

ARTIFICIAL INTELLIGENCE IN ARMED CONFLICTS: LEGAL AND ETHICAL IMPLICATIONS FOR INTERNATIONAL HUMANITARIAN LAW



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Abstract :

This article explores the convergence of artificial intelligence (AI) and international humanitarian law (IHL), highlighting the legal and ethical issues raised by AI in conflict conflicts. As armed forces increasingly utilize AI technologies, including self-operating drones and decision-making algorithms, grasping IHL principles becomes essential. The article examines current legal structures, pinpointing gaps and ambiguities in applying conventional IHL principles such as distinction and proportionality to AI technologies. It also tackles ethical issues, especially related to accountability for misconduct or unintended damage resulting from autonomous weapons. The ethical responsibility of human operators and possible biases in algorithms are explored in more detail. Considering these challenges, the article provides policy suggestions to guarantee AI systems align with IHL while promoting innovation, achieving both compliance with the law and progress in technology.

Key Words: artificial intelligence; international humanitarian law; warfare Technology; autonomous weapons; algorithms

الذكاء الاصطناعي في النزاعات المسلحة: الآثار القانونية والأخلاقية في القانون الدولي الإنساني

ملخص:

يستكشف هذه المقال التقارب بين الذكاء الاصطناعي والقانون الإنساني الدولي ، وتسلب الضوء على القضايا القانونية والأخلاقية التي أثارها الذكاء الاصطناعي في حالات الصراع، ذلك أن القوات المسلحة تستخدم بشكل متزايد تقنيات الذكاء الاصطناعي، بما في ذلك الطائرات بدون طيار ذاتية التشغيل وخوارزميات صنع القرار، و بالتالي يصبح استيعاب مبادئ القانون الإنساني الدولي أمراً ضرورياً في هذه الظروف، و عليه يبحث هذا المقال في الهياكل القانونية الحالية، وتحديد الثغرات وأوجه الغموض في تطبيق مبادئ القانون الإنساني الدولي التقليدية مثل التمييز والتناسب مع تكنولوجيات الذكاء الاصطناعي، كما أنه يعالج القضايا الأخلاقية، لا سيما المتعلقة بالمساءلة عن سوء السلوك أو الضرر غير المقصود الناتج عن الأسلحة المستقلة، فضلا عن استكشاف المسؤولية الأخلاقية للمشغلين البشريين



والتحيزات المحتملة في الخوارزميات بمزيد من التفصيل، و بالنظر إلى هذه التحديات، تقدم المقال أيضا عن مقترحات من أجل ضمان توافق أنظمة الذكاء الاصطناعي مع القانون الإنساني الدولي مع تعزيز الابتكار، وتحقيق الامتثال للقانون والتقدم في مجال التكنولوجيا.

الكلمات المفتاحية: الذكاء الاصطناعي؛ والقانون الإنساني الدولي؛ تكنولوجيا الحرب؛ الأسلحة المستقلة؛ الخوارزميات.

L'intelligence artificielle dans les conflits armés : implications juridiques et éthiques pour le droit international humanitaire

Résumé :

Cet article explore la convergence de l'intelligence artificielle (IA) et du droit international humanitaire (DIH), en mettant en évidence les questions juridiques et éthiques soulevées par l'IA dans des situations de conflit. Les forces armées utilisent de plus en plus les technologies de l'IA, notamment des drones autonomes et des algorithmes décisionnels, ce qui rend indispensable la compréhension des principes du DIH. L'article examine les structures juridiques actuelles, en mettant en évidence les lacunes et les ambiguïtés dans l'application des principes conventionnels du DIH tels que la distinction et la proportionnalité aux technologies de l'intelligence artificielle. Il aborde également des questions éthiques, notamment en ce qui concerne la responsabilité pour les fautes ou les dommages non intentionnels résultant d'armes autonomes. La responsabilité éthique des opérateurs humains et les biais possibles dans les algorithmes sont explorés plus en détail. Compte tenu de ces défis, l'article fournit des suggestions stratégiques pour garantir que les systèmes d'IA s'alignent sur le DIH tout en favorisant l'innovation, la conformité à la loi et les progrès technologiques .

Mots-Clés : intelligence artificielle ; droit international humanitaire ; guerre Technologie ; armes autonomes ; algorithmes



Introduction:

The swift advancement of Artificial Intelligence (AI) technology has profoundly influenced multiple sectors, particularly in warfare, raising important legal and ethical issues. AI systems capable of processing vast amounts of data and making independent decisions pose significant concerns for the existing structures of International Humanitarian Law (IHL). The growing use of AI in military activities, especially in surveillance drones and autonomous weapons, highlights the necessity to reevaluate the legal and ethical consequences of these technologies. In this situation, IHL, which regulates the behavior during armed conflicts and seeks to safeguard non-combatants, encounters unparalleled challenges that demand immediate action .

The main issue tackled in this article focuses on the inquiry: How can international humanitarian law develop to incorporate AI technologies in warfare while maintaining accountability, ethical practices, and adherence to current legal standards? Since AI systems function without human oversight, essential principles of IHL—like distinction, proportionality, and necessity—need to be reassessed. Additionally, ethical issues related to accountability, transparency, and potential biases in AI decision-making complicate the moral obligations of states and military leaders .

To tackle these concerns, this article employs a critical analysis approach, exploring the relationship between AI developments and existing legal structures. The examination will investigate possible changes to IHL to more effectively govern the application of AI in warfare, ensuring that advancements in technology do not compromise the fundamental ethical and legal standards of military behavior. The suggested hypotheses indicate that although AI poses difficulties for the implementation of IHL, strategic legal changes can alleviate these issues and uphold ethical standards in conflict .

In conclusion, this article aims to enhance the current discussion regarding the legal and ethical aspects of AI in warfare, providing perspectives on how international law can evolve with the changing technological environment. By tackling these intricate issues, the article aims to suggest specific legal changes that can protect both the integrity of IHL and the ethical obligations of armed conflict in an era of rising automation.



THE FIRST TOPIC:

Legal Development of AI Uses in Armed Conflict

The convergence of Artificial Intelligence (AI) and warfare has raised significant legal and ethical issues, transforming the dynamics of contemporary conflict. This part examines the history of AI in combat, following its evolution and the growing incorporation of autonomous systems in military activities. It also explores the development of warfare in relation to technological progress and the consequences for current legal systems, especially International Humanitarian Law (IHL). Grasping these dynamics is essential for modifying IHL to tackle the intricacies of AI's influence in modern armed conflicts.

First requirement: Background on AI in Armed Conflicts

The incorporation of Artificial Intelligence (AI) into combat represents a notable change in military tactics, introducing fresh ethical, legal, and operational dilemmas. International Humanitarian Law (IHL) is crucial in tackling these issues, guaranteeing that military operations utilizing AI adhere to recognized principles of humanity, distinction, and proportionality.

First section: Brief overview of AI technologies used in military applications.

The integration of artificial intelligence (AI) in military applications represents a major shift in modern combat. AI technologies like machine learning, computer vision, and natural language processing are increasingly utilized to enhance decision-making, boost efficiency, and minimize risks for human soldiers. Drones and robotic vehicles, referred to as autonomous weapons systems, can perform surveillance, gather intelligence, and strike targets without requiring human oversight¹. Moreover, the incorporation of AI-driven technologies in military conflicts raises significant legal and ethical issues regarding compliance with international humanitarian law (IHL), particularly concerning principles such as distinction and proportionality. The evolving traits of these technologies necessitate ongoing dialogue between policymakers, legal professionals, and military officials to ensure that AI usage in combat adheres to recognized legal norms².

¹ - Glaser, Hannah K. *Autonomous Weapons and International Law*. Cambridge University Press, United Kingdom, 2020, p. 15.

² - Smith, John. *AI in Warfare: Legal and Ethical Challenges*. Oxford University Press, United Kingdom, 2021, p. 42.



Second section: Historical context of armed conflicts and technological advancements.

Incorporating the historical backdrop of conflict and technological progress is essential for grasping how previous innovations, like the development of firearms or nuclear weapons, influenced legal and ethical standards. Making parallels between AI and warfare aids in understanding the present difficulties, providing perspectives on the development of legal frameworks and their necessary adaptations.

Technological progress has greatly influenced the evolution of warfare throughout history. Technological innovations like the longbow during medieval periods, gunpowder, and eventually nuclear arms have significantly influenced military strategies and combat throughout history¹. The Industrial Revolution introduced mechanized warfare, transforming battlefield tactics and logistics, leading to significant casualties in conflicts like World War I. Likewise, sophisticated technologies during the Cold War, including missiles and satellite reconnaissance, greatly influenced military strategy². Currently, grasping the historical background is essential for assessing the influence of emerging technologies on international humanitarian law and conflict as artificial intelligence is incorporated into military practices.

Second requirement: The Evolution of Armed Conflicts and AI Technologies

The development of warfare has been significantly shaped by technological progress, especially with the emergence of Artificial Intelligence (AI). Drones, self-driving vehicles, and AI-powered decision-making systems are transforming military tactics. This advancement reflects previous innovations, like the introduction of gunpowder and nuclear arms, which transformed warfare as well. Grasping the historical context of these technologies underscores their transformative potential as well as the intricate challenges they pose in contemporary conflict.

First section: Current AI Applications in Military Context

Progress in technology, particularly the integration of Artificial Intelligence (AI), has greatly influenced the evolution of warfare over the course of history. At present, AI is employed across multiple applications, such as self-flying drones and monitoring systems, in addition to decision-support tools that enhance strategic planning and operational efficiency on the battlefield. These developments are

¹ - van Creveld, Martin, *Technology and War: From 2000 B.C. to the Present*, Free Press, United States, 1991, p. 78.

² - Hoffman, Frank G, *Conflict in the 21st Century: The Rise of Hybrid Warfare*, Strategic Studies Institute, United States, 2007, p. 23.



transforming conventional warfare strategies by facilitating greater operational efficiency and the capability to rapidly assess data in difficult circumstances¹. Furthermore, the use of AI in military contexts raises significant ethical and legal issues, particularly regarding accountability and the potential for autonomous systems to make decisions impacting lives.

AI can enhance precision and security for troops, yet it also poses challenges in adhering to International Humanitarian Law (IHL) requirements, particularly in maintaining the principles of distinction and proportionality². The ongoing integration of AI in military operations marks a significant shift in combat strategies and necessitates a revaluation of legal frameworks because of the unique challenges posed by these technologies.

Second section: Drones, autonomous vehicles, and decision-making systems.

The rise of drones, autonomous vehicles, and advanced decision-making technologies leads to a major shift in modern combat, raising crucial questions regarding compliance with International Humanitarian Law (IHL). For instance, drones are crucial in military operations, offering capabilities like reconnaissance, surveillance, and accurate strikes while ensuring the safety of personnel. However, employing drone technology complicates adherence to the principles of distinction and proportionality because of the possibility of algorithmic mistakes or insufficient situational awareness³. Similarly, the advancement of autonomous vehicles presents benefits and challenges; while they can enhance efficiency and reduce military fatalities, their deployment necessitates strict oversight to ensure compliance with IHL obligations.

The ethical concerns of allowing machines to make lethal choices pose significant anxieties regarding accountability and the practical enforcement of legal regulations in swiftly evolving combat scenarios⁴. Consequently, even with the various advantages these technologies offer, it is essential to thoroughly examine their effects on humanitarian principles and the legal frameworks governing armed conflict.

¹ - Scharre, Paul, *Army of None: Autonomous Weapons and the Future of War*, Penguin Press, 2018, p. 76

² - Horowitz, Michael C, *The Ethics of Autonomous Weapons*, The University of Pennsylvania Press, 2019, p. 92

³ - Gunther, Thomas, *The Law of Armed Conflict and the Use of Drones*, Routledge, 2020, p. 145

⁴ - Bhuta, Nehal, *Autonomous Weapons Systems and the Law*, Cambridge University Press, 2016, p. 213



Third section: Historical Evolution of Armed Conflicts Technology: Comparisons to past innovations

The evolution of technology in warfare over time has significantly transformed how conflicts occur, frequently leading to substantial legal and ethical challenges. The emergence of armaments such as the machine gun and chemical weapons transformed military tactics and sparked urgent calls for regulations to address their impact on humanity. The introduction of the machine gun during World War I exemplifies this shift; its capacity for massive destruction rendered traditional battle strategies ineffective, resulting in increased violence and discussions on regulating wartime conduct¹. During the same conflict, the deployment of chemical weapons showcased how modern technologies could inflict damage on civilian populations, leading to the establishment of international treaties such as the 1925 Geneva Protocol.

The historical context of these progressions highlights the ongoing trend of military technology, with each new innovation raising questions regarding compliance with International Humanitarian Law and the protection of human rights during wartime². The rise of contemporary technologies such as drones and autonomous systems underscores the necessity of ongoing conversations about their effects on humanitarian law, informed by insights gained from earlier innovations.

Third requirement: Legal Frameworks Governing AI in Armed Conflicts

The legal structures regulating AI in combat are based on current International Humanitarian Law (IHL), which encompasses major treaties like the Geneva Conventions and customary law norms. Nonetheless, the incorporation of AI technologies in military actions reveals considerable gaps and challenges, since existing laws do not adequately tackle the complexities of autonomous systems. This part examines the necessity for legal adjustments to guarantee accountability and adherence to humanitarian principles.

First section: Existing International Humanitarian Law

Integrating Artificial Intelligence (AI) into military operations presents significant challenges for existing legal frameworks, particularly concerning International Humanitarian Law (IHL). While IHL sets fundamental rules for protecting civilians and regulating conflict conduct, the use of AI technologies raises issues related to accountability, transparency, and compliance with these rules. Legal

¹ - Stevenson, David, *With Our Backs to the Wall: Victory and Defeat in 1918*, Basic Books, 2011, p. 105

² - Brewer, Susan, *Deadly Monopolies: The Shocking History of Genetic Engineering and the Future of Food*, Public Affairs, 2011, p. 212



frameworks often struggle to tackle the complex challenges posed by autonomous systems, particularly regarding the principles of distinction and proportionality¹.

Moreover, existing regulations fall short in addressing the unique challenges posed by AI in warfare, highlighting the urgent need for revised rules that can adapt to the rapid technological progress². Consequently, while IHL remains crucial for ensuring humanitarian protection, the emergence of AI necessitates a revaluation and possible adjustment of these laws to preserve their relevance and effectiveness in contemporary conflict.

Second section: Key treaties and customary law relevant to AI in Armed Conflicts

Essential agreements like the Geneva Conventions and customary international law largely influence the legal framework concerning the employment of Artificial Intelligence (AI) in military operations. The Geneva Conventions, particularly the Third and Fourth Conventions, emphasize the significance of protecting civilians and ensuring humane treatment during wartime, necessitating modifications to accommodate the effects of AI technologies³. Moreover, the Additional Protocols enhance the significance of distinction and proportionality, crucial for employing autonomous systems in military operations.

The new technologies overlap with legal structures; while the fundamental principles of IHL remain applicable, the unique aspects of AI necessitate thoughtful consideration when implementing them in operations⁴. The relationship between current legal norms and the evolving nature of warfare technology underscores the necessity of adopting a proactive strategy to guarantee that AI applications respect humanitarian principles.

Third section: Gaps and Challenges in Current Legal Frameworks

The emergence of autonomous systems in combat presents urgent challenges for International Humanitarian Law (IHL), especially concerning accountability, targeting, and the protection of civilians. Attributing responsibility for decisions made by AI-powered systems complicates accountability, as it grows more

¹ - Horowitz, Michael C, *The Ethics of Autonomous Weapons*, The University of Pennsylvania Press, 2019, p. 89

² - Crotoft, Rebecca, "The Law of Autonomous Weapons Systems: A New Paradigm, *Journal of Conflict and Security Law*", vol. 22, no. 2, Oxford University Press, 2017, pp. 222

³ - Henckaerts, Jean-Marie, "Customary International Humanitarian Law" Volume I: Rules, ICRC, 2005, p. 15

⁴ - Schmitt, Michael N, "The Implications of Autonomous Weapon Systems for International Humanitarian Law", *Harvard National Security Journal*, vol. 8, no. 1, Harvard Law School, 2017, pp. 140



challenging to hold people or governments liable for breaches. IHL needs to evolve to guarantee ethical behaviour and efficient legal remedies in contemporary conflicts.

The current laws governing warfare have significant shortcomings and challenges, especially regarding accountability, targeting, and protecting civilians in the era of Artificial Intelligence (AI). A significant concern is the difficulty of determining responsibility for actions performed by autonomous systems, resulting in intricate legal inquiries regarding accountability. It is remarkable that granting machines the power to make deadly choices complicates existing accountability frameworks in International Humanitarian Law¹. Furthermore, employing AI in targeting operations complicates adherence to the principles of distinction and proportionality, essential for safeguarding civilians.

The lack of clear guidelines on the use of AI in targeting could lead to a possible increase in humanitarian crises, presenting more risks for civilian communities². These challenges underscore the urgent need for a comprehensive reassessment of existing legal frameworks to ensure they effectively address the complexities introduced by AI technologies in modern warfare.

Attributing responsibility for actions taken by autonomous systems in warfare presents considerable legal and ethical challenges, complicating usual accountability processes within International Humanitarian Law (IHL). Granting machines the authority to make lethal decisions raises significant questions about accountability for any accidental harm to civilians or breaches of IHL principles. The lack of human oversight in autonomous tasks can lead to ambiguity regarding accountability, causing uncertainty over whether responsibility falls on the operators, developers, or military leaders³.

Moreover, the absence of clarity in AI decision-making hinders accountability by creating challenges in grasping the reasoning behind decisions taken in combat scenarios⁴. These challenges prompt the necessity for swift discussions on establishing robust legal frameworks to address accountability regarding increasingly autonomous military technologies.

¹ - Scharre, Paul, *Army of None: Autonomous Weapons and the Future of War*, Penguin Press, 2018, p. 162

² - MacKinnon, Robert J, "Autonomous Weapons and the Law of Armed Conflict: A Critical Analysis", *International Review of the Red Cross*, vol. 99, no. 905, ICRC, 2017, pp. 311

³ - Schmitt, Thomas G. H, *The Ethical Implications of Autonomous Weapons Systems*, Routledge, 2020, p. 58

⁴ - Horowitz, Michael C, "The Impact of Autonomous Weapons on International Law", *Journal of Law, Technology & Policy*, vol. 2018, no. 2, University of Illinois, 2018, pp. 173



THE SECOND TOPIC:

Analysing The Implications of Principles of IHL in AI Age

The ethical issues surrounding AI in combat present major concerns, especially concerning the principles of distinction and proportionality. As AI-powered systems more frequently decide on matters of life and death, these fundamental principles of International Humanitarian Law face scrutiny. This segment examines case studies to investigate the difficulties presented by autonomous weapons, underscoring the necessity for policy and legal changes to guarantee accountability and ethical behaviour in contemporary warfare.

First requirement: Ethical Implications of Autonomous Weapons: Distinction, Proportionality, and Human Judgment

The ethical issues related to autonomous weapons are significant, especially concerning the assignment of life-and-death choices to machines. This brings up important inquiries regarding the principles of distinction and proportionality, which are fundamental aspects of International Humanitarian Law. The growing influence of AI in military decision-making raises questions about the need for human judgment, requiring a thorough analysis of its effects on accountability and compliance with humanitarian standards in contemporary warfare.

First section: Ethical Considerations of Autonomous Weapons

The ethical ramifications of incorporating Artificial Intelligence (AI) into warfare question traditional notions of morality and responsibility in conflict. The primary concern is whether it is ethically justifiable to allow machines to make life-and-death decisions, as this delegation of authority might undermine the fundamental human obligation to uphold humanitarian principles due to the absence of human empathy in autonomous systems, raising doubts about their capability to render morally sound choices in difficult combat scenarios¹. Additionally, the ethical issues surrounding autonomous weapons raise questions regarding accountability and transparency.

The significance of ethical guidelines becomes evident when it emphasizes the necessity for these systems to comply with moral standards². Consequently, as the military becomes more reliant on AI technologies, it is crucial to promptly address

¹ - Wallach, Wendell, *Moral Machines: Teaching Robots Right From Wrong*, Oxford University Press, 2008, p. 210

² - Scharre, Paul, *Army of None: Autonomous Weapons and the Future of War*, Penguin Press, 2018, p. 184



ethical issues and participate in conversations about the moral obligations associated with their use.

Second section: The moral implications of delegating life-and-death decisions to machines.

The ethical discussions and worries among academics and professionals regarding entrusting machines with life-and-death decisions in warfare present important moral considerations. The primary issue is whether autonomous systems can make choices that align with human values and humanitarian principles, particularly in dynamic and complex combat situations. The machines lack the essential human qualities of empathy and moral judgment required to completely grasp the complex consequences of their actions¹. This raises significant ethical issues about the application of algorithms to make life-and-death decisions, potentially leading to extensive harm and violations of International Humanitarian Law.

Furthermore, it is crucial to emphasize that eliminating humans from decision-making may create an ethical void, enabling militaries to engage in warfare without thoroughly evaluating the consequences of their actions². Consequently, the concept of autonomous weapons brings up concerns regarding moral responsibility in combat, emphasizing the necessity to scrutinize the ethical principles that govern their use.

Third section: The Principle of Distinction and Proportionality

The core principles of distinction and proportionality are essential components of International Humanitarian Law (IHL), guiding combat operations by mandating that combatants distinguish between military and civilian objectives and by ensuring that military actions do not cause excessive civilian harm relative to the anticipated military advantage. Nonetheless, the integration of Artificial Intelligence (AI) into military operations poses significant challenges to these principles. Thus, it is crucial to examine how employing AI for targeting choices might obstruct military personnel's capacity to accurately assess the condition of people and items during combat, potentially leading to the misidentification and unlawful engagement of non-combatants³.

Moreover, the implementation of algorithms in decision-making raises concerns regarding the transparency and accountability of these systems, complicating the

¹ -Wallach, Wendell, and Colin Allen, *Moral Machines: Teaching Robots Right From Wrong*, Oxford University Press, 2008, p. 127

² - Scharre, Paul, *Army of None: Autonomous Weapons and the Future of War*, Penguin Press, 2018, p. 162

³ - Schmitt, Michael N, *The Law of Armed Conflict: International Humanitarian Law in War*, Oxford University Press, 2013, p. 221



assurance of compliance with IHL. AI systems can enhance situational awareness by analysing vast quantities of data, yet they might struggle with making intricate ethical and legal decisions required to apply the principles of distinction and proportionality effectively¹. Therefore, as artificial intelligence keeps changing modern warfare, it is crucial to analyse its effects on maintaining these key humanitarian principles.

Fourth section: The Role of Human Judgment

Human judgment is vital in military decision-making, particularly in light of the swift advancement of technologies such as Artificial Intelligence (AI). Advocates for maintaining human oversight assert that the complexities and ethical dimensions of warfare necessitate the profound understanding that only humans can provide. In this situation, the significance of moral reasoning and empathy emerges in decision-making to avert loss of life, traits that machines lack².

Additionally, human operators have enhanced abilities to assess the circumstances and environment of a battlefield, enabling them to make decisions that adhere to International Humanitarian Law (IHL) and ethical standards³. The absence of human oversight in autonomous systems raises worries regarding accountability and potential violations of IHL. Consequently, a governance framework is essential to ensure human involvement in important military decisions. Though AI technologies play a larger role in military operations, it remains essential to uphold human judgment to guarantee that ethical standards are preserved and civilian lives are protected during wartime.

Second requirement: Case Studies Analyzation

This part analyses significant case studies to investigate the practical effects of AI in military conflicts. Through the examination of particular cases involving the use of autonomous systems, we evaluate the results and extract important insights about their legal, ethical, and humanitarian implications. These case studies provide essential perspectives on the difficulties encountered in implementing International Humanitarian Law, emphasizing both the achievements and the shortcomings of existing frameworks.

¹ - Scharre, Paul, *Army of None: Autonomous Weapons and the Future of War*, Penguin Press, 2018, p. 177

² - Wallach, Wendell, and Colin Allen, *op. cit.*, p. 215

³ - Scharre, Paul, *Army of None: Autonomous Weapons and the Future of War*, Penguin Press, 2018, p. 194



First section: Case Studies

Analysis of existing autonomous weapon systems provides crucial insights into their functioning and the associated legal and ethical concerns. A notable example is the use of armed drones, which various nations, including the United States, have extensively employed in military operations. Employing drones for specific strikes underscores the advantages of precise targeting while also presenting the danger of unintended damage, raising worries about compliance with International Humanitarian Law¹.

Additionally, there exists research highlighting the increasing sophistication of autonomous systems such as loitering munitions that can operate with minimal human intervention. This raises significant concerns regarding accountability and adherence to the principles of distinction and proportionality during wartime². With these developments advancing, the instances highlight the essential need for a robust legal and ethical framework to govern their use, ensuring they do not breach established humanitarian principles.

Second section: Examination of case studies

Examining Israeli drones and American military AI reveals crucial insights into the utilization of autonomous systems in contemporary warfare and their effects on International Humanitarian Law (IHL). The Israeli Defence Forces' deployment of drones for reconnaissance and precision attacks, particularly in the Gaza Strip, has raised concerns over civilian harm and compliance with the principle of distinction. Research indicates that integrating drones into military tactics has transformed the nature of warfare, while also highlighting the ethical concerns associated with their use, especially regarding accountability for unforeseen outcomes³.

Conversely, the U.S. military aims to enhance intelligence gathering and target identification through advanced data analysis utilizing AI technologies such as Project Maven. However, employing AI raises significant issues regarding the transparency of decision-making processes and the risk of errors in targeting that might lead to violations of IHL⁴. These case studies underscore the urgent need for robust legal structures and ethical standards to govern the deployment of autonomous

¹ - Cortright, David, Drones and the Future of Armed Conflict, The University of Chicago Press, 2015, p. 93

² - Horowitz, Michael C, "The Ethics of Autonomous Weapons Systems, Journal of Conflict and Security Law", vol. 22, no. 2, Oxford University Press, 2017, pp. 159-160

³ - Shamir, Eitan, The Evolution of Israel's Drone Doctrine, The University of Chicago Press, 2020, p. 114

⁴ - Horowitz, Michael C, "AI and the Future of Warfare, Journal of Law and Cyber Warfare", vol. 7, no. 1, 2018, pp. 67



systems in combat, ensuring that humanitarian principles are upheld in an increasingly automated battlefield.

Third section: Outcomes and Lessons Learned

Research on autonomous weapon systems such as U.S. drones and military AI applications showcases their effectiveness and the ethical dilemmas they raise. The U.S. drone initiative has demonstrated notable operational efficiency in surveillance and precision strikes, thus effectively reducing risks to military personnel. Nonetheless, although effective, there are major ethical concerns related to civilian casualties and the psychological impact on affected communities, raising questions about the legitimacy and proportionality of such operations¹. Similarly, the U.S. military's Project Maven, which employs AI for quick data analysis and target identification, has received praise for enhancing operational capacities but has faced backlash regarding potential algorithmic bias and a lack of transparency in its decision-making processes.

These issues complicate the ethical landscape of modern warfare since they could lead to unintended civilian harm and create concerns regarding accountability if autonomous systems fail or misidentify targets². The case studies emphasize the necessity of robust regulatory frameworks and ethical standards to oversee the complex interplay between technological advancements and humanitarian values in armed conflict.

Third requirement: Proposals for Policy and Legal Reform

This part examines how to improve global legal systems to tackle the issues created by AI in combat. It proposes changes to current treaties or the establishment of new rules specifically designed for AI technologies. Moreover, it supports the enhancement of ethical standards and optimal practices while underscoring the importance of global collaboration and discussion to guarantee efficient, unified reactions to the changing landscape of warfare.

First section: Enhancing International Legal Frameworks

There is an urgent requirement to enhance global legal structures governing armed conflict to address the challenges posed by autonomous weapon systems and maintain International Humanitarian Law (IHL). Regrettably, existing treaties inadequately address the particular ethical concerns associated with military AI technology, necessitating a comprehensive evaluation and potential amendment of

¹ - Shamir, op, cit, p. 128

² - Horowitz, Michael C, op, cit, pp. 56-57



these legal accords¹. This entails formulating exact definitions of autonomous systems within legal texts and establishing comprehensive guidelines that dictate the operation of these technologies to ensure accountability and adherence to humanitarian principles.

Furthermore, the importance of integrating ethical considerations emerges within legal frameworks, necessitating regulations that mandate human oversight in the deployment of autonomous weapons². Facilitating a transparent dialogue among countries, legal professionals, and community organizations, these modifications can better address the issues of modern warfare while safeguarding human rights and humanitarian values.

Second section: Suggestions for amending existing treaties or creating new regulations specific to AI.

As Artificial Intelligence (AI) increasingly integrates into military operations, it is crucial to revise existing treaties and establish new regulations that address the unique challenges posed by autonomous systems. An essential suggestion is to revise the Additional Protocols of the Geneva Conventions to incorporate distinct rules on the use of AI technologies in warfare, underscoring the necessity of human oversight in all life-risking decisions. Updating these legal structures could clarify states' responsibilities concerning autonomous weapons, ensuring that humanitarian principles persist in directing military conduct³.

Moreover, an international accord targeting autonomous weapon systems is needed, akin to the Convention on Certain Conventional Weapons. This agreement would set clear limitations on their use and operational protocols to prevent unlawful application⁴. Through making proactive changes to current frameworks and establishing specific regulations, the international community can more effectively manage the intricate ethical and legal challenges posed by AI in warfare, safeguarding civilians and upholding international humanitarian law.

Third section: Promoting Ethical Guidelines and Best Practices

Endorsing ethical standards and best practices in the use of Artificial Intelligence (AI) for military operations is vital to maintain humanitarian principles and protect civilian lives. An essential recommendation is for military institutions to

¹ - Asaro, Peter, *The Ethics of Robot Arms*, MIT Press, 2019, p. 87

² - De La Vega, Ana, "Autonomous Weapons and International Humanitarian Law: A Necessary Dialogue", *International Review of the Red Cross*, vol. 100, no. 909, ICRC, 2018, pp. 370-371

³ - Sassòli, Marco, *International Humanitarian Law: A Comprehensive Overview*, Cambridge University Press, 2020, p. 203

⁴ - Daskal, Jennifer, "Regulating Autonomous Weapons: The Case for a New Treaty", *Journal of International Law and Politics*, vol. 52, no. 3, New York University School of Law, 2020, p. 699



develop comprehensive ethical guidelines that prioritize transparency, accountability, and human oversight in the deployment of autonomous systems. Consequently, it is crucial to establish clear protocols for decision-making processes that involve human judgment, particularly in circumstances where lives are involved¹.

Moreover, the importance of collaborative interdisciplinary efforts is evident in establishing ethical standards, advocating for the engagement of ethicists, legal professionals, and technologists to address the various challenges posed by AI in military contexts². Military organizations and governments can effectively maneuver through the intricate moral terrain of AI technology by establishing robust ethical guidelines and engaging diverse stakeholders, ensuring that its application complies with international law and ethical considerations.

Fourth section: Encouraging International Cooperation and Dialogue

Encouraging global cooperation and dialogue is essential for developing effective guidelines for the use of Artificial Intelligence (AI) in warfare, as the extensive influence of this technology transcends national borders and poses common challenges. Engaging in discussions with various stakeholders is crucial for fostering a shared understanding of the ethical and legal implications of AI applications in military contexts. Therefore, it is vital to engage various stakeholders, including governments, NGOs, and the technology sector, to create regulations that take into account diverse cultural and legal perspectives³.

Moreover, these global dialogues might lead to the establishment of binding agreements and frameworks that enhance accountability and transparency in military AI applications, ultimately reducing the risks associated with autonomous weapon systems⁴. By promoting dialogues on a global scale, worldwide initiatives can collaborate to address the ethical, legal, and practical challenges of AI in warfare, ensuring that advancements in technology do not compromise humanitarian principles or exacerbate conflicts.

¹ - Wallach, Wendell, *Artificial Intelligence and the Future of Warfare*, Rowman & Littlefield, 2020, p. 95

² - Horowitz, Michael C, "The Ethical and Legal Implications of Artificial Intelligence in Warfare", *Harvard National Security Journal*, vol. 10, no. 2, Harvard Law School, 2019, pp. 120_123

³ - Brown, Ian, *Regulating Artificial Intelligence: The Global Challenge*, Oxford University Press, 2021, p. 142

⁴ - Stupples, David A, "The Need for International Cooperation on Autonomous Weapons", *International Affairs*, vol. 95, no. 4, Royal Institute of International Affairs, 2019, pp. 750-754



Conclusion

In conclusion, integrating Artificial Intelligence (AI) into military operations presents significant legal and ethical challenges that demand urgent attention from the global community. This analysis has revealed many important insights about the impacts of AI on International Humanitarian Law (IHL). The implementation of autonomous systems that find it difficult to effectively identify combatants and civilians in intricate settings is jeopardizing the core principles of distinction and proportionality in IHL. Moreover, the risk of bias in AI algorithms raises important ethical concerns regarding accountability and the possibility of causing unfair harm to civilians. These obstacles emphasize the importance of human oversight in lethal decision-making processes, underscoring that ethical considerations must take precedence in military approaches that employ AI technologies.

In the future, it is crucial for legal structures to adjust to swiftly changing warfare, which encompasses sophisticated technology and greater dependence on autonomous systems. As military capabilities advance, existing legal mechanisms might be insufficient to adequately regulate the conduct of armed conflicts. Therefore, it is essential to reassess and revise international legal structures to reflect the unique characteristics of AI in combat. This entails both updating current treaties and establishing new agreements that address the ethical and operational issues related to autonomous weapon systems. By fostering global cooperation and dialogue, the international community can work towards developing robust regulatory frameworks that ensure compliance with humanitarian principles and mitigate the risks associated with AI in armed conflict. Ultimately, adopting a proactive approach to legal reform and ethical standards will be crucial for addressing the intersection of technology and humanitarian law, ensuring that advancements in military capabilities do not undermine human rights and dignity during armed conflicts.

In summary, tackling the difficulties that AI presents to warfare necessitates a comprehensive strategy.

Initially, improving global legal frameworks is vital, making certain that current legislation effectively governs the application of AI in conflict and safeguards essential humanitarian values.

Secondly, it is essential to modify current treaties or establish new regulations specifically designed for AI technologies, guaranteeing that the distinct features of autonomous systems are addressed by legal standards.

Third, advocating for ethical standards and optimal practices will foster accountability and transparency in AI decision-making, ensuring that military actions stay consistent with ethical norms.



Ultimately, promoting international collaboration and discussion** is crucial to build a worldwide agreement, enabling countries to work together in creating and implementing rules that reduce risks and support peace while honouring IHL.

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