

Journal of Law & Social Studies (JLSS)

Volume 5, Issue 3, pp 432-439

www.advancelrf.org

Of Rules and Robots: The Dawn of Modern Warfare and the Looming Challenge of Lethal Autonomous Robots (LARs)

Muhammad Sohail Asghar
(Corresponding Author)

Assistant Professor of Law,
University of Okara, Punjab, Pakistan.
Email: muhammad.s.asghar@uo.edu.pk

Hafsa Naz

Visiting Lecturer,
University of Okara, Punjab, Pakistan.
Email: hnhafsa777@gmail.com

Kashif Mahmood Saqib

Assistant Professor of Law,
University of Okara, Punjab, Pakistan.
Email: kashifsaqib11@yahoo.com

Abstract

Due to our endless quest to be faster and stronger military technology has progressed drastically during the last few decades. People are aware of certain technological developments, such as guns and jets, which have revolutionized the modern warfare. But a lot of technological advancements happened under the radar, in the private test sites or in the military labs, making majority of citizens oblivious of technological advents. Robotics is one of the military technologies which has essentially escaped public notice to date. The development of Artificial Intelligence (AI) based robots capable to exert lethal force, called lethal autonomous robots (LARs), has significant legal and ethical implications. Their creation has already ignited a heated discourse on these allusions and two polarized sides could easily be discerned. Aim of the paper is to present a brief analysis of the regulations and rules of International Humanitarian Law (IHL) that are pertinent to comprehend the discourse on the legality of lethal autonomous robots (LARs).

Keywords: Lethal Autonomous Robots (LARs), Artificial Intelligence (AI), International Humanitarian Law (IHL), Law of Armed Conflict (LOAC)

Introduction

History has proved that the deployment of new technologies has radically altered the fate of a conflict. These technologies are not merely used for the efficient destruction, but also to safeguard people from loss. From the use of longbow in the Battle of Agincourt (1415) to the destruction of Hiroshima and Nagasaki (1945) by using nukes, the desire to conquer has proven to be the mother

of invention. However, the advancement in the warfare technologies have enabled us to cause destruction at levels, not witnessed earlier in human history. Some researchers believe that the invention of lethal autonomous weapons systems (LAWS) such as lethal autonomous robots (LARs) signal the beginning of the third uprising in global conflict after gunpowder and nukes (Carpenter, 2013).

Treaties to control or ban the use of specific technologies in case of armed conflict have started to take root. Ottawa Treaty to ban the use of personnel mines (U.N.T.S.211, 1999) and Chemical Weapons Convention (U.N.T.S.45, 1974) are the examples of such restraints. Moreover, International Humanitarian Law (IHL) along with the Law of Armed Conflict (LOAC) further classify that which weapons and to what extent could be used in a state of war (Aoun, 2018). Considering the pace of modern technological advancements, we are not far from the use of Artificial Intelligence (AI) based lethal robots that will not require human intervention to track, engage and strike in a battlefield.

The fundamental argument is favour LARs are military advantage and reduced operation cost. Deployment of these advanced military technologies would be strategically helpful as less soldiers will be required, extending war fields to such areas that were inaccessible previously. Replacing human soldiers with the machines such as war robots, for the risky operations, would result in fewer casualties (Marchant, 2011). Moreover, lethal autonomous robots (LARs) don't possess human-like emotional constraints, consequently their decision-making power is not affected by emotions. According to US Department of Defense, a minor automated war machine costs almost four times less per annum as compared to a single combatant (Francis, 2013).

The inability of these automated war machines to comply with the terms of international humanitarian law (IHL) and the laws of armed conflict (LOAC) is one of the most important reasons for their opposition at international level (Evans, 2018). Article 36 of Additional Protocol I (AP-I, 1977) to Geneva Convention makes it mandatory that the capabilities of the weapon must be properly examined and assessed prior to its legitimate use. The Intelligent algorithms behind every LAR not only gives it autonomy but also equips it with self-learning capabilities. Such proficiencies pose a serious threat to human oversight and control, additionally, making it impossible to fully comprehend its actions while in the actual war field.

In 2013, a call to ban the lethal autonomous robots was issued by the robotics and artificial intelligence engineers belonging from thirty-seven countries, on the pretext that computers must never be trusted as final decision makers regarding the use of the lethal force (Kutsch, 2015). This idea depended upon the concept of fixation of liability, in case of traditional army, the line of liability is quite clear from pulling of trigger to the reporting officer. While dealing with LARs, fixation of responsibility is almost impossible. In other words, while assigning accountability, LARs pose a greater threat due to their self-learning and decision-making capabilities. Many people are involved in their development such as commanders, developers and other responsible for the usage of the weapon, making it unreasonable to hold a single person accountable if something goes out of the ordinary (Sharkey, 2013). We need to consult the definition of "war algorithm" while considering someone accountable for acts committed by LARs. The concept of war algorithm is defined by the Harvard Law School as some algorithm written in computer readable form, performs through built in system and is capable to operate in armed conflict (Lewis, 2016). The line of responsibility extends from state and its armed forces to business managers and attorneys whilst linking the war algorithms to liability. A number of movements have been commenced, essentially warning the society of the threats posed by LARs if effective legislation is not made to confront these challenges. Furthermore, numerous legal experts and AI engineers have also showed their concerns, emphasizing the importance of this global debate. LARs have been classified as extremely dangerous weapons by United Nations and their use and regulation is under discussion

since 2013 (Solis, 2016). But the problem is that many countries are not willing to join this effort to regulate LARs as they are of the opinion that they are not advanced enough at the moment to use or manufacture LARs so thus are not prepared to discuss this issue. The International Humanitarian Law (IHL) is in crisis that how to regulate such weapons when all the countries are not willing to contribute on their part despite the fact, some of the countries are readily working on the manufacture and development of these lethal weapons (Liu, 2012).

Current Challenges of LARS to Law of War

The principle protecting the lives and properties of the civilians' during war is primitive and its relevant laws are established and codified, both in non-international and international contexts. The fundamental aim to wage a war is to defeat the nemesis, therefore, the opponent parties need to adhere the core principle regarding military necessity which lays down that a combatant is allowed to apply the amount of force that is compulsory either to defeat or incapacitate the enemy. Therefore, the purpose of war is not to kill the enemy rather to immobilize him, use of force more than that is prohibited under the law of armed conflict (Greenwood & Christopher, 2008).

The basic principle with reference to combatants is that, the amount of force should be reasonably used to which is compulsory to defeat the enemy. The core principle regarding civilians is that they must be secured at all costs, numerous principles exist for this very purpose. With reference to autonomous weapons (AWs) such as LARs, fundamental principles of IHL i.e., distinction, precaution, and proportionality shall be focused. The purpose of these rules is to ensure that the innocent people are not targeted during armed conflict, nevertheless, the manufacture and control of the lethal weapons capable to inflict superfluous injuries are also governed by these rules.

Principle of Distinction

Distinction is of prime importance while protecting the noncombatants in times of war. The concept of distinction has twofold obligations: firstly, to differentiate between soldiers and noncombatants and their respective objects and secondly, to apply force or attack only on the military and its objects. This principle could be tracked to St. Petersburg Declaration, 1868. Article 25 of Hague Resolution, 1907 protects civilians' lives and their objects by prohibiting attacks on dwellings, towns, villages or defenseless buildings. The same principle was later on adopted in the Additional Protocols (AP-I and AP-II) of the Geneva Convention. The customary international humanitarian law makes it mandatory that in case of armed conflict, force could only be deployed against combatants, civilians and their objects must be protected (Rule 1 of CIHL). Furthermore, ICJ held that the principle of distinction is of cardinal importance which cannot be ruled against (ICJ, 1996). Moreover, Article 8(2)(b)(i)-(ii) and 8(2)(e)(i)(ii) of Rome Statutes of International Court of Justice (commonly referred as ICC Statutes) declares intentional attacks on civilians and civilian objects a war crime.

Distinction is based on the sensory input. Though, existing technology has advanced enough to differentiate a human from non-human but it still lacks the capability to distinguish between a combatant and a civilian. According to majority of robotics expert, this fundamental ability of differentiation is technological impossible at the moment (Wagner, 2011) as unlike humans, robots don't possess the quality to interpret human behaviour (U.S.A.F, 2009). Contemporarily, the most important concern regarding autonomous weapons (AWs) is that how would they comply with the principle of distinction (Marchant, 2011). This inadequacy threatens International Humanitarian Law's capacity to defend civilians. Momentarily, LARs cannot be trained to follow the requirements of IHL.

In modern warfare, militants have to identify the combatants by analyzing their behaviour or actions in certain situations (Carnahan, 1998). It is difficult at the moment to clarify that how LARs would access someone's behaviour or emotional state to decide whether he is a combatant or not. Consequently, LARs could attack civilians with lethal force by violating all provisions of IHL.

Principle of Proportionality

this principle carries prime importance under the law of armed conflict (LOAC). It declares that the parties in a conflict have to be proportional in their while using force against each-others. Meaning thereby, the incidental loss of civilians' life must be excessive as compared to the expected military advantage. The principal proportionality and distinction are logically intertwined, the earlier is the logical extension of the later one. In a war, it is impractical to prevent civilians' loss altogether, either of life or object, in such situation the principle of proportionality comes into force and allows for the collateral damage to a certain reasonable extent. The decisions as to expected military advantage and reasonable extent are incredibly difficult to make in general terms, and the corresponding it causes leaves an unavoidable and significant margin of appreciation in the evaluation (Oeter & Stefan , 2008).

With reference to Geneva Convention, the rule regarding proportionality is provided in AP-I under Article 51(5)(b) which states that any excessive damage to civilians or civilians' objects in contradiction to anticipated military advantage are prohibited. Additional Protocol I is silent about the term "excessive" and the commentary of 1987 of this protocol only refers to the commentary of Article 57 as its clause (2)(a)(iii) also mentions this rule and only declares that the proportionality causes a serious challenge. Certain circumstances are clear without any shadow of doubts but confusions and hesitations could arise in some circumstances, the commentary finishes without saying anything like, in doubtful situations the rights of the civilians should prevail (Sandoz, Yvez, Swinarski , & Zimmerma, 1977). So, keeping in view the wording of Allied Protocols and their commentary, scope of the provisions is ambiguous making its application difficult. A robot cannot be trained to mimic human like capabilities when the relevant law governing the behaviour of its sample data is ambiguous. Artificial intelligence based lethal machines such as LARs could not be expected to comply with the idea of proportionality when even its developers and creators are unaware of its exact meaning and application. The absence of human judgment in LARs in their greatest weakness while complying with the rules regulating armed conflict.

Principle of Precaution

The third most important rule of IHL protecting civilians and their objects in the times of war is "precaution". This principle forces the conflicting parties to be more considerate while attacking each-others and take all possible precautions in order to avoid unnecessary injury or to cause superfluous suffering. All the underlying objects of this core principle are being compromised when an attack is made by an AI based lethal weapon i.e., LAR as the collateral damage in this case will be exceptionally high (Oeter & Stefan , 2008).

The principle of precaution was appeared for the first time in treaty law in 1907 at the Hague Convention (IX). Article 2(3) dealt with this rule which compelled a commander to adopt all possible strategies in order to avoid any surplus harm or injury (Hague, 1907). Additional Protocol I (AP-I) Article 57 sub paragraph 2(a)(i) further endorses and clarifies this principle by making proper and careful identification of the objectives to be attacked as core military objectives (commentary AP-I, comment no. 2195). Another significant feature codified in Article 57 is a direction to select an appropriate mode of attack in order to minimize the casualties. In accordance with the ICRC study of CIHL, the principal of precaution equally applies on the armed conflicts at national as well as international level (Henckaerts & Beck, 2005).

The contemporary technology has not progressed to the point where autonomous lethal machines could be trained enough to consider all these precautionary measures which require a humanistic approach to war strategies. The principle of precaution makes it mandatory to state parties that before the creation of LARs or their deployment into a war field, they need to make it sure that either these lethal machines are controlled by humans or their algorithms are trained enough to take precautionary measure if there is a situational change in the war.

Martens Clause

this clause was presented by Friedrich von Martens, a delegate from Russia at the Hague Conferences (1899, 1907). The clause intends that if something is not mentioned in the treaty or international law specifically, it does not essentially mean that the law is silent on the issue. The strategies of warfare have to be measured by considering the public conscience. In the codification of Additional protocols, this clause was incorporated in Article 1(2) in order to avoid such interpretations that are essentially against the spirit of CIHL and to cover the modern means of warfare that are not covered by Article 36.

Though, there is no specific reference to LARs under CIHL or law of war but Martens clause provides us with the necessary framework to regulate LARs by making it mandatory that core principles of war, as mentioned above, have to be complied with before the deployment of any lethal weapon in the war ground capable of mass destruction.

Article 36 of AP-I of Geneva Convention

During the codification of Additional Protocols, the drafters added a provision to regulate challenges posed by modern weapons. This effort resulted in form of part III Article 36 of Additional Protocol-I which makes it mandatory that the states while developing or acquiring a novel weapon shall have to assess whether its use is permitted or banned under the Additional Protocol-I or any other pertinent international law. The commentary further states that the determination or assessment shall depend upon the normal use of the weapon concerned. In case the state fails in its assessment, the doctrine of state responsibility shall be enforced. Furthermore, if any difficulty arises in the determination the rules mention in AP-I shall come into force, in situation where the rules set forth in AP-I are ambiguous or silent the rules of Customary International Humanitarian Law (CIHL) shall be applied (comment no. 1466).

The recent advents in CIHL and law of war hold different people liable for the commission of crime committed during war. People that could be held responsible individually, for the mistakes committed by lethal autonomous robots, include the manufacturer, the programmer, the commander, or even the robot itself owing to its self-learning and decision-making capabilities (Schmitt, 2011).

The Way Forward

LARs need to be regulated just like all other lethal autonomous weapons that are controlled under LOAC and IHL. Twenty-eight members state at UN are demanding for complete suspension of lethal autonomous robot program in collaboration with HRW in order to stop LARs taking the lead. Multiple publications of HRW have demanded a complete prohibition of such autonomous lethal arms which prima facie undermine human values which are ensured by IHL, in contravention of the Martens Clause that is founded upon two fundamental principles – humanity & public conscience. Human Rights Watch (HRW) undertook statistical research in 2019 which concluded that majority countries opposed the development of LARs, these findings are the representation of *opinio juris* – a state's behaviour that it needs to develop military systems without contravening with the constitutional guarantees (Ipsos, 2019). The development of lethal autonomous weapons was also

presented at the 100th Paris Peace Conference. In 2018 employees of Google signed a petition to force the company to avoid any kind of collaboration with US DoD in project Maven which was aimed at utilizing AI to analyze video footages acquired from the drones, the petition resulted in withdrawal of Google from the deal (Shane, 2018). Nevertheless, many countries including US, Israel, South Korea, Russia and China are advocating the development and deployment of LARs in the war field.

Though, there have been an ongoing discussion regarding AI personhood, the fundamental question as to its criminal liability remains unaddressed. Apart from the issue that how we can prosecute an AI application, its designers and creators definitely need to be brought back into the system. It would combine negligence with the severe liability making the criminal justice system a bit smooth and AI more reliable. To this end, it is important to develop strict safety protocols and determination of safety certificate procedures, but we should keep it in mind that development and determination of such procedures and protocols is a difficult object to accomplish. Assistance from the AI experts shall also be required due to the general lack of understanding of this technology, governing boards comprising of AI experts and representatives from the governmental bodies must be set up as soon as possible. Owing to the potential benefits of AI, we have to develop and implement such procedures that could maximize public welfare without undermining fundamental guarantees provided under the law.

As a matter of fact, lethal automated weapons have the ability to increase civilian casualties during armed conflicts. Considering the rapid expansion of technology, the countries in favour of LARs have already started to work on their development, the countries in favour of prohibition have to legislate urgently to prevent their deployment or development within their territorial jurisdictions. The examination of fully autonomous weapons under Martens Clause ignites the need for a comprehensive updated legislation. In case, international cooperation is not achieved soon, the deployment of extremely destructive technologies such as LARs could put the international community at risk, hence, international discourse is inevitable to meet an agreement on laws pertaining to the development, regulation, and deployment of lethal autonomous weapons. The private sector will have to work in collaboration with the legislature to make it sure that the programs are fully structured and regulated.

The following recommendations need to be acknowledged while conserving the development or deployment of autonomous lethal robots:

1. The international community must dissent the creation and usage of the LARs through legally binding agreements by imposing a complete ban on such technologies.
2. Research and expansion of lethal autonomous robots should be monitored closely and vigilantly, and a proper code of ethics should be introduced to redress the questions regarding challenges of such research and expansion.
3. Countries can enact their legislations prohibiting the use of the lethal arms such as autonomous robots.

References

- Aoun, J. E. (2018). *Robot-proof: higher education in the age of artificial intelligence*. Cambridge, MA: The MIT Press.
- Carpenter C (2013) How Do Americans Feel About Fully Autonomous Weapons? Duck Of Minerva, 10 June. <https://www.duckofminerva.com/2013/06/how-do-americans-feel-about-fully-autonomous-weapons.html>

- Carnahan, B. M. (1998). Lincoln, Lieber and the laws of war: the origins and limits of the principle of military necessity. *Am. J. Int'l L.*, 92, 213.
- Evans, H. (2018) 'Lethal Autonomous Weapons Systems as the First and Second U.N. GGE Meetings' *Lawfare*, <https://www.lawfaremedia.org/article/lethal-autonomous-weapons-systems-first-and-second-un-gge-meetings>
- Francis, D. (2013) 'How a new army of robots can cut the defense budget', *The Fiscal Times*, <https://www.thefiscaltimes.com/Articles/2013/04/02/How-a-New-Army-of-Robots-Can-Cut-the-Defense-Budget>
- Greenwood, Christopher "Humanitarian Requirements and Military Necessity" in *The Handbook of Humanitarian Law in Armed Conflict*, Dieter Fleck (ed.), 2nd ed., Oxford University Press, 2008, p. 35.
- Hague (1907), Convention (IX) concerning Bombardment by Naval Forces in Time of War, 18 October.
- Henckaerts, J. M & Beck, L.D. (2005), *CIHL*, Vol. I (Rules), p. 51, Cambridge University Press.
- HRW Report (2012), <https://www.hrw.org/world-report/2012>
- ICJ (1996) Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons, July 8th, paras. 78-79
- Ipsos, (2019) Six in Ten (61%) Respondents Across 26 Countries Oppose the Use of Lethal Autonomous Weapons Systems. <https://www.ipsos.com/en-us/news-polls/human-rights-watch-six-in-ten-oppose-autonomous-weapons>
- Kutsch, T. (2015) 'Leading scientists call for ban on killer robots', *Aljazeera America*, <http://america.aljazeera.com/articles/2015/7/28/leading-global-scientists-call-for-ban-on-killer-robots.html>
- Lewis, D. A. (2016), 'War-Algorithm Accountability' *Harvard Law School* <https://pilac.law.harvard.edu/aws>
- Liu, H. Y. (2012). Categorization and legality of autonomous and remote weapons systems. *Int'l Rev. Red Cross*, 94, 627
- Marchant, G. E., et. al., (2011) *International Governance of Autonomous Military Robots*, *Columbia Science and Technology Law Review* V. XII pp. 272–76
- Shane, S. (2018) 'The Business of War: Google Employees Protest Work for the Pentagon', *The New York Times* <https://www.nytimes.com/2018/04/04/technology/google-letter-ceo-pentagon-project.html>
- Oeter, Stefan (2008) "Methods of Combat" in *The Handbook of Humanitarian Law in Armed Conflict*, Dieter Fleck (ed.), 2008, p. 198
- Sharkey, N. (2013) 'The evitability of autonomous robot warfare' Published online by Cambridge University Press.
- Solis, G. D. (2016). *The law of armed conflict: international humanitarian law in war*. Cambridge University Press.

- Sandoz, Yvez, Christine Swinarski & Bruno Zimmerman (1977), Commentary on the Additional Protocols I and II of 8 June 1977 to the Geneva Conventions of 12 August 1949, comment no. 1979
- Schmitt, M. N. (2011). *Essays on law and war at the fault lines*. Springer Science & Business Media.
- U.N.T.S. (1999) Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction, Sept. 18, 1999, 2056 U.N.T.S. 211
- U.N.T.S. (1974) Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction, Apr. 29, 1994, 1974 U.N.T.S. 45
- U.S.A.F (2009) Unmanned Aircraft Systems Flight Plan 2009–2047, Washington D.C., available at <www.fas.org/irp/program/collect/uas_2009.pdf>, P. 50
- Wagner, M. (2011) Taking Humans Out of the Loop: Implications for International Humanitarian Law', 21 *Journal of Law, Information and Science* 155 pp. 157–158