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Response 5: Lethally Autonomous Weapons

Robots fighting wars no longer seem to be science fiction. I believe the common consensus is that war is inevitable. These articles [1,2,3,4] raise the concern of whether revolutionising warfare using AI and automation can ensure they are fought in the most humane way possible (keeping it short, with fewer deaths and damage).

Attack targets for Lethal Autonomous Weapons (LAWS) are chosen without any involvement from human operators [1, 2]. It is the weapon system itself that launches the attack after it has been activated. From an unbiased point of view, the article [4] supporting such automation makes several valid points in its favour. The article state that if humanity continues to participate in violence, which is a dreadful yet accurate underlying assumption, we must protect innocent noncombatants far better than we already do and LAWS can help us do so. LAWS could indeed be deployed as a defence system to defend crowds during warfare with far more precision and speed than troops. Such laws, in my opinion, should only be used to avert conflict, not to provoke it. LAWS, according to the author, may one day outperform humans in terms of conformity with international humanitarian law (IHL). LAWS will be able to perform better and quicker than humans in extreme settings while adhering to the IHL. But the question is whether LAWS should be used before they are capable of doing so [5]. There have also been hundreds of incidents where bias in datasets has caused automation to be prejudiced or when automation agents have discovered methods to fool their regard function [6]. Will they actually follow the IHL or just pretend to? The author also brings up how LAWS "can be designed without emotions that cloud their judgment or result in anger and frustration with ongoing battlefield events". While this reduces irrational impulses that inflict more harm than good, won't it also reduce sympathy? It was also mentioned that LAWS had a great degree of accuracy. An intriguing article that piqued my curiosity was how researchers created Adversarial T-shirts to prevent detection [7]. LAWS contain numerous weaknesses by which we can deceive the system or hack it. It made

me wonder how far these technologies should progress before they are deployed in something as serious as warfare. We have seen success in deploying AI and automation in a battle for non-lethal purposes, and they have been a big assistance. I agree with the author that AI can be used to save innocent lives in situations where humans may or may not succeed, even if there are uncertainties that need to be ironed out.

The articles [1,2,3] opposing such automation present various legitimate reasons and concerns why it should not be employed. They claim that autonomous weapons will result in our disengagement from the act of war. Fighting a "clean" war that is supposed to be horrific may trivialize war. War will no longer be considered a last resort. Even if I agree with the author that this would make conflict less humane, I still think it's absurd to use large military casualties to settle international disputes. I also do not believe that this will trivialize conflict and make it more common. Such battles will put a strain on resources and wreak harm. Humanity, I believe, has learned from its previous mistakes and realized that war, in whatever form, is bad. The author also brings up how chemical/biological warfare or "nuclear bomb requires technical sophistication" while "Autonomous weapons will require none of this". This, in my opinion, is a weak argument since it suggests that complicated LAWS capable of being used in a conflict can be readily drafted without the aid of legal specialists. Physicists/Chemists with basic expertise may possibly produce a less harmful variation by fusing other chemicals. One may also claim that the materials used to manufacture LAWS are readily available and thus, can be manufactured in masses. I would like to counter by stating that supplies for chemical and biological weapons are also readily available. Proliferation is not a concern in my opinion since a successful LAW takes time to design, may require GPU support, and is dependent on well-thought-out policies. The automated methods we're discussing here need more than just conventional image recognition systems. If this is the case, the regulations governing them must be amended. Autonomous weapons have the ability to change the dynamics of warfare and

pose serious concerns. The articles claim that a total prohibition is required to safeguard the public. While I disagree with the use of LAWS, I believe they will be used in the future whether they are made illegal or not. A complete ban may not be the best course of action and is likely to be ignored; rather, the rules governing LAWS should be carefully written to guarantee their safe application. Because of the assurance of speed and precision that LAWS provide, I believe we could use them as a defensive tool with some degree of humans-in-the-loop.

The author of this article also brings up the concept of the Arms Race that has already begun. Countries like the United States, China, Russia, South Korea, and the European Union, are investing in autonomous weapon development, and they are doing it to the value of billions of dollars [8]. There have been increasing reports of autonomous weapons being used in conflict as they make the transition from engineering idea to army arsenals throughout the world. For instance, in the September-November 2020 Nagorno-Karabakh conflict [9, 10], autonomous weapon systems were used. The conflict in Nagorno Karabakh served as a sort of test bed for autonomous weaponry. Massive numbers of attack drones were utilized with videos showing their efficacy.   Azerbaijan also used anti-radiation missiles. Anti-radiation missiles are capable of operating independently.

There will inevitably come a day when autonomous weapons are used in war. The argument of whether or not automation should be used seems futile to me. The only way to stop unfathomable loss of life and damage is to strengthen policies to include these autonomous weapons and determine how and whom to hold accountable if mistakes are made. Like the author of this post, I think the careful creation and execution of LAWS have the ability to save lives. In addition, even if there are fewer or no humans on the battlefield because of LAWS, I don't think people are so naive to be indifferent to warfare.   Just as chemical, biological, and

nuclear warfare have been kept under control, I believe mankind is capable of doing the same with autonomous warfare.

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