

SHAKING THE FOUNDATIONS

The Human Rights Implications of Killer Robots

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I. State of the Debate

Fully autonomous weapons, also called killer robots or lethal autonomous robots, would revolutionize the “technology of killing.”⁴ While traditional weapons are tools in the hand of a human being, fully autonomous weapons would make their own determinations about the use of lethal force. Unlike existing semi-autonomous armed drones, which are remotely controlled, fully autonomous weapons would have no human “in the loop.”

Fully autonomous weapon systems have yet to be created, but technology is moving rapidly in that direction. For example, the US X-47B prototype has taken off and landed on an aircraft carrier on its own, and a South Korean sentry robot can identify and shoot humans in the demilitarized zone with North Korea.⁵ Neither is necessarily problematic at this stage—the former is not yet weaponized, and the latter requires a human to order it to fire—but such precursors demonstrate the evolution toward weapons with ever greater autonomy. Several other countries, including China, Israel, Russia, and the United Kingdom, have also allotted resources to developing this kind of technology.⁶

In 2013, the international community recognized the urgency of addressing fully autonomous weapons and initiated discussions in a number of forums. April marked the launch of the Campaign to Stop Killer Robots, an international civil society coalition coordinated by Human Rights Watch that calls for a preemptive ban.⁷ The following month, Christof Heyns, the special rapporteur on extrajudicial killing, submitted a report to the UN Human Rights Council that presented many objections to this emerging technology; he called for national moratoria on production, transfer, acquisition, and use, and an independent panel to examine the issue more closely.⁸ In November, 117 states parties to

⁴ Eric Prokosch used the term when writing about the history of antipersonnel weapons. Eric Prokosch, *The Technology of Killing: A Military and Political History of Anti-Personnel Weapons* (London: Zed Books, 1995).

⁵ Northrop Grumman, “X47B UCAS,” <http://www.northropgrumman.com/Capabilities/X47BUCAS/Pages/default.aspx> (accessed February 14, 2014); Brandon Vinson, “X-47B Makes First Arrested Landing at Sea,” *America’s Navy*, July 10, 2013, http://www.navy.mil/submit/display.asp?story_id=75298 (accessed February 16, 2014); Jon Rabirow, “Machine Gun-Toting Robots Deployed on DMZ,” *Stars and Stripes*, July 12, 2010, <http://www.stripes.com/news/pacific/korea/machine-gun-toting-robots-deployed-on-dmz-1.110809> (accessed February 14, 2014).

⁶ Human Rights Watch and IHRC, *Losing Humanity*, pp. 7, 13-19.

⁷ Campaign to Stop Killer Robots, “About Us,” <http://www.stopkillerrobots.org/about-us> (accessed February 14, 2014).

⁸ UN Human Rights Council, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, Lethal Autonomous Robotics, A/HRC/23/47, April 9, 2013,

the Convention on Conventional Weapons agreed to hold an informal experts meeting on what they refer to as lethal autonomous weapons systems in May 2014.⁹

Commentators have articulated strong but diverging views on fully autonomous weapons. Proponents maintain that the weapons would reduce the risk to soldiers' lives, decrease military expenditures, and be able to process information more quickly during operations. They also say that robots would be less apt to attack civilians because they would not act in fear or anger.¹⁰ Opponents counter that fully autonomous weapons would likely endanger civilians. They argue that these weapons would lack compassion and empathy, important inhibitors to killing people needlessly, and they would not possess other human qualities, such as judgment, that are necessary to conduct the subjective assessments underlying many of international law's protections. In addition, opponents argue that it is unclear whether any person could in practice be held legally responsible for a robot's actions, and they assert that it is morally wrong to allow machines to make life-and-death determinations.¹¹

Proponents of fully autonomous weapons contend that roboticists could theoretically develop technology with sensors to interpret complex situations and the ability to exercise near-human judgment.¹² Opponents question that assumption, emphasizing that such technology would not be possible in the foreseeable future, if ever. They also worry that deployment of such weapons could come well before the technological challenges were overcome and that allowing continued development would inevitably lead to a robotic arms race. Opponents believe that the existing legal, ethical, and scientific concerns raised by fully autonomous weapons outweigh speculation about the technology's potential benefits.¹³

http://www.ohchr.org/Documents/HRBodies/HRCouncil/RegularSession/Session23/A-HRC-23-47_en.pdf (accessed February 14, 2014).

⁹ Meeting of the High Contracting Parties to the Convention on Conventional Weapons, Final Report, CCW/MSP/2013/10, November 15, 2013, para. 32.

¹⁰ Ronald Arkin, *Governing Lethal Behavior in Autonomous Robots* (Boca Raton, FL: CRC Press, 2009), pp. 29-30.

¹¹ See, for example, Human Rights Watch and IHRC, *Losing Humanity*, pp. 30-45.

¹² Michael N. Schmitt and Jeffrey S. Thurnher, "'Out of the Loop': Autonomous Weapon Systems and the Law of Armed Conflict," *Harvard National Security Journal*, vol. 4 (2013), p. 239.

¹³ Human Rights Watch and IHRC, "The Need for New Law to Ban Fully Autonomous Weapons," p. 12.

The majority of the debate so far has focused fully autonomous weapons in armed conflict, but once available, this technology could be adapted to a range of other contexts that can be grouped under the heading of law enforcement. For example, local police officers could potentially use such robots in crime fighting, the management of public protests, riot control, and other efforts to maintain law and order. State security forces could employ the weapons in attempts to control their opposition. Countries involved in international counter-terrorism could utilize them in scenarios that do not necessarily rise to the level of armed conflict as defined by international humanitarian law. Some law enforcement operations have legitimate ends, such as crime prevention; others, including violent suppression of peaceful protests, are inherently illegitimate. Fully autonomous weapons could be deployed in an operation regardless of its character.

The use of fully autonomous weapons in a law enforcement context would trigger the application of international human rights law. International human rights law applies in both peace and war, and it regulates the use of force in situations other than military operations and combat. In comparison to international humanitarian law, which governs military operations and combat and applies only during armed conflict, human rights law tends to have more stringent standards for regulating the use of lethal force, typically limiting it to where needed to defend human life and safety. Therefore, the challenges of developing a fully autonomous weapon that would comply with international law and still be useful are even greater when viewed through a human rights lens.

II. The Right to Life

The right to life is the bedrock of international human rights law. The Universal Declaration of Human Rights (UDHR), the foundational document of this body of law, introduced the concept in 1948.¹⁴ The International Covenant on Civil and Political Rights, a cornerstone human rights treaty, codified it in 1966.¹⁵ Article 6 of the ICCPR states, “Every human being has the inherent right to life. This right shall be protected by law.”¹⁶ Regional treaties from Africa, the Americas, and Europe also have incorporated the right to life.¹⁷ In its General Comment 6, the Human Rights Committee, treaty body for the ICCPR, describes the right to life as “the supreme right” because it is a prerequisite for all other rights.¹⁸ It is non-derogable even in public emergencies that threaten the existence of a nation.¹⁹

The right to life prohibits arbitrary killing. The ICCPR declares, “No one shall be arbitrarily deprived of his life.”²⁰ The Human Rights Committee states that this right should be interpreted broadly. ICCPR negotiators understood “arbitrary” as having legal and ethical meaning; for them, it encompassed unlawful and unjust acts.²¹ While some drafters proposed enumerating permissible killings in the ICCPR, the group ultimately decided not to do so in order to emphasize the prohibition on arbitrary deprivation of life.²²

¹⁴ Universal Declaration of Human Rights (UDHR), adopted December 10, 1948, G.A. Res. 217A(III), U.N. Doc. A/810 at 71 (1948), art. 3 (“Everyone has the right to life, liberty and security of person.”).

¹⁵ ICCPR, art. 6.

¹⁶ *Ibid.*, art. 6(1).

¹⁷ African [Banjul] Charter on Human and Peoples’ Rights, adopted June 27, 1981, OAU Doc. CAB/LEG/67/3 rev. 5, 21 I.L.M. 58 (1982), entered into force October 21, 1986, art. 4 (“Human beings are inviolable. Every human being shall be entitled to respect for his life and the integrity of his person. No one may be arbitrarily deprived of this right.”); American Convention on Human Rights (“Pact of San José, Costa Rica”), adopted November 22, 1969, O.A.S. Treaty Series No. 36, 1144 U.N.T.S. 123, entered into force July 18, 1978, reprinted in Basic Documents Pertaining to Human Rights in the Inter-American System, OEA/Ser.L.V/II.82 doc.6 rev.1 at 25 (1992), art. 4 (“Every person has the right to have his life respected. This right shall be protected by law and, in general, from the moment of conception. No one shall be arbitrarily deprived of his life.”); European Convention for the Protection of Human Rights and Fundamental Freedoms, 213 U.N.T.S. 222, entered into force September 3, 1953, as amended by Protocols Nos. 3, 5, 8, and 11 which entered into force on September 21, 1970, December 20, 1971, January 1, 1990, and November 1, 1998, respectively, art. 2 (“Everyone’s right to life shall be protected by law. No one shall be deprived of his life intentionally save in the execution of a sentence of a court following his conviction of a crime for which this penalty is provided by law.”).

¹⁸ UN Human Rights Committee, General Comment 6, para. 1. See also Nowak, *U.N. Covenant on Civil and Political Rights*, p. 104.

¹⁹ UN Human Rights Committee, General Comment 6, para. 1.

²⁰ ICCPR, art. 6(1).

²¹ UN Human Rights Committee, General Comment 6, para. 1; Marc Bossuyt, ed., *Guide to the ‘travaux préparatoires’ of the International Covenant on Civil and Political Rights* (Dordrecht: Martinus Nijhoff Publishers, 1987), p. 122; Nowak, *U.N. Covenant on Civil and Political Rights*, pp. 110-111.

²² Bossuyt, *Guide to the ‘travaux préparatoires’*, pp. 116-117.

The Right to Life in Law Enforcement Situations

The right to life constrains the application of force in a range of situations outside of armed conflict. In its General Comment 6, the Human Rights Committee highlights the duty of states to prevent arbitrary killings by their security forces.²³ The United Nations set parameters for the use of force by such agents in the 1990 Basic Principles on the Use of Force and Firearms by Law Enforcement Officials (1990 Basic Principles) and the 1979 Code of Conduct for Law Enforcement Officials (1979 Code of Conduct). Adopted by a UN congress on crime prevention and the UN General Assembly respectively, these standards provide guidance for how to understand the scope of arbitrary killing in law enforcement situations.²⁴ They expressly note the importance of protecting human rights.²⁵

Arbitrary killings under the right to life fail to meet three cumulative requirements for when and how much force may be used. To be lawful in law enforcement situations, force must be necessary, constitute a last resort, and be applied in a proportionate manner.²⁶ Fully autonomous weapons would face obstacles to meeting these criteria that circumscribe lawful force. They could not completely replicate the ability of human law enforcement officials to exercise judgment and compassion or to identify with other human beings, qualities that facilitate compliance with the law. These inherently human characteristics parallel those described in Article 1 of the UDHR, which states, “All human beings ... are endowed with reason and conscience and should act towards one another in a spirit of brotherhood.”²⁷ Due to the inadequacy of fully autonomous weapons in these areas, which is elaborated on below, the weapons could contravene the right to life, undermining the legitimacy of some law enforcement operations and exacerbating the harm caused by ones that are already illegitimate.

²³ UN Human Rights Committee, General Comment 6, para. 3.

²⁴ Basic Principles on the Use of Force and Firearms by Law Enforcement Officials, adopted by the Eighth United Nations Congress on the Prevention of Crime and the Treatment of Offenders (1990 Basic Principles), Havana, August 27 to September 7, 1990, U.N. Doc. A/CONF.144/28/Rev.1 at 112 (1990); United Nations Code of Conduct for Law Enforcement Officials (1979 Code of Conduct), adopted December 17, 1979, G.A. res. 34/169, annex, 34 U.N. GAOR Supp. (No. 46) at 186, U.N. Doc. A/34/46 (1979).

²⁵ 1990 Basic Principles, pmbl.; 1979 Code of Conduct, art. 2.

²⁶ The requirements for use of force can be broken down in different ways. For example, while covering almost the same the elements as this report does, the International Committee of the Red Cross (ICRC) divides the requirements into legality (force must be for a “legitimate” objective), necessity (there must be “no less restricting measures available”), proportionality (“any restriction of rights must be proportionate to the legitimate objective”), and precaution (“authorities must take all possible measures to minimize damage”). International Committee of the Red Cross, “Violence and the Use of Force,” July 2011, http://www.icrc.org/eng/assets/files/other/icrc_002_0943.pdf (accessed February 16, 2013), p. 17.

²⁷ UDHR, art. 1.

Necessity

Necessity is the first precondition for lawful force. The 1979 Code of Conduct states that law enforcement officials may employ force only when it is “strictly necessary” and “exceptional.”²⁸ The use of firearms is even more narrowly restricted to situations where it is essential to saving human lives. The 1990 Basic Principles limit officials’ use of firearms to:

self-defence or defence of others against the imminent threat of death or serious injury, to prevent the perpetration of a particularly serious crime involving grave threat to life, to arrest a person presenting such a danger or resisting their authority, or to prevent his or her escape.²⁹

The 1990 Basic Principles add that “intentional lethal use of firearms may only be made when strictly unavoidable in order to protect life.”³⁰

Fully autonomous weapons would lack human qualities that help law enforcement officials assess the seriousness of a threat and the need for a response. Both a machine and a police officer can take into account clearly visible signs, such as the presence of a weapon. However, interpreting more subtle cues whose meaning can vary by context, such as tone of voice, facial expressions, and body language, requires an understanding of human nature. A human officer can relate to another individual as a fellow human being, and this ability can help him or her read the other person’s intentions. Development of a fully autonomous weapon that could identify with the individual in the same way seems unlikely, and thus a robot might miss or misconstrue important clues as to whether a real threat to human life existed.³¹

²⁸ 1979 Code of Conduct, art. 3 and its commentary.

²⁹ 1990 Basic Principles, art. 9.

³⁰ Ibid. The 1979 Code of Conduct similarly states, “The use of firearms is considered an extreme measure.... In general, firearms should not be used except when a suspected offender offers armed resistance or otherwise jeopardizes the lives of others.” 1979 Code of Conduct, commentary to art. 3.

³¹ See Marcello Guarini and Paul Bello, “Robotic Warfare: Some Challenges in Moving from Noncivilian to Civilian Theaters,” in *Robot Ethics: The Ethical and Social Implications of Robotics*, eds. Patrick Lin, Keith Abney, and George A. Bekey (Cambridge, MA: Massachusetts Institute of Technology, 2012), p. 138 (“A system without emotion ... could not predict the emotions or action of others based on its own states because it has no emotional states.”); Noel Sharkey, “Killing Made Easy: From Joysticks to Politics,” in *Robot Ethics: The Ethical and Social Implications of Robotics*, eds. Patrick Lin, Keith Abney, and George A. Bekey (Cambridge, MA: Massachusetts Institute of Technology, 2012), p. 118 (“Humans understand one another in a way that machines cannot. Cues can be very subtle, and there are an infinite number of circumstances where lethal force is inappropriate.”).

In addition, the deployment of fully autonomous weapons in law enforcement situations could affect the actions of the individual posing a potential threat. He or she might not know how to behave when confronted with a machine rather than a human law enforcement officer. The individual might respond differently to a robot than to a human and as a result unintentionally appear threatening. A robot's misinterpretation of the necessity of force could trigger an arbitrary killing in violation of the right to life.

Exhaustion of All Alternatives

Law enforcement officials are required to exhaust all alternatives before applying force. The 1990 Basic Principles limit force and firearms to cases where “other means remain ineffective or without any promise of achieving the intended result.”³² In particular, they permit the use of firearms exclusively “when less extreme means are insufficient” to save a life.³³ These standards encourage states to develop non-lethal weapons and equip law enforcement officials with self-defense equipment in order to decrease the need to employ lethal force.³⁴

Fully autonomous weapons' inability to relate to humans could interfere with their ability to ensure that all means short of force are exhausted. The 1990 Basic Principles state that training law enforcement officials in “methods of persuasion, negotiation, and mediation” is important to decreasing the use of lethal force.³⁵ To deescalate a situation, human officers often appeal to a threatening individual's reason, emotions, and interests. At present there is little prospect of developing a fully autonomous weapon that would be “intelligent” enough to be able to “talk down” an individual and defuse a standoff. A potential perpetrator would be more apt to connect with and be persuaded by a fellow human than an inanimate machine. Furthermore, it is unlikely that a fully autonomous weapon would be able to read a situation well enough to strategize about the best alternatives to use of force. On a more practical level, even if fully autonomous systems could be equipped with non-lethal weapons, the possibility of developing robots with the capability to restrain individuals or take prisoners seems remote. Fully autonomous

³² 1990 Basic Principles, art. 4.

³³ Ibid., art. 9. The 1979 Code of Conduct says that firearms may only be used when “less extreme measures are not sufficient.” 1979 Code of Conduct, commentary to art. 3.

³⁴ 1990 Basic Principles, art. 2.

³⁵ Ibid., art. 20.

weapons could thus escalate a situation before demonstrating that methods short of force are “ineffective or without any promise of achieving the intended result.”³⁶

Proportionality

International law enforcement standards also specify how much force may be used when it is necessary and all other means have been exhausted. Force must be proportional to the threat involved. The 1990 Basic Principles require law enforcement officials to “act in proportion to the seriousness of the offence and the legitimate objective to be achieved.”³⁷ They oblige officials to “exercise restraint” and to minimize the harm they cause.³⁸ For example, in dispersing violent assemblies, officials may use lethal weapons only “to the minimum extent necessary.”³⁹ The 1979 Code of Conduct similarly highlights the principle of proportionality and states that law enforcement officials’ use of force must be “to the extent required for the performance of their duty.”⁴⁰

Choosing an appropriate level of force could pose additional problems for fully autonomous weapons. First, these weapons would not possess judgment, which human officers rely on to balance the force of the response with the gravity of the perceived threat. The Oxford English Dictionary defines judgment as “the ability to make considered decisions or to arrive at reasonable conclusions or opinions on the basis of the available information.”⁴¹ Judgment requires human capabilities of reason and reflection to interpret information and formulate an opinion. In law enforcement, judgment allows officers to assess complicated situations, taking into account such factors as a perpetrator’s background, mental state, and demands, and then to make case-by-case decisions about the minimum level of force necessary.

There are serious doubts that fully autonomous weapons could determine how much force is proportionate in a particular case. A designer could not pre-program a robot to deal with all situations because even a human could not predict the infinite possibilities. In addition,

³⁶ *Ibid.*, art. 4.

³⁷ *Ibid.*, art. 5(a).

³⁸ *Ibid.*, art. 5(a) and (b).

³⁹ *Ibid.*, art. 14.

⁴⁰ 1979 Code of Conduct, art. 3 and its commentary.

⁴¹ Oxford English Dictionary online, “Judgment.” Black’s Law Dictionary defines judgment as “[t]he formation of an opinion or notion concerning some thing by exercising the mind upon it.” *Black’s Law Dictionary*, abridged sixth ed., “Judgment” (St. Paul, MN: West Publishing Co., 1991).

it would be difficult for a fully autonomous weapon to replicate the complex, subjective thinking processes required to judge unforeseen circumstances. Proportionality determinations involve more than quantitative analysis, and according to Christof Heyns, the UN special rapporteur on extrajudicial killing, “While robots are especially effective at dealing with quantitative issues, they have limited abilities to make the qualitative assessments that are often called for when dealing with human life.”⁴²

Second, fully autonomous weapons would lack emotions that can generate the kind of restraint the 1990 Basic Principles oblige law enforcement officials to exercise. While fully autonomous weapons would not respond to threats in fear or anger, they would also not feel the “natural inhibition of humans not to kill or hurt fellow human beings.”⁴³ Studies of human soldiers have demonstrated that “there is within man an intense resistance to killing their fellow man.”⁴⁴ Compassion contributes to such a resistance, but it is hard to see how the capacity to feel compassion could be reproduced in robots. Human rights law does not require the exercise of compassion in particular, but the emotion can facilitate compliance with proportionality and serve as a safeguard against the disproportionate use of force.⁴⁵

Abusive autocrats could take advantage of fully autonomous weapons’ lack of inherent restraint. For example, they could deploy these weapons to suppress protestors with a level of violence against which human security forces might rebel. Even the most hardened troops can eventually turn on their leader if ordered to fire on their own people. An abusive leader who resorted to fully autonomous weapons would be free of the fear that security forces would resist being deployed against certain targets.

⁴² UN Human Rights Council, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, *Lethal Autonomous Robotics*, pp. 10-11.

⁴³ Armin Krishnan, *Killer Robots: Legality and Ethicality of Autonomous Weapons* (Farnham, UK: Ashgate Publishing Limited, 2009), p. 130.

⁴⁴ Lt. Col. Dave Grossman, *On Killing: The Psychological Cost of Learning to Kill in War and Society* (New York: Little, Brown and Company, 1995), p. 4. For example, based on interviews with thousands of US soldiers in World War II, US Army Brig. Gen. S.L.A. Marshall found that usually only 15 to 20 percent of troops would fire at the enemy. These numbers were due to an innate hesitancy to kill, not to fear or cowardice because “[t]hose who would not fire did not run or hide (and in many cases they were willing to risk great danger to rescue comrades, get ammunition, or run messages).” S.L.A. Marshall, *Men Against Fire: The Problem of Battle Command in Future War* (New York: William Morrow & Company, 1947), p. 54; Grossman, *On Killing*, p. 4. See also Grossman, *On Killing*, pp. 16-17 (discussing a 1986 study by the British Defense Operational Analysis Establishment of 100 “nineteenth- and twentieth-century battles and test trials”).

⁴⁵ For a discussion of the dangers posed by fully autonomous weapons’ lack of compassion, see Human Rights Watch and IHRC, *Losning Humanity*, pp. 37-39.

It is highly unlikely therefore that fully autonomous weapons would be able to comply with the three requirements for lawful use of force—necessity, exhaustion of all alternatives, and proportionality. As a result, this technology would have the potential to arbitrarily deprive innocent people of their lives in law enforcement situations.

The Right to Life in Armed Conflict

Because the right to life is non-derogable even in situations that threaten a country's existence, the right continues to apply during armed conflict.⁴⁶ Under circumstances of armed conflict, many look to international humanitarian law, the law that governs that specific context (*lex specialis*), to help interpret certain human rights provisions.⁴⁷ Therefore, in wartime, arbitrary killing refers to unlawful killing under international humanitarian law. In his authoritative commentary on the ICCPR, Manfred Nowak, former UN special rapporteur on torture, defines arbitrary killings in armed conflict as “those that contradict the humanitarian laws of war.”⁴⁸ The International Committee of the Red Cross (ICRC) Customary International Humanitarian Law Database states, “The prohibition of ‘arbitrary deprivation of the right to life’ under human rights law ... encompasses unlawful killing in the conduct of hostilities.”⁴⁹ The ICRC finds unlawful killings go beyond those

⁴⁶ In its advisory opinion on nuclear weapons, the International Court of Justice (ICJ) found, “In principle, the right not arbitrarily to be deprived of one’s life applies also in hostilities.” *Legality of the Threat or Use of Nuclear Weapons*, ICJ, Advisory Opinion, July 8, 1996, para. 25 [hereinafter *Nuclear Weapons Advisory Opinion*]. See also Nowak, *U.N. Covenant on Civil and Political Rights*, p. 108 (“Arbitrary killings in the course of armed conflicts permissible under international law and civil wars also represent a violation of the right to life.”); UN Human Rights Committee, General Comment 31, *The Nature of the General Legal Obligation Imposed on States Parties to the Covenant* (Eightieth session, 2004), U.N. Doc. CCPR/C/21/Rev.1/Add.13 (2004), para. 11 (The ICCPR “applies also in situations of armed conflict to which the rules of international humanitarian law are applicable.”).

⁴⁷ For further discussion of the debate about the relationship between international human rights law and international humanitarian law, see generally Noëlle Quénivet, “The History of the Relationship Between International Humanitarian Law and Human Rights Law,” in *International Humanitarian Law and Human Rights Law: Towards a New Merger in International Law*, eds. Roberta Arnold and Noëlle Quénivet (Leiden: Martinus Nijhoff, 2008). According to the ICJ, “The test of what is an arbitrary deprivation of life ... falls to be determined by the applicable *lex specialis*, namely, the law applicable in armed conflict which is designed to regulate the conduct of hostilities.” *Nuclear Weapons Advisory Opinion*, para. 25. Recognizing a link between the two bodies of law, the Human Rights Committee stated in General Comment 31 that “in respect of certain Covenant rights, more specific rules of international humanitarian law may be specially relevant for the purposes of the interpretation of Covenant rights,” though it noted that “both spheres of law are complementary, not mutually exclusive.” UN Human Rights Committee, General Comment 31, para. 11.

⁴⁸ Nowak, *U.N. Covenant on Civil and Political Rights*, p. 108, n. 29. Given that states “have the supreme duty to prevent wars,” killings in the course of a war that violates the UN Charter would also violate the right to life. *Ibid.*, p. 108; UN Human Rights Committee, General Comment 6, para. 2.

⁴⁹ ICRC, Customary International Humanitarian Law Database, “Rule 89: Violence to Life,” http://www.icrc.org/customary-ihl/eng/docs/v1_rul_rule89, (accessed February 14, 2014).

violations that are considered grave breaches or war crimes, such as direct attacks against civilians, to cover indiscriminate and disproportionate attacks.⁵⁰

Civilian protection in international humanitarian law rests on the rules of distinction and proportionality. The former requires parties to a conflict to distinguish between combatants and civilians, and it outlaws means or methods of war that “cannot be directed at a specific military objective” because they are indiscriminate.⁵¹ Proportionality, a subset of distinction, prohibits attacks in which expected civilian harm “would be excessive” compared to the anticipated military advantage.⁵² “Proportionality” has a somewhat different, although not contradictory, meaning in international humanitarian law than it does in international human rights law. While under human rights law the term regulates the level of force acceptable to respond to a threat, under international humanitarian law it is used to judge whether an offensive or defensive military action is lawful. Both rules aim to protect human lives.

Some of the limitations of fully autonomous weapons that raise concerns in the law enforcement context, such as the inability to identify with humans or exercise human judgment, could also interfere with the weapons’ compliance with international law during armed conflict. First, there are serious doubts about whether fully autonomous weapons could distinguish adequately between combatants and civilians. Enemy combatants in contemporary conflicts often shed visible signs of military status, such as uniforms, which makes recognizing their intentions crucial to differentiating them from civilians.⁵³ As discussed above, it would be challenging to program fully autonomous weapons to understand human intentions. Because as machines they could not identify with humans,

⁵⁰ “[U]nlawful killings can result, for example, from a direct attack against a civilian (see Rule 1), from an indiscriminate attack (see Rule 11) or from an attack against military objectives causing excessive loss of civilian life (see Rule 14), all of which are prohibited by the rules on the conduct of hostilities.” Ibid.

⁵¹ Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts (Protocol I), adopted June 8, 1977, 1125 U.N.T.S. 3, entered into force December 7, 1978, arts. 48 and 51(4)(b). The protocol also prohibits indiscriminate attacks that “are not directed at a specific military objective” or “employ a method or means of combat the effects of which cannot be limited as required by this Protocol; and consequently, in each such case, are of a nature to strike military objectives and civilians or civilian objects without distinction.” Ibid., art. 51(4)(a) and (c).

⁵² Ibid., art. 51(5)(b)

⁵³ Guarini and Bello, “Robotic Warfare,” p. 131 (“In a context where we cannot assume that everyone present is a combatant, then we have to figure out who is a combatant and who is not. This frequently requires the attribution of intention.”).

they would find it more difficult to recognize and interpret subtle behavioral clues whose meaning depends on context and culture.⁵⁴

Second, fully autonomous weapons could face obstacles in making targeting choices that accord with the proportionality test. These weapons could not be pre-programmed to deal with every type of situation, and deciding how to weigh civilian harm and military advantage in unanticipated situations “involve[s] distinctively human judgement [sic],” something it is doubtful machines could replicate.⁵⁵

Although the ability of fully autonomous weapons to process complex information might improve in the future, it seems implausible that they could ever be identical to humans. As a result, these weapons would find it difficult to meet the three criteria for use of force in law enforcement or comply with the rules of distinction and proportionality in armed conflict. Fully autonomous weapons would have the potential to kill arbitrarily and thus violate the right that underlies all others, the right to life.

⁵⁴ Human Rights Watch and IHRC, *Losing Humanity*, pp. 30-32; Guarini and Bello, “Robotic Warfare,” p. 138; Sharkey, “Killing Made Easy,” p. 118.

⁵⁵ UN Human Rights Council, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, *Lethal Autonomous Robotics*, pp. 32-34 (noting that because the proportionality test is a subjective one, it requires human judgment, “rather than the automatic decision making characteristics of a computer.”). In addition, proportionality decisions are generally assessed according to the reasonable military commander standard. According to the Max Planck Encyclopedia of International Law, “[t]he concept of reasonableness exhibits an important link with *human* reason,” and is “generally perceived as opening the door to several *ethical or moral*, rather than legal, considerations.” Many people would object to the idea that machines can or should be making ethical or moral calculations, and yet this is precisely what the reasonable military commander standard requires. Max Planck Encyclopedia of Public International Law online, “Reasonableness in International Law” (emphasis added).

IV. Human Dignity

The concept of human dignity lies at the heart of international human rights law. The opening words of the UDHR assert that “recognition of the *inherent dignity* and of the equal and inalienable rights of all members of the human family is the foundation of freedom, justice and peace in the world.”⁷⁸ In ascribing inherent dignity to all human beings, the UDHR implies that everyone has worth that deserves respect.⁷⁹ The ICCPR establishes the inextricable link between dignity and human rights, stating in its preamble that the rights it enumerates “derive from the inherent dignity of the human person.”⁸⁰ Regional treaties echo this position, and the Vienna Declaration of the 1993 World Human Rights Conference affirms that “all human rights derive from the dignity and worth inherent in the human person.”⁸¹

Fully autonomous weapons would possess the power to kill people yet be unable to respect their dignity. As inanimate machines, they could truly comprehend neither the value of individual life nor the significance of its loss. Allowing them to make determinations to take life away would thus conflict with the principle of dignity.⁸²

Critics of fully autonomous weapons have expressed serious moral concerns related to these shortcomings. In his 2013 report to the Human Rights Council, Christof Heyns, the special rapporteur on extrajudicial killing, wrote,

⁷⁸ UDHR, pmb., para. 1 (emphasis added). The Oxford English Dictionary defines dignity as “the quality of being worthy or honourable; worthiness, worth, nobleness, excellence.” Oxford English Dictionary online, “Dignity.”

⁷⁹ Jack Donnelly, “Human Dignity and Human Rights,” in Swiss Initiative to Commemorate the 60th Anniversary of the UDHR, *Protecting Dignity: Agenda for Human Rights*, June 2009, http://www.udhr60.ch/report/donnelly-HumanDignity_0609.pdf (accessed February 16, 2014), p. 10.

⁸⁰ ICCPR, pmb., para. 2.

⁸¹ African Charter on Human and People’s Rights, pmb., para. 2, and art. 5 (noting that dignity is one of the “essential objectives for the achievement of the legitimate aspirations of the African peoples” and granting the right to respect of dignity); American Convention on Human Rights, art. 5 (referring to the “inherent dignity of the human person”); European Convention for the Protection of Human Rights and Fundamental Freedoms, pmb., para 1 (declaring that the right to life is “essential ... for the full recognition of the inherent dignity of all human beings”); Vienna Declaration and Program of Action, adopted by the World Conference on Human Rights, June 25, 1993, pmb., para. 2.

⁸² According to UN Special Rapporteur Christof Heyns, “[T]here is widespread concern that allowing [fully autonomous weapons] to kill people may denigrate the value of life itself.” UN Human Rights Council, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, *Lethal Autonomous Robotics*, p. 20.

[A] human being somewhere has to take the decision to initiate lethal force and as a result internalize (or assume responsibility for) the cost of each life lost in hostilities, as part of a deliberative process of human interaction.... Delegating this process dehumanizes armed conflict even further and precludes a moment of deliberation in those cases where it may be feasible. Machines lack morality and mortality, and should as a result not have life and death powers over humans.⁸³

Heyns described this issue as an “overriding consideration” and declared that if fully autonomous weapons are found morally unacceptable, “no other consideration can justify the deployment of [fully autonomous weapons], no matter the level of technical competence at which they operate.”⁸⁴

⁸³ Ibid., p. 17.

⁸⁴ Ibid.