**Ethical Implications of Autonomous Weapons and Drones in Warfare**

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**Introduction**

In recent years, autonomy has been a growing concept in most industries, whether in transportation, medicine, finance, or warfare. Autonomy harps on the upcoming technology in artificial intelligence (AI) and machine learning and is proclaimed to be the future of technology. Autonomous weaponry and drones in warfare are becoming increasingly prevalent, raising talks about the ethics of their use. Autonomous weapons are systems that can operate without human intervention, using artificial intelligence and machine learning to make decisions about targeting and engagement. Drones, also known as unmanned aerial vehicles (UAVs), are aircraft that can be remotely controlled or flown autonomously. They can be used for a variety of military purposes, including surveillance, reconnaissance, and targeted strikes. The use of these technologies raises important ethical and legal questions about the conduct of war and the protection of civilians. These new technologies have allowed militaries with a vast range of capabilities, as they increase precision and lethality, reduce the risk for soldiers, and can be used to gather intelligence unreachable by man. However, as previously mentioned, significant ethical and legal concerns arise with using AI in warfare, as critics may argue that these AI technologies can threaten civilians and undermine the principle of human control in war. Autonomous weaponry and drones would make deadly decisions without a second guess, which can cause undesired casualties, while also sprouting the concern of getting hacked or hijacked. As investigations of the moral principles governing the creation and use of these technologies continue, autonomous weapons and drones, informatics research is impacted. Research in the field of informatics focuses on topics like artificial intelligence, human-computer interaction, and data ethics, offering crucial insights into the moral issues raised by autonomous systems and facilitating the creation of ethical policies and rules in the developing field of modern warfare.

# Literature Review

The rapid development and incorporation of autonomous weaponry in warfare has raised intense ethical discussions, due to the many complexities including respect for international law, the protection of civilians, and lack of human agency. As scholars, moralists, and military experts attempt to tackle these issues, this review compiles a wide range of viewpoints. The emphasis is on finding a careful balance between human rights protection, ethical limits, and technical progress. The assessment seeks to shed light on important moral conundrums and provide direction for future studies and legislative initiatives in the field of autonomous warfare.

**Article #1**

**T**he article "The Ethics & Morality of Robotic Warfare: Assessing the Debate over Autonomous Weapons" by Michael C. Horowitz examines the ethical concerns surrounding the use of lethal autonomous weapon systems (LAWS) in warfare. The author discusses the ongoing debate about whether LAWS can operate effectively and whether human accountability and responsibility for their actions are possible. The article also explores the question of whether delegating life and death decisions to machines inherently undermines human dignity. The author considers different categories of LAWS, including munition, platforms, and operational systems, and discusses how the “growing use of drones on today's battlefields raises important questions about targeting and the threshold for using military force” (Horowitz, 2016). This technology relies mainly on the given programming, and uncertainty of autonomous robots to perform a task at a high level of risk on the battlefield. I fully agree with the assessment, as introducing high-level technology in a field with severe repercussions can be dangerous, and leaving military tasks up to an unmanned system can be risky. Furthermore, the author continues to mention how autonomous technology is already vastly used within the military realm, including systems like autopilot, identifying/tracking targets, guidance, and weapons detonation. These technologies are used under close supervision of a human agency, but when delving into the potential use of human-free technologies, “there is vast uncertainty about the state of the possible when it comes to artificial intelligence and its application to militaries” (Horowitz, 2016). As previously mentioned, the capacity of the use of artificial intelligence is unknown and began its entry into introductory technology systems. I believe that in the future, AI technology could make its entry into warfare, but if and only if proper accountability is taken by military officials.

**Article #2**

In the article "Applying arms-control frameworks to autonomous weapons,” Zachary Kallenborn discusses the development of autonomous weapons and robotics and the challenges they pose for governance. I agree with the contents of the article, as they mention how introducing the revolutionary technology may pose threats to its governance and oversight. It may pose difficulty due to its rapid advance, new systems such as artificial intelligence will shape the future but can “[pose] hard questions about how their use and proliferation should be governed” (Kallenborn, 2021). The article mainly supports the use of autonomous drones and weaponry in war, with the condition that their use and proliferation are governed by appropriate arms-control frameworks and systems. Kallenborn (2021) suggests existing arms-control regimes to offer a model of governance for these autonomous weapons, and that it is essential for the “international community [to] promptly [address] a critical question: Should we be more afraid of killer robots run amok or the insecurity of giving them up?" (para. 3).

**Research Methodology and Analysis Plan**

After developing the initial driving research question "How do autonomous weapons and drones challenge established laws of war, and what legal and ethical frameworks can be developed to ensure their responsible use?” the research methodology in this study would consist mainly of conducting case studies in fields relating to military and autonomous technology and gathering the appropriate qualitative data from the research. Case studies offer in-depth exploration of real-world situations, providing context-rich data crucial for understanding complex ethical dilemmas in autonomous warfare. The first strategy I would use is the exploration and examination of existing case studies, policies, and academic documents about the overall ethical implications of autonomous technology to develop an understanding of research already conducted on the topic. After conducting the initial research through the existing documents, a comparative analysis is required to compare old findings with more recent ones to identify certain patterns and consistent ethical challenges within the topic. This can also include interviewing specific stakeholders like military experts and ethicists to truly understand the overall view of autonomous technology, and the feasibility of its transition into military use. This method of research aligns with the field of informatics through its interdisciplinary approach, as it includes findings from informatics (artificial intelligence), military studies, and ethical implications. This may also involve leveraging data-driven research for ethical dilemmas, aligning with informatics' emphasis on utilizing data for informed decision-making in complex scenarios. Finally, the study would call for synthesizing the findings and drawing any major or minor connections between the different cases and ethical themes, offering a comprehensive overall understanding of the ethical implications of autonomous weapons and drones in warfare.

References

Author Michael C. Horowitz, Author Information MICHAEL C. HOROWITZ is Associate Professor of Political Science at the University of Pennsylvania and Associate Director of Penn's , Information, A., & MICHAEL C. HOROWITZ is Associate Professor of Political Science at the University of Pennsylvania and Associate Director of Penn's Perry World House. He formerly worked for the U.S. Department of Defense. His publications include Why Leaders Fight (2015) . (n.d.). *The Ethics & Morality of Robotic Warfare: Assessing the debate over Autonomous Weapons*. American Academy of Arts & Sciences. Retrieved February 16, 2023, from <https://www.amacad.org/publication/ethics-morality-robotic-warfare-assessing-debate-over-autonomous-weapons>

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