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RESEARCH ARTICLE

Autonomous Weapon Systems and The Humanitarian Principle of Distinction

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Abstract

Autonomous Weapon Systems have been on the international agenda for more than ten years now. Autonomy in warfare and its attached promises have been dubbed as the most recent revolution in military technologies. Many commentators have a rather sceptical view of these systems. They believe that the very existence of international humanitarian law and the minimal protection offered by it are at risk due to the gradually increasing use of autonomous weapons. Albeit a minority, some other commentators welcome the development of these warrior machines, with the insinuation that wars will be conducted more humanely due to the dehumanisation of warfare. This paper undertakes to evaluate these autonomous systems in terms of their compatibility with the requirements brought about by the principle of distinction, one of the cardinal principles of international humanitarian law.

Keywords

International Law, International Humanitarian Law, Principle of Distinction, Autonomous Weapon Systems

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Introduction

Progress in mechanical capabilities and artificial intelligence has had a concrete impact on many sectors including military affairs.[1] The introduction of weapon systems with differing levels of autonomy has been dubbed as the third revolution in military technologies following gunpowder and nuclear bombs.[2] Autonomous weapon systems have become one of the most intensely debated topics of recent years.[3] There is a concrete possibility that autonomous weapon systems will completely change the reality of the contemporary battlefield, for they are to replace humans in the military decision-making process.[4]

It seems realistic to suggest that the legal regulation being favoured by some countries in those debates on the subject aims primarily to ban these weapons altogether. At least there is a serious effort in this direction on behalf of a big assortment of various international actors.[5] It is clear from the debates that some other states perceive them as science fiction weapons. This futuristic Star Wars approach makes the whole body of discussion essentially redundant. It is the observed position of these states that international humanitarian law of today is more than sufficient to tackle any problems that may arise in connection with the deployment of such weapons and weapon systems.[6] This diplomatic stance is also the concrete emergence modality of an underlying policy goal, which ultimately aims to block the introduction of any bans or restraints as regards these weapons and systems.[7]

1 Collin Douglas, 'What We Talk About When We Talk About Killer Robots: The Prospects of an Autonomous Weapons Treaty' (2023) 51 Georgia Journal of International and Comparative Law 501, 502; Anna-Katharina Ferl, 'Imagining Meaningful Human Control: Autonomous Weapons and the (De-) Legitimisation of Future Warfare' [2023] Global Society 1; Denise Garcia, 'Lethal Artificial Intelligence and Change: The Future of International Peace and Security' (2018) 20 International Studies Review 334, 335.

2 Lucie König, 'Autonome Waffensysteme Und Das Humanitäre Völkerrecht' (IFSH 2017) 11 1; Adem Özer, *Silahlandırılmış Yapay Zeka: Otonom Silah Sistemleri ve Uluslararası Hukuk* (Adalet Yayınevi 2022) 251; Afonso Seixas-Nunes, *The Legality and Accountability of Autonomous Weapon Systems: A Humanitarian Law Perspective* (Cambridge University Press 2022) 140 <https://www.cambridge.org/core/books/legality-and-accountability-of-autonomous-weapon-systems/FE880FD3F459B29A495D79D0C8347D79>.

3 Justin Haner and Denise Garcia, 'The Artificial Intelligence Arms Race: Trends and World Leaders in Autonomous Weapons Development' (2019) 10 Global Policy 331, 331; Sebastian Schwartz and Christian Reuter, '90.000 Tonnen Diplomatie 2.0: Die Integration von unbemannten Systemen in den operativen Flugzeugträgerbetrieb am Beispiel der X-47B' (2020) 13 Zeitschrift für Aussen- und sicherheitspolitik 23, 24; Sehoon Park, 'Analysis of the Positions Held by Countries on Legal Issues of Lethal Autonomous Weapons Systems and Proper Domestic Policy Direction of South Korea' (2020) 32 The Korean journal of defense analysis 393, 394; Christoph Sebastian Widdau, 'Reißen opake autonome Waffensysteme eine Verantwortungslücke? Eine kriegsethische Frage' [2022] WeltTrends: internationale Politik und vergleichende Studien 1, 24.

4 Mustafa Can Sati, 'The Attributability of Combatant Status to Military AI Technologies under International Humanitarian Law' [2023] Global Society 1.

5 Vivek Sehrawat, 'Autonomous Weapon System: Law of Armed Conflict (LOAC) and Other Legal Challenges' (2017) 33 Computer Law & Security Review 38, 39; Douglas (n 1) 502.

6 Charles P Trumbull, 'Autonomous Weapons: How Existing Law Can Regulate Future Weapons' (2020) Volume 34 Emory International Law Journal 535; Anja Dahlmann, Elisabeth Hoffberger-Pippan and Lydia Wachs, 'Autonome Waffensysteme und menschliche Kontrolle - Konsens über das Konzept, Unklarheit über die Operationalisierung' (SWP 2021) Nummer 31 8.

7 Douglas (n 1) 502; Jeroen C van den Boogaard and Mark P Roorda, '"Autonomous" Weapons and Human Control' in Rogier Bartels and others (eds), *Military Operations and the Notion of Control Under International Law: Liber Amicorum Terry D. Gill* (TMC Asser Press 2021) 422

However, weapons with a certain level of autonomy in different functions like targeting and engagement are already in use.[8] In this respect, one must be reminded that an image inspired by the robots in the movie series Terminator may be misleading. Even if they do not achieve full autonomy like that of those robots in movies, systems with varying degrees of autonomy are already in use today. The actual state may be as alarming as it is for those who value the proper implementation of humanitarian rules. The trends on the other hand indicate a willingness on behalf of certain states, which strikingly enough boast already enjoying very powerful armies. Needless to say, the introduction of autonomous weapon systems into their arsenal will enable them to expand their military capabilities even further.[9]

The highest level of autonomy that humans can imagine is likely to be created in the not-too-distant future, regardless of which level of autonomy we now choose in our legal regulations and rules for defining these weapon systems. The achievement of levels lower than this highest level, but still neighbouring full autonomy, will be observed in a relatively short period of time, if, of course, that has not yet been reached.

The existence of weapon systems of this nature is, not entirely a problem of the law of armed conflicts. Here, it is essential to take a broader view, including the extreme consequences and possibilities, such as rendering meaningless the entire fabric of the international system against the use of force. Undoubtedly, autonomous weapon systems will create an asymmetry in favour of strong states including but not at all limited to the USA, China and Russia.[10] This alarming probability of decreasing deterrence to the detriment of weaker states and entities may increase the use of force on a global scale which in turn automatically triggers the implementation of international humanitarian law with its time and battle-tested principles. The distinction is one of the cardinal principles of this body of law.[11]

In this paper, the author will probe into the significant question of whether the increasing deployment of autonomous weapon systems jeopardises the proper implementation of the humanitarian principle of distinction. To achieve this, first one must take a deeper look at autonomous weapon systems to delineate their impacts on

8 Laura Bruun, Marta Bo and Netta Goussac, 'Compliance with International Humanitarian Law in the Development and Use of Autonomous Weapon Systems: What Does IHL Permit, Prohibit and Require?' (Stockholm International Peace Research Institute 2023) 3 <https://www.sipri.org/publications/2023/other-publications/compliance-international-humanitarian-law-development-and-use-autonomous-weapon-systems-what-does> accessed 17 July 2023.

9 Haner and Garcia (n 3) 332–335.

10 Dahlmann, Hoffberger-Pippan and Wachs (n 6) 7–8; Robin Geiß, 'State Control Over the Use of Autonomous Weapon Systems: Risk Management and State Responsibility' in Rogier Bartels and others (eds), *Military Operations and the Notion of Control Under International Law: Liber Amicorum Terry D. Gill* (TMC Asser Press 2021) 441 <https://doi.org/10.1007/978-94-6265-395-5_21>.

11 İsmail Ataş, 'Otonom Silah Sistemlerinin İnsancıl Hukukun Temel İlkelerine Uygunluğunun Sağlanmasinda Anlamlı İnsan Kontrolünün Etkisi' (2022) 12 Hacettepe Law Review 767, 782; Gökhan Güneysu, *Otonom Silah Sistemleri: Bir Uluslararası Hukuk İncelemesi* (Nisan Kitapevi 2022) 92; König (n 2) 3; Paul Scharre, *Army of None: Autonomous Weapons and the Future of War* (WW Norton & Company 2018) 243; Seixas-Nunes (n 2) 150.

the humanitarian situation during hostilities. Following that, the rule of distinction shall be elaborated. Finally, we will evaluate these systems from a pro-humanitarian distinction viewpoint.

I. Autonomous Weapon Systems

Autonomous weapon systems are ground-breaking force multipliers that are already in use.[12] It is imperative to keep in mind that an asymmetry of power will be created in favour of states that can effectively develop and use such weapon systems.[13] As Rossiter accurately reminds us in this respect '*(a)utonomy in this decision-making context means that the system has ability to independently decide among different courses of action. Delegated decision-making to autonomous systems has the potential for substantial efficiencies between stages of the kill chain, compressing the time it takes from identifying a target to destroying it*'.[14] It is a safe bet now to claim that military targeting cycles will take remarkably less time to analyse, value and engage enemy targets. This will contribute to the emergence of a huge power asymmetry between states with autonomous weapons and those without.

Yet, defining autonomous weapons has so far proven to be an extremely thorny issue.[15] In this regard, different definitions have been made by various individuals and organisations. However, there is no legal framework for the time being, which states and other international actors have hitherto agreed upon, that happens to include among others a binding legal definition of these systems.[16] The United States Department of Defense defined autonomous weapon systems as systems that 'once activated, can select and engage targets without further intervention by a human operator'.[17] The International Committee of the Red Cross seems to have assumed a functionalist approach in their dealing with this definition challenge.[18] In this conceptualisation of the term, autonomous weapon systems are those which autonomously control the 'critical functions' of acquiring, tracking, selecting and attacking targets.[19]

12 Daan Kayser, 'Why a Treaty on Autonomous Weapons Is Necessary and Feasible' (2023) 25 Ethics and Information Technology 25, 24; Douglas (n 1) 507.

13 Gökhan Güneysu, 'Yeni Silahların Tabi Tutulması Gereken Hukukîlik Denetimi ve Otonom Silah Sistemleri' (2023) 14 Türkiz 81, 84.

14 Ash Rossiter, 'AI-Enabled Remote Warfare: Sustaining the Western Warfare Paradigm?' (2023) 60 International Politics 818, 825.

15 Shane R Reeves, Ronald TP Alcala and Amy McCarthy, 'Challenges in Regulating Lethal Autonomous Weapons under International Law Fighting in the Law's Gaps' (2021) 27 Southwestern Journal of International Law 101, 102; van den Boogaard and Roorda (n 7) 423.

16 Dahlmann, Hoffberger-Pippan and Wachs (n 6) 1; Güneysu, 'Yeni Silahların Tabi Tutulması Gereken Hukukîlik Denetimi ve Otonom Silah Sistemleri' (n 13) 84.

17 Douglas (n 1) 506; Reeves, Alcala and McCarthy (n 15) 105.

18 Douglas (n 1) 506.

19 Kayser (n 12) 25; Reeves, Alcala and McCarthy (n 15) 106; Douglas (n 1) 506.

It seems fair to embrace a definition based on these two separate definitions which are by now widely quoted in the academia. The autonomous character of the war-making functions of these systems seems to make sense with a view to separating them from other machines that function in other sectors. Some UAV or UCAV's like the Turkish Kargu-2 are reported to have autonomous navigation capabilities.[20] However, this navigational capability *per se* is not deemed to be listed among the critical functions of an autonomous weapon system, for it lacks any distinguishing property due to the facts that it is vastly used in other sectors like transportation and aviation and that navigation is not exclusively a military function, hence not capable of establishing an instant nexus with the status of a weapon or a weapon systems.

Harmonious with this line of thinking, target selection and engagement must significance attached as necessitated by the definition put forward by the ICRC. The same applies for the definition of the US DOD, which clearly highlights the dehumanised modus operandi of these systems, which basically means '(t)he removal of a soldier from the battlefield'.[21] Dehumanisation is, obviously, another indispensable quality of autonomous weapon systems.

For the purposes of this paper, autonomous weapon systems can be defined as such systems that perform target identification and assessment as well as hostile engagement without any need for human input.[22] It is thus the nature of the functions in which autonomy is to be observed that is decisive but not the mere existence of some degree of autonomy anywhere on the functions plate of the weapon system concerned.[23] Any weapon or weapon system with autonomy in the said critical functions are to be deemed as autonomous weapon systems. The overall autonomy level of the system on the other hand is not to have significance attached.[24]

An autonomous weapon system controlled by a program will be able to collect more data with developing sensor technology[25] and implement the necessary changes in its speed and direction in light of this information[26]. With this adaptability, autonomous systems will be able to perform missions even in open and unstructured environments. This freedom and adaptability are one of the features that distinguish autonomous systems from automated weapons like anti-personnel mines. Automated

20 STM, 'STM - KARGU - Combat Proven Rotary Wing Loitering Munition System' (*STM*) <https://www.stm.com.tr/kargu-autonomous-tactical-multi-rotor-attack-uav> accessed 20 July 2023.

21 Anzhelika Solovyeva and Nik Hynek, 'Going Beyond the" Killer Robots" Debate: Six Dilemmas Autonomous Weapon Systems Raise.' (2018) 12 Central European Journal of International & Security Studies 177.

22 Christoph Bartneck and others, 'Military Uses of AI' in Christoph Bartneck and others (eds), *An Introduction to Ethics in Robotics and AI* (Springer International Publishing 2021) 94 <https://doi.org/10.1007/978-3-030-51110-4_11>.

23 ibid 95; Bruun, Bo and Goussac (n 8) 2. "ibid 95; Bruun, Bo and Goussac (n 8)

24 Bruun, Bo and Goussac (n 8) 2."Bruun, Bo and Goussac (n 8)

25 Seixas-Nunes (n 2) 62–63.

26 Rossiter (n 14) 824; Agnieszka Szpak, 'Legality of Use and Challenges of New Technologies in Warfare – the Use of Autonomous Weapons in Contemporary or Future Wars' (2020) 28 European Review 118, 119.

weapons are such weapons that perform a single type of function and are generally deployable within a mechanical structure.[27] Here, there is no decision that requires high technology, such as actively searching for targets, evaluating the obtained image or information based on an algorithm or artificial intelligence.[28] It is necessary to talk about uniform responses to a plethora of very simple variables like movement or weight.[29] However, in the spectrum from automated systems to full autonomy, as the level of autonomy increases, crisis situations may tend to increase in which uncertainty and complexity will be observed in excess.[30]

Obviously, confusing autonomous weapons with automated weapons such as mines will be misleading since the latter weapons operate automatically and have simple one-dimensional tasks.[31] In automated weapons, the outcome of the process is predefined and utterly predictable[32], whereas in autonomous weapon systems the whole process is complicated and the outcomes unpredictable. Autonomous weapon systems differ from automatic (or automated) systems in that '*the activities of these systems are goal-oriented (teleonomic), they operate based on a set of constraints or perceptions in their internal workings to achieve a certain goal and they do not operate based on a simple energy input, but actively perceive and interpret their environment and the consequences of their possible future actions*'.[33] Therefore, the outcome may vary as the input to the battlefield elements fluctuates. Since it is for the readers of Clausewitz nothing but normal to expect that war will come with its own fog on aboard, there is no way to predict how those autonomously-generated outcomes will look.

Autonomous systems that orient themselves according to 'the input' obtained after scanning the environment continue to perform their tasks under the light of the principles of their own internal processes.[34] Automatic weapons lack decision-making processes whereas autonomous systems exhibit goal-driven 'behaviours'.[35] Autonomous systems are supposed to have a higher degree of awareness of their

27 Erica Ma, 'Autonomous Weapons Systems Under International Law' (2020) 95 New York University Law Review 1435, 1441.

28 Güneysu, *Otonom Silah Sistemleri: Bir Uluslararası Hukuk İncelemesi* (n 11) 27.

29 Ma (n 27) 1441.

30 Harald Schaub, 'Der Einsatz Autonomer Waffensysteme Aus Psychologischer Perspektive' (2020) Volume 13 Zeitschrift für Außen- und Sicherheitspolitik 335.

31 Armin Krishnan, 'Enforced Transparency: A Solution to Autonomous Weapons as Potentially Uncontrollable Weapons Similar to Bioweapons' in Jai Galliott, Duncan MacIntosh and Jens David Ohlin (eds), *Lethal Autonomous Weapons: Re-Examining the Law and Ethics of Robotic Warfare* (Oxford University Press 2021) 219 <https://doi.org/10.1093/oso/9780197546048.003.0015> accessed 18 July 2023.

32 William H Boothby, *Conflict Law: The Influence of New Weapons Technology, Human Rights and Emerging Actors* (TMC Asser Press 2014) 104.

33 Cristiano Castelfranchi and Rino Falcone, 'From Automaticity to Autonomy: The Frontier of Artificial Agents' in Henry Hexmoor, Cristiano Castelfranchi and Rino Falcone (eds), *Agent Autonomy* (Springer US 2003) 105 <https://doi.org/10.1007/978-1-4419-9198-0_6>.

34 Güneysu, *Otonom Silah Sistemleri: Bir Uluslararası Hukuk İncelemesi* (n 11) 28.

35 Castelfranchi and Falcone (n 33).

surroundings. This awareness is expected to increase owing to advanced sensor technology and machine learning, which will be applied more frequently and more successfully in the future, as well as being more capable than humans of minimizing breaches of humanitarian rules.[36]

Autonomous systems may, depending on current settings, have a greater or lesser role in the decision-making process regarding where, when and by what methods to attack enemy personnel or property. In a system operating with full autonomy, for example, this involvement is to its fullest extent possible.[37] Therefore, autonomy should not and cannot be conceptualised in absolute dichotomies, given its fluctuating nature. As stated elsewhere: '*Autonomy is a characteristic, not a thing in and of itself. It could be applied to any weapon system. It could be applied to different parts of any system—for example, something might be able to determine its path and navigate autonomously, but once on target, humans are involved in the decision to engage. You might have an adjustable object with an autonomous mode, automatic mode and human-operated mode*'.[38]

The best way to understand autonomous weapon systems and their autonomy would be to place machine autonomy on a spectrum. Although there are as of today no systems that are fully autonomous and fully self-cognisant like those terminator robots, there is a very high number of systems that are autonomous in their functioning. The level of autonomy these systems have may vary not only from system to system but also from modality to modality, under which one specific system may be selected to work. Just as is the case with some aerial defence systems, human operators may select to turn on the fully autonomous mode or may just opt to keep it in such a setting that requires an operator to confirm or reject any solutions autonomously generated by the system.

As Dahlbeck hints, there is a plethora of confusion and misconceptions as to autonomy.[39] One common misunderstanding is the confusion of machine autonomy and artificial intelligence, or rather the former cannot be real without the latter, which is a misunderstanding. Machine autonomy does not have to be completely AI-powered via deep learning. This is a very common misconception as to autonomy. Machine autonomy may very well start with relatively simple algorithms that cannot turn the systems into self-thinking entities. A system working on an algorithm will still be able to generate a solution as to whether to attack a certain building within the parameters of its programming. Machine learning systems, on the other hand,

36 Douglas (n 1) 535.

37 Güneysu, 'Yeni Silahların Tabi Tutulması Gereken Hukukîlik Denetimi ve Otonom Silah Sistemleri' (n 13) 85.

38 UNIDIR, 'The Weaponization of Increasingly Autonomous Technologies: Concerns, Characteristics and Definitional Approaches. A Primer' (UNIDIR 2017) No. 6 19.

39 Moa De Lucia Dahlbeck, 'AI and Spinoza: A Review of Law's Conceptual Treatment of Lethal Autonomous' (2021) 36 AI & SOCIETY 797, 799.

are capable of learning to fulfil tasks through training, use and human feedback[40]. To reiterate, to have and deploy perfectly autonomous weapon systems, it does not take human-like intelligent beings.

Human-machine interaction during the deployment of an autonomous weapon system is crucial.[41] Control, for some, can only mean that the human remains in-the-loop, meaning that final decisions on critical matters like targeting and engagement are left exclusively to human decision-making.[42] In this modality, the execution of the final critical function is left to human personnel alone. The system, which operates autonomously during navigation and target acquisition, is not equipped with the authority to decide on the executive action to deliver the final blow.[43] What the author means here is that even if the system performs many critical military functions autonomously, it is not programmed to take the decision to attack enemy personnel or other military targets on its own. In this case, the system is only capable of taking offensive action after human instruction to do so. The decision to attack, in this type of interaction, rests solely with human personnel.[44]

The human-controller model, according to which the human component supervises the operation of the autonomous system and reserves the possibility to intervene in its solutions, but does not interfere unless necessary, can also be deemed sufficient to ensure meaningful control, which the ICRC and SIPRI define as a key necessity for autonomous weapon systems' deployment in hostilities.[45]

The human-controller model, in contradistinction to in-the-loop mode, undoubtedly leaves a wider decision and action room for the machine and is called on-the-loop typology.[46] In this type of interaction, the autonomous weapon system not only acquires targets but also takes the final decision to attack. The human operator takes a step back and monitors the whole process from afar.[47] The difference here is that human instruction is not explicitly required. The human operator is, however, authorised to override the autonomously generated decision about the hostile act. In the case where the human refrains from undertaking anything within a given amount of time, the system will execute its own decision without seeking any approval from the human operator.

40 Shin-Shin Hua, 'Machine Learning Weapons and International Humanitarian Law: Rethinking Meaningful Human Control' [2019] Georgetown Journal of International Law 117, 118.

41 Merel Ekelhof, 'Moving Beyond Semantics on Autonomous Weapons: Meaningful Human Control in Operation' (2019) 10 Global Policy 343, 345.

42 Rebecca Crootof, 'A Meaningful Floor for "Meaningful Human Control"' (2016) 30 Temple International and Comparative Law Journal 53, 54; van den Boogaard and Roorda (n 7) 422.

43 Güneysu, *Otonom Silah Sistemleri: Bir Uluslararası Hukuk İncelemesi* (n 11) 29.

44 Leila Methnani and others, 'Let Me Take Over: Variable Autonomy for Meaningful Human Control' (2021) 4 Frontiers in Artificial Intelligence 2 <https://www.frontiersin.org/articles/10.3389/frai.2021.737072>.

45 Edward Hunter Christie and others, 'Regulating Lethal Autonomous Weapon Systems: Exploring the Challenges of Explainability and Traceability' [2023] AI and Ethics <https://doi.org/10.1007/s43681-023-00261-0>.

46 Crootof (n 42) 54.

47 Douglas (n 1) 506; Methnani and others (n 44) 2.

There are also evaluations that autonomous weapon systems should be considered as combatants due to their ability to make decisions based on artificial intelligence or algorithms and, in a sense, to exercise discretion. According to this view, these systems should be considered as subordinate personnel. In such a case, these systems should be directly subject to humanitarian law regulations. Therefore, if such an understanding prevails, autonomous systems will cease to be the object of humanitarian law and will become its subject. Combatants are legally cleared to commit the act of killing during a conflict. According to Akerson, systems with this characteristic should be considered as unlawful combatants since they do not fully meet the requirements of being combatants under Article 43 of Additional Protocol I, yet are perfectly capable of killing humans and engaging targets.[48] This author finds in Akerson's proposal a ground-breaking negation of anything and everything international humanitarian law wishes to establish. This body of law openly addresses real persons by creating for them obligations and/or rights although this whole process functions via states as the principal addressees of humanitarian law. However, the end beneficiary is nothing but real persons. Humanitarian law functions by the actions of real persons and it attaches legal consequences to illegal actions or omissions of real persons. Taking into account this human-centric nature of humanitarian law, Akerson's proposal should be declined. Besides, there is no palpable use in this hypothetical personification of robots, since it is impossible to apply sanctions on these machines if any transgression of law occurs.

II. Principle of Distinction

Humanitarian law is a specific branch of international law that will be applied in the event of an armed conflict.[49] It has the objective to diminish the evils of hostilities to an extent possible, especially with a view to protecting civilians from the impacts of war.[50] It has been developed in accordance with the specific conditions of the conflicts and under the light of concrete experiences of armed conflicts.[51] Humanitarian law has separate rules of law for international and non-international armed conflicts.[52]

By definition, international armed conflicts are such conflicts between at least two states. The development of autonomous systems has so far been the exclusive domain of state actors. Therefore, at least in the foreseeable future, the acquisition

48 David Akerson, 'Chapter 3 The Illegality of Offensive Lethal Autonomy' in Dan Saxon (ed), *International Humanitarian Law and the Changing Technology of War* (Brill | Nijhoff 2013) 88–89 <https://brill.com/view/book/edcoll/9789004229495/B9789004229495-s005.xml>.

49 Boothby (n 32) 7.

50 Ronald C Arkin, *Governing Lethal Behavior in Autonomous Robots* (CRC Press 2009) 71; König (n 2); Scharre (n 11) 243.

51 Rieke Arendt, 'Völkerrechtliche Probleme Beim Einsatz Autonomer Waffensysteme' (Doctoral Thesis, Universität Potsdam 2016) 43.

52 Yoram Dinstein, *The Conduct of Hostilities under the Law of International Armed Conflict* (1st edn, Cambridge University Press 2004) 1–3 <https://www.cambridge.org/core/books/conduct-of-hostilities-under-the-law-of-international-armed-conflict/6F968AB75832E7A46CD4FEE7CA86BB8F> accessed 18 July 2023.

of autonomous weapon systems by non-state actors will be considered a security problem and will be tried to be prevented by any means necessary. However, just because only state actors have hitherto managed to develop and deploy these systems does not necessarily mean that they will never be used in non-international conflicts by some armed groups.

Humanitarian law texts on armed conflicts of an international character are more comprehensive, and their regulations are more detailed. As required by historical circumstances, the dominant concept of warfare at the time these rules were created was inter-state in nature, and the principles and conventions of humanitarian law that have evolved since then have found their place in the legal framework of international conflicts[53].

In armed conflicts, as a rule, the main target is the armed forces of the enemy. This is due the fact that these forces are the only obstacle in the way of the unfettered dictation of the political will of another state over that state.[54] Accordingly, military actions taken during an armed conflict should only target the enemy's military power.[55] As early as in 1868, the weakening of the armed forces of the enemy was declared to be the sole legitimate objective of the whole war campaign by virtue of the St. Petersburg Declaration.[56] In fact, the principle of distinction is said to be as old as the organized armed conflict itself.[57]

In order for an attack to be lawful according to international humanitarian law, an attack must exclusively be directed against such legitimate targets.[58] Similarly, the Hague Conventions on the Law of War of 1899 and 1907 and the Geneva Conventions of 1949 also contain rules ordering such a distinction.

In the same vein, many national and international courts or arbitration tribunals have rendered decisions confirming the existence of the rule on distinction. In one of them, the so-called Coenca Brothers v. Germany Case, '*the Greek-German Mixed Arbitration Panel decided a dispute concerning the bombing of the city of Thessaloniki by a Zeppelin in 1916. The award found Germany liable for violations of international law. According to the December 1927 award, the attack was carried*

53 Arendt (n 51) 45.

54 Gökhan Güneysu, *Çevrenin Silahlı Çatışmalar Esnasında Korunması* (Adalet Yayınevi 2014) 197.

55 ibid; Jonathan Crowe and Kylie Weston-Scheuber, *Principles of International Humanitarian Law* (Edward Elgar Publishing 2013) 53.

56 Güneysu, *Çevrenin Silahlı Çatışmalar Esnasında Korunması* (n 54) 198; Jean-Marie Henckaerts and Louise Doswald-Beck, *Customary International Humanitarian Law: Volume 1: Rules*, vol 1 (Cambridge University Press 2005) 3 <https://www.cambridge.org/core/books/customary-international-humanitarian-law/9F4A7A9222814BF47BF62221C7B581BA> accessed 17 July 2023.

57 Arthur van Coller, 'An Evaluation of the Meaning and Practical Implications of the Concept of "Direct Participation in Hostilities"' (University of Pretoria 2015) 157.

58 Marco Sassòli, *International Humanitarian Law: Rules, Controversies, and Solutions to Problems Arising in Warfare* (Edward Elgar Publishing 2019) 29 <https://www.elgaronline.com/view/9781786438546/9781786438546.xml>; Crowe and Weston-Scheuber (n 55) 53.

out at night and from a height of 3,000 meters, without any prior warning. According to the Panel, one of the principles generally recognized by International Law is that the combatants should, as far as possible, protect the civilian population'.[59]

Most recently, Article 48 of the Additional Protocol I of 1977 has the following on this point:

'*In order to ensure respect for and protection of the civilian population and civilian objects, the Parties to the conflict shall at all times distinguish between the civilian population and combatants and between civilian objects and military objectives and accordingly shall direct their operations only against military objectives.*'

The principle of distinction regulated in Article 48 provides a general protective blanket for non-combatants. The direct targeting of civilians is thus prohibited.[60] This prohibition will apply even in such instances where it might be considered ultimately beneficial to target civilians with a view to terrorising and demoralising them so that any potential for armed resistance could be weakened.[61]

In addition to this basic rule, there are specific layers of protection provided by, inter alia, Additional Protocols I and II. Article 51(2), for example, states that the civilian population as well as individual civilians shall not be the target of attack and that acts or threats of violence of which the main purpose is to spread terror among the civilian population are prohibited.[62] Article 51(4) prohibits attacks that are indiscriminate either by design of the military planners or due to the peculiarities of the means or methods of war deployed during that attack.[63] Regardless of the underlying reason, any indiscriminate attack is thus *expressis verbis* prohibited. This offers another protective blanket for the civilian population. Thus, Article 51 aims at the protection of non-combatants, that is real persons, during hostilities.

Article 52 AP I, on the other hand, aims to protect civilian objects. Article 52 (3) has another important layer of protection by foreseeing that '*(i)n case of doubt whether an object which is normally dedicated to civilian purposes, such as a place of worship, a house or other dwelling or a school, is being used to make an effective contribution to military action, it shall be presumed not to be so used*'. In the light of this, any military commander may not find the existence of mere doubt a sufficient ground to make the buildings concerned the objective of an attack. Another Article that one may elaborate on in this regard is Article 57 of the Additional Protocol I of

59 Güneysu, *Çevrenin Silahlı Çatışmalar Esnasında Korunması* (n 54) 199.

60 Crowe and Weston-Scheuber (n 55) 53.

61 Güneysu, *Çevrenin Silahlı Çatışmalar Esnasında Korunması* (n 54) 198; Crowe and Weston-Scheuber (n 55) 53.

62 Henckaerts and Doswald-Beck (n 56) 3–4.

63 Damien Cottier, 'Emergence of Lethal Autonomous Weapons Systems (LAWS) and Their Necessary Apprehension through European Human Rights Law' (Council of Europe, Committee on Legal Affairs and Human Rights 2022) 30; Crowe and Weston-Scheuber (n 55) 57.

1977, which orders commanders to constantly 'do everything feasible to verify' that the objects they are attacking are genuinely military objectives.[64]

In light of the foregoing, there is no doubt in the existence of the legal requisite of a constant distinction between combatants and civilians.[65] In accordance with the principle of distinction in contemporary law of armed conflict, it is at all times necessary to distinguish between civilians and civilian objects, as well as between military personnel and military targets.[66] Accordingly, the immediate target of a military attack is only those persons and objects that may legitimately be military targets.[67] The constant character of this legal obligation is of import. The distinction is not something one may easily neglect after the end of a certain stage in the cycle of military decision-making. The planning phase, where the targets shall be valued in terms of military advantage, offering if/when the targets are destroyed, is not the only phase during which the distinction rule is taking cognisance. During the tactical phases (i.e., execution) of the whole military loop, military personnel are under the burden of distinguishing between civilians and enemy combatants.

The ICJ, in its Advisory Opinion of 1996[68] underlines unmistakably that '*(t)he cardinal principles contained in the texts constituting the fabric of humanitarian law are the following. The first is aimed at the protection of the civilian population and civilian objects and establishes the distinction between combatants and non-combatants; States must never make civilians the object of attack and must consequently never use weapons that are incapable of distinguishing between civilian and military targets*'.

In this regard, whether the deployment of autonomous weapons will have a negative impact upon the implementation of this 'basic rule' is a question of vital import. An autonomous weapon system can continue to kill people with continuity and efficiency, not unlike the action of a production tool that screws certain parts together in an automobile factory. Not only is it not possible for a weapon system to feel any remorse or anxiety about the human life it ends as a result of the act of killing, but these systems also lack the capacity to reason about the meaning and significance of the human life they end. The killing of humans is therefore reduced to a simple numerical expression in an algorithm that just needs to be run without glitches and with periodical maintenance. It does not seem possible at the moment for a machine to attribute any meaning to actions such as the meaning of life and its ending, nor will it be realistic to expect that

64 Seixas-Nunes (n 2) 171; van den Boogaard and Roorda (n 7) 427; van Coller (n 57) 159.

65 Dinstein (n 52) 82; Seixas-Nunes (n 2) 173.

66 Elvira Rosert and Frank Sauer, 'Prohibiting Autonomous Weapons: Put Human Dignity First' (2019) 10 Global Policy 370, 371.

67 Henckaerts and Doswald-Beck (n 56).

68 International Court of Justice, 'Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion' (*Refworld*) <https://www.refworld.org/cases,ICJ,4b2913d62.html> accessed 20 July 2023.

machines would be able to grasp the gravity of the autonomously generated decision to kill and/or wound humans during armed conflicts.

The fact that machines, which cannot, at least for the time being, have any human perception, emotion and thought, are to be the ultimate decision-makers on the termination of human life brings to the fore first and foremost an ethical problem.[69] According to those who hold this view, it is unethical to leave it to machines to decide which life ends due to the engagement of autonomous weapons since they possess by no means any meaningful 'internal states' as the agent using force to comprehend the consequences of that specific hostile act.[70] Likewise, reducing human life to simple and meaningless information data should be seen as a violation of respect for human life and human dignity. Ethical problems caused by autonomous weapon systems are found perfectly sufficient by many to justify a complete ban on such systems.[71]

On the other hand, some authors and thinkers argue that autonomous weapon systems do not have human feelings and that this can actually be considered as an advantage in terms of humanitarian protection.[72] According to this approach, human beings have already shown that they are capable of committing all kinds of crimes in a war environment. It is not uncommon for crimes to be committed due to motives such as fear, revenge, etc. and for reasons such as threat and chaos[73]. Hence, it is actually humans that should not be trusted to follow rules on military conduct and that autonomous systems, which do not have the emotions humans have, might be an advantage for the sake of humanitarian protection[74].

Still, the most important concern expressed in diplomatic discussions as well as in the reports of individuals and organisations has constantly been that these weapons pose a serious risk of violating or circumventing the rules and principles of humanitarian law.[75]

III. The Appraisal of Autonomous Weapon Systems under the Light of the Principle of Distinction

Autonomous weapon systems, which dynamically interact with the environment, are able to detect and evaluate potential targets with the help of remote sensing

69 Scharre (n 11) 264.

70 Alex Leveringhaus, 'Morally Repugnant Weaponry?: Ethical Responses to the Prospect of Autonomous Weapons' in Silja Voeneky and others (eds), *The Cambridge Handbook of Responsible Artificial Intelligence* (1st edn, Cambridge University Press 2022) 482 <https://www.cambridge.org/core/product/identifier/9781009207898%23CN-bp-27/type/book_part> accessed 24 July 2023.

71 Scharre (n 11) 264.

72 Douglas (n 1); Leveringhaus (n 70) 478; Widdau (n 3) 26.

73 Schaub (n 30).

74 Ma (n 27) 1445.

75 Scharre (n 11) 244; Trumbull (n 6) 534.

technology. In addition to the algorithm-based or artificial intelligence-based distinction of targets, it is also possible to talk about the establishment of a priority order among the targets acquired. Such capabilities, if/when developed properly, will also work as built-in guarantees for such conduct on the battlefield that at least converges to the standards set by the law especially in relation to the principle of distinction.[76]

There is no doubt that the development of sensor technology in particular will contribute to the application of the principle of distinction. However, today and in the near future, important decisions will need to be made during warfare under time pressures and pretty much under the chaos of the battlefield.[77] For the time being, it is not possible for autonomous systems to make such decisions reliably. As Solovyeva and Hynek highlight, it is still an 'illusion that AI algorithms are capable of independent decision-making, at least at the current stage of their development'.[78]

As mentioned above, there is a legal obligation to constantly try to make the distinction between combatants and civilians during hostilities. This capability has to be injected into the system in the course of the preparation of the software running the system. In addition, we know that some algorithmic limitations can go beyond the identity and nature of the target. In this vein, limitations on the deployment of weapons only in geographies with certain characteristics can also be inserted into the algorithm in advance. At least as an option, it must be made possible for the military end-user to choose whether or not to operate in certain geographies during a forthcoming operation.[79] In addition, in certain settings such as urban settlements, the autonomous system may via an algorithm be forced to use such ammunition or weapons that inherently cause minimal collateral damage since such warfare by its very nature cannot entirely avoid civilian populations and must be administered in strict accordance with the principle of proportionality. As regards urban settlements, it can also be a sound policy to insert absolute operation bans into the software so that these settlements will be kept out of the operational area of these systems.

The International Committee of the Red Cross seems to opine strongly in favour of geographical limitations on deployment of autonomous systems with a view to facilitating the proper implementation of humanitarian rules including but not limited to the principle of distinction.[80] Sharkey warns in this regard as well, that

76 Güneysu, *Otonom Silah Sistemleri: Bir Uluslararası Hukuk İncelemesi* (n 11) 28.

77 Scharre (n 11) 137.

78 Anzhelika Solovyeva and Nik Hynek, 'When Stigmatization Does Not Work: Over-Securitization in Efforts of the Campaign to Stop Killer Robots' [2023] AI & SOCIETY <https://doi.org/10.1007/s00146-022-01613-w>.known more impartially as autonomous weapons systems (AWS

79 Güneysu, *Otonom Silah Sistemleri: Bir Uluslararası Hukuk İncelemesi* (n 11) 58.

80 'Autonomous Weapons: Decisions to Kill and Destroy Are a Human Responsibility' 29 <https://www.icrc.org/en/document/statement-icrc-lethal-autonomous-weapons-systems> accessed 21 July 2023; Seixas-Nunes (n 2) 177.

automated weapon systems should work solely with '*low cluttered environments and with military objects such as tanks in the desert and ships at sea. The methods are unreliable with medium to high-clutter environments and are not used. This is unlikely to change significantly in the near to medium term future although improvements are expected in the longer term*'.[81] Accordingly, short-range defensive systems for ships against aerial targets or other immovable defensive systems for border protection may be considered to have more positive results in terms of humanitarian law since the probability of the existence of civilians and civilian objects is pretty low under given circumstances. Geographical limitations on systems like CIWS would make sure, albeit not completely, that no rules of humanitarian law are breached due to the isolated nature of where they will habitually be deployed.

Measures can be taken in advance, such as not using a weapon system that is likely to use high destructive power ammunition in places where there are civilian targets and people, such as cities and towns, or ensuring that ammunition with a lower impact is used exclusively in these environments by the system in question. Therefore, such measures may pave the way for the systems to be used exclusively in localities where there are relatively fewer or no civilians. Alternatively, all these options can be made available to the user, and military personnel can make the decision on this issue. What is important is that such options should already be incorporated at the software development stage, *i.e.,* at the very beginning of the system's life-cycle in the form of absolute limitations in the form of 'if … then' propositions.[82] Such absolute limitations are among the measures that can be effective in preventing the distinction-related humanitarian risks posed by autonomous systems. With that said, it is not, in the time of algorithm-preparation, possible to foresee all the deployment scenarios and cover them accordingly with convenient limitations and/or authorisations. In light of this, options should be kept broader leaving more room for manoeuvre for the military decision-makers.

If the autonomous weapon system enters a predetermined area during targeting operations, or if it can conclude through machine learning that it is in an inhabited area based on the number of buildings and the structure of the settlements, and if it is absolutely prevented from functioning in areas with these characteristics by virtue of an absolute software prohibition, it is obvious that this measure will greatly increase the chances of compliance with basic humanitarian law principles such as distinction and proportionality. In other words, here, the machine may have previously entered the coordinates of areas where fighting should not be committed, or such a command may be entered into the system by a human operator during the operation. In addition, in a dynamic combat environment, the machine may itself detect the presence of such

81 'Autonomous Weapons: Decisions to Kill and Destroy Are a Human Responsibility' (n 80).

82 Güneysu, *Otonom Silah Sistemleri: Bir Uluslararası Hukuk İncelemesi* (n 11) 63.

a civilian area. The important thing is to include an attack-obstacle in the algorithm in advance, regardless of its source, which will be acted upon or recommended to the human controller or operator to act upon the relevant data. This will lead to far-reaching humanitarian gains. Here, it is necessary to examine the issue of prior inclusion in the algorithm. Without a prior inclusion of humanitarian and geographical limits of *absolute nature*, humanitarian considerations will be exposed to behemothic risks.

Concluding Remarks

Barring a miracle-like turn of events, autonomous weapons are here to stay and the international community must take note of this unfortunate inevitability.[83] As a matter of fact, it has tried to respond to this by virtue of talks, first non-formal, then on a governmental representative level. There is confusion as to how humanity should tackle this problematic issue. However, owing much to the inertia created by the strict attitudes of different groupings of states, no concrete outcomes have been borne out of these talks. This author finds it right and realistic to have a healthy dose of prudence that calls for a sceptical attitude as regards autonomous weapon systems. These systems will in all probability make it easier to bend if not completely break the rules of *jus ad bellum*. Yet, a complete eradication of *jus ad bellum* should never be ruled out. Regrettably enough, they also possess the potential to reduce all the principles and rules of humanitarian law to a farce.[84]

One of these humanitarian rules is the principle of distinction that echoes through a number of legally binding articles, especially those of AP I. This foundational principle of international humanitarian law *per se* is easy to grasp. It is a legal obligation to attack only enemy personnel and military objectives. However, there will be situations that are unavoidably not that absolute. In fact, it will almost always be difficult to distinguish between civilians and combatants on the battlefield during hostilities.[85] This is exactly where sensor quality and technology must come into play. The better quality these parts have, the sounder the understanding of what is afoot in the theatre of battle will be achieved. However, this level has not yet been reached.

The development of machines that can distinguish between combatants and civilians in an extremely isolated laboratory environment, will not automatically guarantee similar success in the distinction between civilians and soldiers on a complex battlefield, with many moving parts and variables competing against each other in the background.[86] This failure to transfer displayed laboratory success to

83 Geiß (n 10) 441.

84 Scharre (n 11) 244.

85 Rosert and Sauer (n 66) 370.

86 Berkant Akkuş, 'The Dehumanization of International Humanitarian Law: An Analysis of the Potential Impact of Autonomous Weapon Systems on International Humanitarian Law' (2022) 24 Güvenlik Çalışmaları Dergisi 174, 181.

real combat zones due to brittleness is the crux of these discussions.[87] Computer simulations or prototypical trials can achieve a significant level of success if ideal and isolated conditions are met.[88] The successes achieved in these constrained environments lead to an increase in optimistic predictions and forecasts for the future.[89] Nonetheless, reality usually presents much more complex scenarios than isolated situations. It is of great importance to build systems with robustness that may close the gap between the chaos of reality and the foreseeability and the order of the simulation.[90] For the time being though, it is easy to deceive autonomous weapon systems as well as machine learning processes.[91] This ultimately comes to mean that such systems, deceivable as they are, by no means deserve any confidence as to any promise on the implementation of the principle of distinction. The ICRC seems to carry the same opinion. According to ICRC, there are '*serious doubts about the ability of autonomous weapon systems to comply with IHL in all but the narrowest of scenarios and the simplest of environments*'.[92]

One reassuring measure would be the deployment of autonomous weapon systems in defensive roles and especially in such places where it will be almost impossible to run into civilians due to the isolated place of deployment. Here, one should remember that one of the most important advantages of autonomous weapon systems is that they are more resistant to countermeasures such as hacking and other similar disruptive activities.[93] These effective countermeasures have necessitated the creation of less interconnected, self-powered weapon systems that can attack, and return to base. For this reason, in the opinion of this author, diligent implementation of geographical limitations during combat will yield more successful results in terms of humanitarian protection.

Since there is no legal ban on autonomous weapon systems, governments have the right to further develop them.[94] Obviously, however, there will be serious risks for humanitarian values and their safeguarding until the necessary level of sensor and computer learning competences is reached. When this can be achieved is a question of technology. Until the time is ripe for an acceptable level of implementation of humanitarian rules during the deployment of autonomous weapon systems, it must be seen as the wiser step to put on hold use of such systems in armed conflicts.

87 Seixas-Nunes (n 2) 178.

88 David D Woods, 'The Risks of Autonomy: Doyle's Catch' (2016) 10 Journal of Cognitive Engineering and Decision Making 131, 131.

89 ibid 132.

90 ibid 131.

91 König (n 2) 3; Seixas-Nunes (n 2) 178.

92 van den Boogaard and Roorda (n 7) 429.

93 Noel Sharkey, 'Fully Autonomous Weapons Pose Unique Dangers to Humankind' (*Scientific American*) <https://www.scientificamerican.com/article/fully-autonomous-weapons-pose-unique-dangers-to-humankind/> accessed 21 July 2023; Güneysu, *Otonom Silah Sistemleri: Bir Uluslararası Hukuk İncelemesi* (n 11) 59.

94 Krishnan (n 31) 231.

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