

The Ethics & Morality of Robotic Warfare: Assessing the Debate over Autonomous Weapons

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Abstract: There is growing concern in some quarters that the drones used by the United States and others represent precursors to the further automation of military force through the use of lethal autonomous weapon systems (LAWS). These weapons, though they do not generally exist today, have already been the subject of multiple discussions at the United Nations. Do autonomous weapons raise unique ethical questions for warfare, with implications for just war theory? This essay describes and assesses the ongoing debate, focusing on the ethical implications of whether autonomous weapons can operate effectively, whether human accountability and responsibility for autonomous weapon systems are possible, and whether delegating life and death decisions to machines inherently undermines human dignity. The concept of LAWS is extremely broad and this essay considers LAWS in three categories: munition, platforms, and operational systems.

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The growing use of drones on today's battlefields raises important questions about targeting and the threshold for using military force. Over ninety militaries and nonstate actors have drones of some kind and almost a dozen of these have armed drones. In 2015, Pakistan shot down an Indian drone in the disputed Kashmir region, Turkey shot down a drone near its border with Syria, and both Nigeria and Pakistan acquired armed drones.¹

The use of drones by the United States and others has led to an array of questions about the appropriateness of so-called remote-controlled warfare. Yet on the horizon is something that many fear even more: the rise of lethal autonomous weapon systems (LAWS).² At the 2016 Convention on Certain Conventional Weapons in Geneva, over one hundred countries and nongovernmental organizations (NGOs) spent a week discussing the potential development and use of autonomous weapon sys-

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weapons are already possible, there is vast uncertainty about the state of the possible when it comes to artificial intelligence and its application to militaries. While robots that could discriminate between a person holding a rifle and a person holding a stick still seem to be on the horizon, technology is advancing quickly. How quickly and how prepared society will be for it, though, are open questions.⁷ A small number of weapon systems currently have human-supervised autonomy. Many variants of the close-in weapon systems (ciws) deployed by the U.S. military and more than two dozen militaries around the world, for example, have an automatic mode.⁸ Normally, the system works by having a human operator identify and target enemy missiles or planes and fire at them. However, if the number of incoming threats is so large that a human operator cannot target and fire against them effectively, the operator can activate an automatic mode whereby the computer targets and fires against the incoming threats. There is also an override switch the human can use to stop the system.

Nearly all those discussing autonomous weapons— from international organizations to governments to the Campaign to Stop Killer Robots— agree that laws differ fundamentally from the weapons that militaries employ today.⁹ While simple at first glance, this point is critical: when considering the ethical and moral challenges associated with autonomous weapons, the category only includes weapons that operate in ways appreciably *different* from the weapons of today.

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soldier might have empathy and use judgment to decide not to kill a lawful combatant putting down a weapon or who looks like they are about to give up, while a robotic soldier would follow its order, killing the combatant. This could make it harder to use

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or ships when they meet certain criteria, could raise other questions. This is one example of how context based on geography and time may influence the appropriateness and desirability of autonomous weapon systems in a given situation.

It is at the platform and the operational levels that disquiet about discrimination and controllability becomes more complex. A laws platform deployed in a confined geographical space in a clear war zone may not (depending on the programming) be inherently problematic, but there are other mission sets— like patrolling autonomous drones searching for insurgents— that would lead to much greater risk from a controllability perspective. Essentially, complications, and thus the potential for fragility, will increase as the machine has to do more “work” in the area of discrimination.

At the operational battle-management level, it is difficult to imagine militaries having enough trust to delegate fundamental operational planning roles to algorithms, though they could become supplemental sources of information. Delegating those roles, however, could create large-scale ethical concerns from the consequences of those actions, in part because they might be harder to predict. Operational planning laws could make choices or calculate risks in novel ways, leading to actions that are logical according to their programming, but are not predictable to the humans carrying out those orders. Operational planning laws also connect most directly to the types of existential risks raised by Hawking and others.

One of the key arguments made by opponents of laws is that, because laws lack meaningful human control, they create a moral (and legal) accountability gap.²⁵ If they malfunction or commit war crimes, there is no single person to hold accountable the way a drone operator, pilot in the cockpit, or ground team would be account-

able today. This is potentially unique to laws. Remotely piloted military robotics do not appear to create excessive moral distance from war at the operator level. For example, new research shows that drone pilots actually suffer from posttraumatic stress disorder

erators of laws understand how they operate— and feel personally accountable for their use— militaries can theoretically avoid offloading moral responsibility for the use of force.

Formal rules could ensure technical accountability. One solution in the case of the ground combat situation described above is to hold the commander accountable for war crimes committed by the ro-

select and engage targets arguably violates fundamental human dignity— people have the right to be killed by someone who made the choice to kill them. Since machines are not moral actors, automating the process of killing through laws is also by definition unethical, or as technology philosopher Peter Asaro has put it: “justice itself cannot be delegated to automated processes.”³¹ Laws might therefore be thought of as *mala in se*, or evil in themselves, under just war theory.

If a machine without intentions or morality makes the decision to kill, it makes us question why the victim died.³² This argument has a moral force. As human rights legal scholar Christof Heyns argues: “Decisions over life and death in armed conflict may require compassion and intuition.”³³ There is something unnerving about the idea of machines making the decision to kill. The United Nations Institute for Disarmament Research describes it as “an instinctual revulsion against the idea of machines ‘deciding’ to kill humans.”³⁴

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Warfare* determine human dignity in some scenarios, even if they behave in ways that comply with the law of war. While it is possible to address this issue through training, accountability rules, and restricting the sce-

