RESPONSIBILITY OF KILLER ROBOTS FOR CAUSING CIVILIAN HARM: A CRITIQUE OF AI APPLICATION IN WARFARE DOCTRINE

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Abstract

Artificial intelligence and technological advancements have headed to the development of robots capable of performing various functions. One of the purposes of robots is to replace human soldiers on battlefields. Killer robots, referred to as "autonomous weapon systems," pose a threat to the principles of human accountability that underpin the international criminal justice system and the current law of war that has arisen to support and enforce it. It poses a challenge to the Law of War's conceptual framework. In the worst-case scenario, it might encourage the development of weapons systems specifically to avoid liability for the conduct of the war by both the government and individuals. Furthermore, killer robots cannot comply with the fundamental law of war principles like the principle of responsibility. The accountability of autonomous

robots in warfare has been addressed in this research paper. Killer robots are not designed to have human-like characteristics, which are needed for these principles. The study contends that while the law of war accepts responsibility for a human agency, determining responsibility in the circumstances involving killer robots is problematic. The following article is based on qualitative research methodology.

Keywords: Geneva Conventions, Killer robots, the Law of war, principle of responsibility.

1. Introduction

Killer robots can describe as weapons that emerged in recent years and are being developed using artificial intelligence and technologies associated with robotics (Aoun, 2017). In these weapon systems, targets are selected and attacked automatically and without human interference. Many countries are developing these weapons for use in future welfare. The manufacture and use of killer robots can be traced back to the First and Second World Wars. Since then, weapons have been developed with the capability to perform various tasks with less human interference.

An excellent example of this is an automated air defense system that can fire targets without human control. It is beyond a reasonable doubt to say that everything that nearly all war-related weapons have autonomous versions currently, and improvements are being made day to date to make them more lethal (Department of the US Army, 2010). The weapons are already there, and more are being made. In this case, where will be held accountable if something goes wrong when autonomous robots replace humans in warfare? Killer robots presently pose a threatening challenge to the law of war and underestimate other humanitarian protections during armed conflict; they will inevitably not threaten civilians or other protected groups (Dinstein, 2016). The principle of responsibility requires that someone be held responsible whenever a breach of customs and norms during armed conflicts (Lieblich, 2012). In such circumstances, accountability has a dual purpose: it averts future injury to protected persons and provides victims with a sensation of retribution (Taylor, 2021). The question becomes, who will be held responsible if a killer robot committed the killing. There are several choices, including military commanders, programmers, producers, and even robots themselves; however, none are really feasible. This study discusses the principle of responsibility, e.g., state responsibility, individual responsibility, command responsibility in the context of killer robots.

The qualitative research approach has been deployed, focusing mainly on publications related to Killer Robots, books written by some distinguished writers, scholars of

international law, and lawyers. The explanation they have been based on these writers is, for an instant, professor Sharkey of AI and robotics; peter Asaro, the philosopher of technology, AI, robotics, and American professor Naval war college professor Micheal N. Schmit.

2. State responsibility

In 1648, the peace treaty of Westphalia established the doctrine of state responsibility (Tacker, 2021). According to international law's principle, this concept has further been formulated from the doctrine of sovereignty. States that deploy autonomous weapons systems may be held accountable for this. The duty of the state is the international law's fundamental element. It is derived from the equality of states and doctrines of the sovereignty of the international legal system. It has become the international law's fundamental rule. Following a breach of international law, procedural and other repercussions, such as restitution, will be imposed (Shaw, 2021). The draft article 08 specifies that a state should be held responsible for internationally wrongful acts (International Law Commission, 2001).

"The conduct of a person or group of persons shall be considered an act of a State under international law if the person or group of persons is in fact acting on the instructions of, or under the direction or control of, that State in carrying out the conduct" (Ibid, art. 08).

In the article's commentary, the following points are highlighted:

"Such conduct will be attributable to the State only if it directed or controlled the specific operation and the conduct complained of was an integral part of the operations" (Convention (IV), Article 03).

As a result, state accountability exists regardless of individual criminal responsibility or intent. Consequently, states are liable for all breaches of the Law of War perpetrated by their military and agents (Protocol Additional, article 91). This means State accountability for breaches of the law of war will apply to any State that deploys killing robots as part of its armed forces. Nonetheless, States should distribute and instruct their armed forces in the field, including through imparting and implementing skills training, particularly instruction in the law of armed conflicts (LOAC), in conjunction with applicable regulations (Solis, 2021). Furthermore, states must also investigate and penalize breaches of the law of war they perpetrated while implementing and enforcing it. In either case, the legal proceeding would be conducted before a national court or an international criminal court (Geneva Convention, Article 146).

2.1. Responsibility of the Acquisition

At numerous stages of the development and deployment of all weapons, including Killer Robots, the state is required to review their legality according to additional Protocol I (AP-I), article 36. According to the article, all states have to determine whether and how a weapon is legal to use. The following was stated about the article by the Diplomatic Conference's Third Committee

"It should be noted that article 36 is intended to require States to analyze whether the employment of a weapon for its normal or expected use would be prohibited under some or all circumstances. A State is not required to foresee or analyze all possible misuses of a weapon, for almost any weapon can be misused in ways that would be prohibited" (Protocol Additional (I), article 36).

Furthermore, the wording of Article 36 has been taken to suggest that States must also assess the weapon's intended use, which is the use that will go beyond routine and designed purposes. In order to evaluate the legitimacy of these weapons, the states must consider a few conceivable uses (Fry, 2013).

Killer Robot's concept of state responsibility and API's use of the term *"persons"* both raise serious concerns (Boothby, 2016). Nevertheless, the wording of the relevant article of the 1949 Geneva Conventions (GCs) provides that

"No High Contracting Party shall be allowed to absolve itself or any other High Contracting Party in respect of breaches referred to in the preceding article" (Convention (II), article 52).

States should be accountable for all of their units on the ground, regardless of whether the soldiers are natural persons or not.

3. Individual Responsibility

According to International Law rules and its recently developed branches, state accountability has lost its weight in favor of individual criminal accountability, and responsibility is steadily gaining in popularity. Individual accountability is historically less evident in the international arena because international law traditionally governs state affairs. Nonetheless, in recent decades, international law has seen an increasing individualization of accountability through establishing international criminal Law (ICL), which creates criminal responsibility based on the Law of War, International Human Rights Law (IHRL), and domestic Legislation (Pangalangan, 2021). The ICL is more

limited in scope than most domestic legal systems. The Rome Statute of the International Criminal Court (ICC) restricts criminal acts to genocide crime, crime of aggression, crime against humanity, and war crimes.

In the context of Killer Robot, individual accountability represents a complex and unavoidable challenge for international law that poses various accountability issues (Heck, 2021). Due to the autonomous nature of the robot system and the fact that it is deployed by many people involved at various stages in the process, there will be a gap of responsibility. Because a Killer Robot will be in charge of human decision-making, it will be difficult to hold someone accountable for international law crimes committed by the Killer Robot's acts (Ibid).

Numerous persons may be held accountable for a Killer Robot's wrongful activities, including the combatant, military leaders, the Killer Robot's developer or maker, the corporation, or even the robot itself.

3.1. Military Commander

Another way to determine if someone in the combat zone is responsible for a wrongful demonstration is to look at the experts controlling the autonomous weapons (Krishnan, 2016). Military commanders are responsible for supervising their subordinates' behavior and are consequently accountable for their failures. A military commander is held accountable for the conduct of their subordinates if the individual planned to commit a wrongful act, but the commander failed to prevent it. Military commanders will be held responsible if they:

"Personally, sees or hears of unlawful acts being committed by his/her subordinates; obtains reports of the unlawful conduct of his or her troops through his or her subordinates, such as officers and staff, yet fails to prevent a violation; or the military commander neglects or is reckless about his or her troops and is unaware of their actions"

(Additional Protocol I, Article 86(2)).

Does Killer Robots serve as a subordinate of the military commander? Subordinate means: *"Placed in or belonging to a lower order or rank, of less importance; secondary, subject to or under the authority of a superior, subservient or inferior, subject; dependent, a subordinate person or thing*" (Kothari, 2015).

Interestingly, the word things are included in the definition of subordinate, which could also apply to the killer robot, making it the commander's subordinate. Since a killer robot that is fighting on the ground is semi-autonomous, it may be challenging to determine a military commander's legal accountability for acts performed by such a killer robot. This is because a military commander cannot be adequately considered in charge of machines over which he or she had insufficient control or, more likely, did not understand, including a Killer Robot. (Matthias, 2004).

Moreover, the command responsibility principle may also apply in Killer Robots scenarios. For instance, it could apply in cases where the commander is informed before that the killer robot may commit criminal acts against civilians but decides to deploy it. Consequently, the commander may be held legally responsible. The United States has acknowledged that those engaged with killer robots may face legal consequences.

According to the Department of Defense:

"Persons who authorize the use of, direct the use of, or operate autonomous and semi-autonomous weapon systems must do so with appropriate care and in accordance with the law of war, applicable treaties, weapon system safety rules, and applicable rules of engagement (ROE)." (DoDD, 2017 page 13-14).

However, an ordinary commander may not recognize a threat pre-deployed as they may not have programmed it; hence, they cannot detect inaccuracies (United Nations, 2013, paragraph 39, 78). As a result, the commander would not be able to obstruct the killer robot's activities once it is in the conflict zone, as they could with a soldier (Ibid, paragraph 41). An example of such a scenario is provided below.

A killer robot detects and attacks an innocent civilian by mistake. The military commander in authority fails to intervene, resulting in the losses of innocent civilians. Suppose a military commander is aware that the target has been improperly designated prior to launching an actual missile but fails to take the required procedures to avoid such an action. In that case, they will be held accountable for the illegal act. Nevertheless, once an attack has been initiated, the military commander is unlikely to have the ability to stop it. As a result, whether or not a military commander is legally liable for the Killer Robot's activities relies on the technical configuration and any other data provided to the commander before the initiation.

3.2. The Manufacture or Programmer

However, programmers and manufacturers fall under the category of innocent persons protected under the Law of War. They may, however, be held responsible for specific actions outside of the battlefield in certain circumstances since an unlawful act could also be a result of design and programming errors. Assuming that an illegal act was the purpose behind the Law of War violation, the programmer or killer robot manufacturer would be responsible, which could be a complex matter. While the killer robot will be semi-autonomous, necessitating another human operator, the designer, otherwise a civilian, will undoubtedly lay the framework for the entire system (Heck, 2021).

Civil liability: According to this new form of obligation, it is plausible to hold the programmers or manufacturers accountable for infringements committed by killer robots due to careless programming (Aljaber, M. J., & Alhawari, S. 2021).

Criminal liability: In general, the rule of International Criminal Law is founded on the fundamental concept that no one should be held responsible for an alleged crime in which they did not commit or intend (Vuletić, 2021). Further, there is no liability for omissions not attributable to the individual (Pangalangan, 2021). Nevertheless, it is highly unlikely that a company or manufacturer could sell a weapon naturally dangerous, knowing that they would be liable for its use in a criminal case (Shea, 2021). Furthermore, holding someone accountable when they are geographically separated from and ignorant of the Law of War and the Rules Of Engagement (ROE) would be unfair.

Without a doubt, the developers or makers of the killer robot can learn about structure that uniquely identifies each killer robot and could, in some way or another, identify flaws or miscounts in the frame because they are familiar with how it should be. Nevertheless, holding them liable for the actions of the killer robot after they have sold the machine when they are unable to manage or monitor it would be irrational, insufficient, and unethical. Furthermore, the United Kingdom's Joint Doctrine on Unmanned Flying Machine Systems certifies that the demand for programmers and manufacturers will be lifted after the weapon systems, air authority, or national military have been approved by the country's important nonmilitary persons (Note, 2011).

3.3. Corporations

In Nuremberg, the International Military Tribunal (IMT) ruled that the individual committed the crime, not by an organization or state. Additionally, the court advanced its point of view in regard to the Krups case and held the organizations and corporations responsible for the criminal acts and negligence of the individuals (United States v. Krupp et al.). Typically, manufacturers and programmers hold positions within corporations.

What will the impact of this be on the corporation? How can the corporation be held responsible? In most weapon companies and software engineers, the production of a weapon system is a significant factor in its release to the military, unless it has gone through a legal audit and been proven to be legal (Singer, 2009).

3.3.1. Civil Liability for Corporations

Government contractors may be exempted from liability by one state's Federal Tort Claims Act if certain requirements are met in the United States so that courts are barred from hearing any liability claims (Chu, V. S., & Manuel, K. M. 2011).

Boyle v United Technologies Corporation established the concept of a *"government contractor."* In this case, David Boyle, a marine helicopter pilot, was the petitioner. Boyle was crushed in an aircraft designed and built by United Technologies Corporation, the respondent. Although no legislation insulating contractors from accountability for design flaws has been presented, the subject of contractor liability continues to be a source of worry for the federal govt. The court also held that such claims could be barred if:

"(1) the United States approved reasonably precise specifications for the equipment; (2) the equipment conformed to those specifications; and (3) the supplier warned the United States about dangers in the use of the equipment that were known to the supplier but not to the United States." (Boyle v. United Technologies Corp).

Accordingly, the concept would apply to any claims brought under United States (US) law against programmers and manufacturers of Killer Robots.

The US has another exception to its tort laws related to combat. Under regulation 28 USC 2680(a) (United States Code, 2012), contractors are excluded from tort liability in claims arising from combatant activities undertaken by military personnel during wartime (Chu, V. S., & Manuel, K. M. 2011). Varian Associates Inc., the Aegis Air Defense System creator, faced a similar situation. The producers have absolved themselves of any responsibility for the alleged inadequacies of the USS Vincennes, which shot down an Iranian nonmilitary plane, killing 290 civilians as a result (Bentzlin vs Hughes Aircraft Co).

3.3.2. Criminal Liability for Corporations

In general, companies may not be prosecuted in foreign courts, and international criminal law absolves them of criminal liability. The Rome Statute, Article 25, acknowledges the criminal accountability of individuals. This definition can be summarized as follows:

"*If a crime is perpetrated, whether as an individual, jointly with another or through another person, regardless of whether that other person is criminally responsible;"* (ICC, 1998, article 25).

Nonetheless, companies cannot be held criminally accountable for their illegal acts under international law.

The Alien tort statute: *"In the United States, a law called the Alien Tort Statute (ATS) was enacted in 1789 so that federal district courts have jurisdiction over all matters in which an alien sues for a tort solely in violation of a nation's law, or a treaty with the United States."*

Generally speaking, this law vests federal district courts with broad jurisdiction over actions brought by non-US citizens alleging infringements of international law rules (Bellia Jr, A. J., & Clark, B. R. 2011). Additionally, it has been used to prosecute international firms for breaches of international law committed in jurisdictions other than the US. Even though a court's jurisdiction can be established with only a modest level of territorial presence, *"the Supreme Court's decision in Kiobel v. Royal Dutch Petroleum, Co."* Shell dismissed this entrenched knowledge of the Alien Tort Statute as a global cause of action. As a result, the court concluded that claims brought against overseas defendants that do not have a substantial relationship with the United States are not unconstitutional under the Alien Tort Statute, thus rejecting the plaintiffs' allegations against overseas defendants (Kiobel v. Royal Dutch Petroleum Co 2013).

3.4. Responsibility Of the Killer Robot

The concept of holding the Killer robot accountable has been proposed several times. According to Krishnan explains that:

"At the moment, it would obviously be nonsensical to do this, since any robot that exists today, or that will be built in the next 10-20 years, is too ignorant to possess anything like intentionality or real capacity for agency. However, this might change in a more distant future once robots become more sophisticated and intelligent" (Krishnan, 2016).

While the Killer robot is mentioned as a possible candidate, the focus is on the killer robot. Ronald Arkin said the robots might readily be modified to meet regulatory standards.

"The application of lethal force as a response must be constrained by Laws of War and Rules of Engagements (ROE) before it can be employed by autonomous systems" (Arkin, 2009).

Further, he contends that an ethical governor can be employed to achieve this. To accomplish this, the weapon system would have to execute two-step procedures. The first phase is for the killer robot to examine the data it has gathered about its faculties and prepare in order to determine whether dispatching an attack is legal under ROE and international Law. The system may then launch an attack on military operational commands if the attack is legal under International Law and the ROE (Ibid, 183-184). The fully automated killer robot evaluates the attack based on the proportionality principle in the second phase. The *"ethical governor"* will consider several factors, including the risk of injury to civilian's life and civilian property, as well as the potential of an effective arm attack. Using an algorithm will merge the *"incoming perceptual information"* with the statistical information. The weapon system may launch an attack only if the targets *"satisfies all ethical constraints and minimizes collateral damage in relation to the military necessity of the target"* (Ibid, 187). Despite this, because a killer robot is a machine, it cannot be held accountable for the Law of War breaches or prosecuted. Assume, however, that a killer robot can execute military strikes without human assistance. Thus, it will be able to make decisions on its own, first identifying a military target and then attacking that target. What if anything does not go as to plan? Is it possible to hold the killer robot accountable?

For the time being, we can presume that a killer robot does not have an autonomous inclination to kill civilians. Furthermore, a killer robot's decision-making ability may be as important as whether the target on the right swings to one side; if the object is running, dispatch an attack; otherwise, proceed. As a result, the killer robot will be incapable of being held responsible for criminal Law or Law of War violations.

4. Command responsibility

Although killer robots cannot be held accountable for their actions, this does not mean they are beyond the reach of ICL. The notion of command responsibility, which is based on both the Law of War and the ICL, provides a hierarchical system of responsibility in which combat and civilian authorities are held accountable for the behavior of the armed force under their command. Schmidt anticipates this when he assures HRW (Human Right

Watch) that their concerns are *"based on a false premise"* (Schmitt, 2013). Supervisors are not directly liable for the criminal activities of their subordinates. Still, they may be held responsible if they allow a crime to happen. happen (Cassese, A., Acquaviva, G., & Whiting, A. 2011). They may then be made accountable as perpetrators and enhancers. Additional Protocol I was the first legislative document to establish command accountability thoroughly.

"The fact that a breach of the Conventions or of this Protocol was committed by a subordinate does not absolve his superiors from penal or disciplinary responsibility if they knew, or then again had data which ought to have empowered them to deduce in the conditions at the time, that he was conferring or going to submit such a rupture and in the event that they did not take all feasible measures within their power to prevent or repress the breach" (Additional Protocol, article 86(2))

In some way, the commander must be responsible for the crime (*mens rea*). While the Rome Statute utilizes identical language for the *mens rea* requirements of knowing or should have known, International Criminal Tribunal for the Former Yugoslavia's (ICTY) Statute uses a slightly more permissive interpretation, interpreting as *"knew or had reason to know"* (ICTY, Article 7(3)).

Because of varied interpretations of what *"should have known"* and similar expressions genuinely mean, the *mens rea* for command responsibility is relatively ambiguous in the legal literature and case law. Furthermore, it is unclear what *"all feasible measures"* means in reality, and where the line is drawn between intent, strict liability, knowledge, recklessness, and incompetence, and which of these are genuinely punishable under international criminal Law (Cassese, A., Acquaviva, G., & Whiting, A. 2011).

Singular Events: The Military commander is accountable for suppressing crimes and punishing those who committed them. Punishment will be impossible in the perspective of killer robots, at least in the traditional sense. The question of critical importance remains whether military and civil commanders are in a position to determine if a killer robot is about to or has already committed a crime. Interestingly, the *mens rea* requirement has received little attention in the domain of killer robots. In most cases, authors are content to suggest that there may be some accountability concerns or assert that command responsibility resolves the situation (Williamson, 2008).

According to the argument previously, any killer robot would need to be created with highly complex programming, requiring the system to follow the rules for the conduct of hostilities. In the event that such software could be designed, it appears that killer robots

would be obligated to comply with the Law of War by definition unless someone was aware of or should have been aware of a flaw in the program. Humans are different from robots in that their morale and emotions likely affect what they do in the battle zone. This is in direct contrast to how a military commander should interact with humans. It is expected that the commander will consider this. However, robots will not be able to feel emotions in the same manner as humans (Sparrow, 2007). The robot's programming should at the very least prevent it from committing war crimes in principle.

Additionally, suppose the software is too complex for even the most experienced developer to comprehend completely. In that case, it may be unfair to expect political and military commanders to do so. According to the ICTY in *Prosecutor v. Delalic (Celebici), "international law cannot oblige a superior to do the impossible"* (The Prosecutor v. Delalic (Celebici) Paragraph 395).

Based on Arkin's argument (Arkin, 2007), if the so-called case-based explanation is used, a commander could be accused of using too much aggressive reasoning, which would not align with the concept of proportionality. For instance, the weapon used could be excessively heavy or inaccurate. Due to software limitations, this would undermine Arkin's belief that Killer Robots would be unable to break international law Rules (Arkin, 2010). If such a deployment were to occur, it could be considered reckless nonetheless. It is unclear whether recklessness falls within the international command responsibility's *Mens rea* requirement (Marchuk, 2015). From apparent strict responsibility in Yamashita to a rejection of criminal neglect as a basis for liability in Bagilishema, the mental state assumed has fluctuated. International Criminal Law's current development appears to be moving toward a more restrictive interpretation than Yamashita's (The Prosecutor v. Ignace Bagilishema, Paragraphs 34–35). Furthermore, the act of directing the deployment of an aggressive case may trigger a distinct mode of liability known as ordering or inciting. Ordering or instigating as a stand-alone act would not be considered guilt under military command accountability, which should be construed as a failure to act (Sliedregt, 2011).

The only feasible way to close the responsibility gap is to "*assign responsibility to an appropriate individual, presumably the commanding officer."* This is the only means to satisfy the requirement of enemy combatants to ensure that someone is held accountable if they are murdered in an unjust manner (Sparrow, 2007). However, under the existing International Criminal Law/Law of War, assigning culpability to a party without intent or awareness or even a form of guilt is impossible. It would be contrary to most people's sense of fairness.

Failure to Control a killer robot Over Time: It may be helpful to distinguish between incidents or attacks that directly impact those that occur over a more extended period of time. Commanders are unlikely to be held responsible for individual acts of killer robots (provided they were unaware of software or hardware malfunctions), but unlawful activities occurring over an extended period could be more challenging to prosecute. A commander who intentionally retains a killer robot with a bad track record for an extended period is expected to recognize that war crimes may be committed and may be held responsible. In the United Kingdom's legal procedure, responsibility is defined by the magnitude of the risk. The United States system establishes liability based on risk knowledge, and it is questionable which of the two should be considered lex lata under ICL (Sato, 2021).

As reported in the study, one of the reasons for the push for autonomy is that killer robots do not require interaction and control from a central location. The use of this technology is expected to prove advantageous in combat against technologically advanced enemies capable of hacking remote-controlled drones (Sharkey, 2013). Special-operations forces may be held accountable if they operate outside enemy lines without informing their superiors first. Killer robots cannot. Nonetheless, from the perspective of International Criminal Law, it is highly problematic whether such practices, in which a computer is left alone with no monitoring whatsoever, conform to the law.

The concept of command responsibility appears challenging to apply even though a killer robot has no criminal liability in the sense of *"answerability"* or *"liability."* Despite covering some instances of war crimes committed by killer robots, it would leave significant loopholes. Schmidt's stated responsibilities do not appear to be impenetrable. A killer robot's activities appear to be the sole responsibility of the state. It would be challenging to establish individual accountability for programmers and military commanders. Given the growing relevance of ICL in international law, the main barriers to creating these A.I.-based robots are the law of war.

5. Conclusion

There have been concerns raised regarding the possibility that the use of killer robots may result in a legal *"accountability gap"* if the Law of War is violated. In all cases, a human being will decide to deploy and operate a weapon to whom responsibility may be traced. Still, the autonomy of weapon systems may create ambiguity as to who is responsible for what. A State may be held accountable under the doctrine of state responsibility for breaches of the law of war caused by a Killer robot. Because humans are not in complete control of killer robots, it may be challenging to hold people who assisted in the creation

and use of a killer robot responsible for serious violations of the law of war in some cases. Furthermore, under existing law, the barriers to accountability for creating and using killer robots are enormous. Because weapons cannot act with the intent to commit a crime, are not subject to the jurisdiction of international tribunals, and cannot be punished, they cannot be held liable for their actions. Criminal culpability would almost certainly apply only when humans intentionally used robots to break laws. Civil culpability would be almost unlikely in the United States due to the legal immunity afforded to the military and its contractors, as well as the evidentiary barriers to product liability actions.

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