic fighting systems, including the initiative to reinforce humanitarian law by introducing an additional protocol that addresses contemporary Obstacles to IHL.

Research Problem

What is the Regulatory nature of Autonomous Army devices?

- Can humanitarian law be applied to the practices involving autonomous weapons?

SECTION I: Background and Literature Review

First Requirement: AI-Powered Autonomous weapons: jurisprudential approaches

Machine-operated weapons are independent in their decision-making processes, including functions such as target search, detect, and selection, all without human control (Davison, 2019, p. 05)

It is worth noting that AI, as an emerging field of study, remains under exploration across various scientific disciplines and continues to be a subject of debate among scholars and experts. (McFarland, 2018) They are vulnerable to external factors, such as water exposure and explosions, which can result in technical malfunctions and render them indiscriminate in targeting.

The use of lethal autonomous systems in contemporary warfare has led to the emergence of two distinct viewpoints: an optimistic perspective and a pessimistic one. The optimistic viewpoint, asserts

that weapons outperform humans as they are not influenced by emotions such as fear, revenge, and anger, and are unaffected by physical limitations like fatigue and exhaustion. Conversely, others express skepticism regarding their effectiveness, contending that these weapons are merely machines lacking human qualities and Righteous considerations (Jensen, 2018).

At the political level, most major countries with large militaries or those involved in current conflicts are reluctant to establish Official regulations for these weapons, including the United States, the United Kingdom, India, Israel, South Korea, Turkey, Australia, Russia, and China (Longpre, Marcus, & Rishi, Shayne Longpre, , Marcus Storm, and Rishi Shah, Lethal autonomous weapons systems & artAugust 29, 2022 , p. 50)—countries known for their advancements in research and development, which have facilitated rapid progress in autonomous weapons systems (Austero & all, 2020, p. 06)

Second Requirement: Legal and ethical issues of killer robots

1. Legal issue:

The significance of artificial intelligence in the digital age cannot be denied, especially when utilized positively during both peacetime and wartime. Therefore, with the significant advancements in its application within modern weaponry, it has the potential to uphold human rights and prevent civilian targeting. However, achieving this level of precision currently appears uncertain. As a result, many experts advocate for a serious and realistic assessment of this emerging technology.(IRRC, 2020, p. 463).

In any case, the issue of using Autonomously Intelligent during wartime cannot be properly addressed without a Allowable basis, The provisions of Article 36 of Additional Protocol I emphasize that any State, when using or developing a new weapon or means of warfare, must ensure compliance and exercise due diligence in determining whether its use is prohibited (see article 36, Protocol I 1977).

The danger posed by Tech-Enabled Autonomous lies in their complete independence, in contrast to other weapons that can be remotely controlled. This raises significant concerns regarding Recognized, Compassionate, and Virtuous implications. Nevertheless,

AI and machine learning programs—particularly those designed for "automatic target recognition"—are advancing rapidly.(IRRC, 2020, p. 466).

Ethical issue:

The rapid advancement of artificial intelligence may lead to the development of autonomous weapons with a moral framework that differs from that of humans, and they may even surpass human capabilities in certain respects. As a result, these weapons cannot experience emotions such as revenge or fear, nor can they make involuntary decisions. However, on the other hand, it is conceivable that such weapons could be designed to understand concepts like guilt or to recognize the status of the wounded or the surrendering (COKER, 2019, p. 56).

Many experts believe that no matter how advanced technology becomes, it is impossible for autonomous weapons to possess the ability to distinguish between civilians and combatants. From the perspective of IHL, autonomous weapons that lack this distinguishing capability are deemed illegal. However, autonomous systems that can differentiate between various types of objects and autonomously track and destroy (inhuman) enemy targets are not inherently unethical or illegal, as their use does not pertain to the destruction of human life (LEVINGHAUS, 2016)

Although the debate about the use of Digital Autonomous, whether enhanced by artificial intelligence or software, still exists among international law experts, they are used in contemporary conflicts. Rather, countries are competing to use these weapons in armed conflicts, as we mentioned.

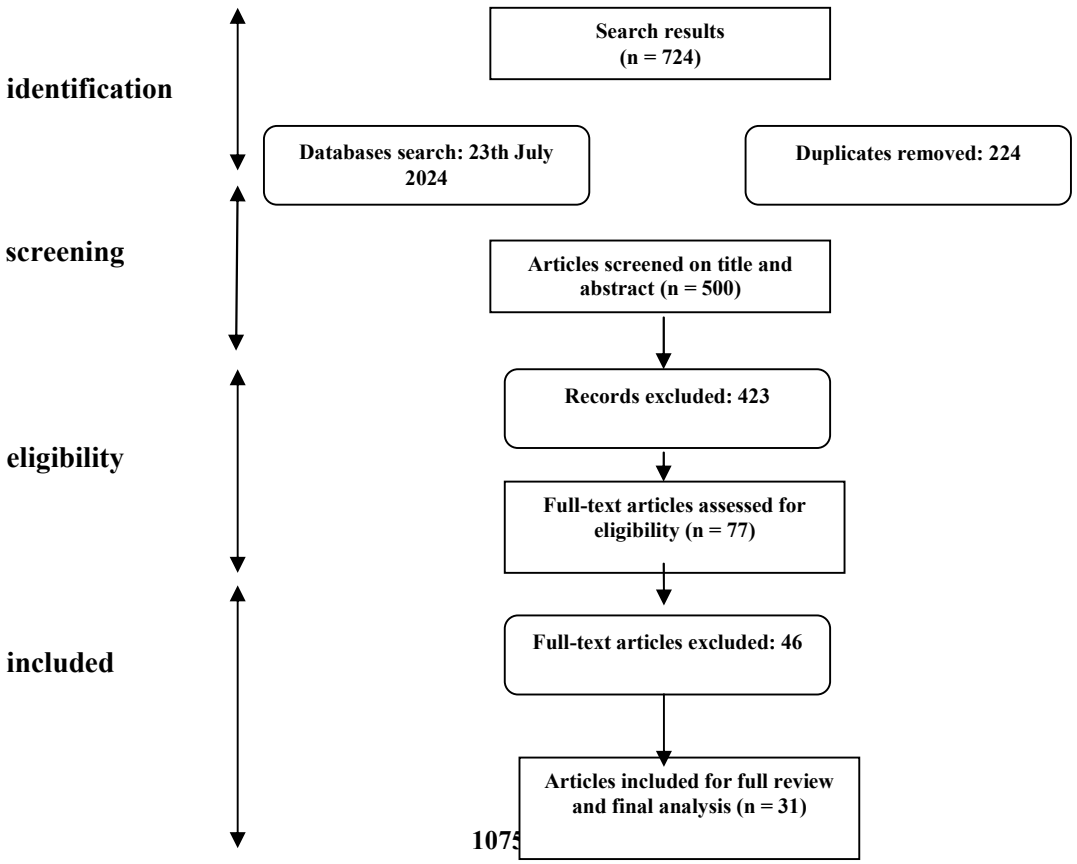
SECTION II: methodology

To address the research questions, we conducted a systematic literature review. Search terms were created to extract sources from peer-reviewed literature on the Web of Science, Scopus, and Science Direct. The search terms were: Laws of War AND artificial

intelligent. "AI-Powered weapons". "AI-Powered autonomous weapons NOT digital". On the other hand, the exclusion criteria were also applied, which included the following: papers not specifically focused on AI but rather on technology in general, duplicates that were removed, and papers that did not meet the required inclusion criteria.

The screening process applied the established criteria to both the title and abstract in the initial phase, followed by a full-text evaluation during the eligibility stage. A total of 31 papers met the inclusion criteria and were incorporated into the systematic literature review, as depicted in Fig. 1. Initially, the keyword search yielded 724 records. After excluding 224 duplicates, 500 titles and abstracts were reviewed. Of these, 423 did not meet the required criteria, leading to a full-text assessment of 77 papers. From this assessment, 46 papers were excluded, resulting in the final selection of 31 papers.

Fig. systematic literature review (SLR) flow chart



SECTION III: discussion of results

Through figure No. 01 above, scientific studies have focused on an important point, which is the impossibility of the existence of Robotics-Driven Autonomous without respecting the minimum principle.

Studies have also confirmed that addressing the use of Neural Network in contemporary warfare requires extensive discussion among experts in humanitarian law as well as technology specialists.

The studies that discussed autonomous weapons focused largely on their status during armed conflicts, and even IHL did not predict the existence of this type of weapon that mimics the human mind, even though Article 36 of the First Additional Protocol of 1977 has an application to all weapons with advanced technology.

In contrast, the issue of determining the Formal nature of autonomous weapons enhanced by artificial intelligence requires a lot of research, which will face three possibilities as follows:

Natural Person: Self-Learning cannot be natural people, because the natural person is the human being. This is a very complex issue and raises concern in the future, especially with the great development in technology and artificial intelligence, through which science can reach the point of matching a human with an artificial human in feelings and behavior, with our strong reservation that this is impossible (because God is the only Creator).

Juridical person: this situation raises other formal issues, which is the problem of criminal responsibility, because according to Article 25 of the Rome Statute: "The Court shall have jurisdiction over natural persons pursuant to this Statute".

This official vacuum makes the Rome Statute inapplicable to crimes committed by Algorithm-Driven, which are the most serious crimes in the world (The crime of genocide; Crimes against humanity; War crimes and the crime of aggression).

Third legal person: In light of this complex situation, we propose that it is time to initiate a discussion among international law experts on the possibility of introducing a third category of Acceptable personhood, specifically addressing robots enhanced with artificial intelligence. This category would encompass both autonomous weapons in wartime, as well as civilian robots in peacetime. Our focus is on fully autonomous systems that make decisions without human intervention.

Conclusion:

The characteristic of AI-Infused, which is to make decisions without human intervention, is the point that raised the differences between supporters and opponents of their use. However, in any case, no definitive position on their statutory status can be taken without considering the extent to which they adhere to Armed Conflict Law, which prioritizes formal, Philanthropic, and moral considerations.

As a result, the traditional principles that are at the heart of War Law are traditional principles that were created primarily for human beings to respect, such as the principle of distinction, the principle of proportionality, the principle of humanity, and the principle of Defense necessity.

Given the existence of autonomous weapons, which are currently deployed in contemporary conflicts, we initially propose the addition of other principles form of a Judicial matrix that 'integrates international law and technology, such as reliability, transparency, precision of information, possibility of timely human intervention and the existence of responsibility regarding certain standards.

In this context, we emphasize two important points: First, achieving these principles requires addressing them within both the field of Civilian Protection Law and technological sciences. Second, enriching these principles in the form of a matrix would provide valuable scientific and Constitutional material for international experts and the

International Committee of the Red Cross to discuss contemporary Hurdles to International Warfare Law

Also, in this context, we propose the necessity of adding a protocol to the 1949 Geneva Conventions that addresses new Barriers to Conflicts Law, focusing on advanced weaponry, including those enhanced by artificial intelligence, as well as other Complications such as the role of private security companies.

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