Experts discuss killer robots in Davos, Switzerland

By Fernando Coronado
February 7, 2016

It sounds like yet another science fiction movie, but killer robots are a real danger that could be coming soon. These are not human-like, "Terminator" type robots though. These robots can be even more deadly than Arnold himself and can come in the shape of something as simple as a drone. We are nowhere near creating robots that will outsmart us and take over the world, but the robots that can soon be developed would be able to choose a target, find it, and execute it without human intervention.

There are autonomous robots in use, that find and track targets, but require human permission to kill any human. For example, in the demilitarized zone between North and South Korea there is a sentry used that finds targets and communicates with a human supervisor for permission to open fire on the target.

The issue occurs when these robots are given free reign. If these robots were given the ability to kill a target without human intervention there is no telling the danger that innocent people could be in. This was the focus of the discussion held at the World Economic Forum in Davos, Switzerland.

How did it start?

On November 19, 2012 the human rights activist group, Human Rights Watch, published a report on their website called Losing Humanity The Case Against Killer Robots. In the report they define the different types of robotic weaponry:

Human-*in*-the-Loop Weapons: Robots that can select targets and deliver force only with a human command;

Human-*on*-the-Loop Weapons: Robots that can select targets and deliver force under the oversight

of a human operator who can override the robots' actions; and

Human-*out-of*-the-Loop Weapons: Robots that are capable of selecting targets and delivering force without any human input or interaction.

Their main concern being, because of the advancing technology and artificial intelligence, that "Human-out-of-the-Loop Weapons" would come to fruition, which could lead to devastating ethical issues. Do to the threat that these weapons could have on civilians, they recommended that the UN and all individual states (or countries) ban their development and carefully monitor the production of technologies that could lead to autonomous killer robots.

In response to this report, the [United States of America put in place a policy](#), requiring all weapons systems have a human "in-the-loop" on November 21, 2016. However, it is not so easy to get international support for such a ban.

Since the report, several groups have surfaced, advocating for an international ban on fully autonomous weapons. For example, [Future of Life Institute](#) and [Campaign to Stop Killer Robots](#) have been formed by scientist and human rights activists in coalition against fully autonomous weapons. The Future of Life Institute even started an [open letter](#) which has been signed by over 22,000 people endorsing the idea that "a military AI arms race is a bad idea, and should be prevented by a ban on offensive autonomous weapons beyond meaningful human control.".

Since the initial report written by Human Rights Watch, the United Nations has convened twice in order to discuss Lethal Autonomous Weapon Systems (LAWS), as they have officially named them. Not only has there been a lack in decision making about LAWS, but there has not even been an official definition given to these weapons in order to specify what exactly would be banned if any such course is taken. In the meantime, the UN is receiving pressure from these groups to get the issue off the backburner.

World Economic Forum

Every January, the World Economic Forum meets at the popular ski resort in Davos, Switzerland to discuss a wide variety of world matters. This year, at the snow blanketed resort,

there was a discussion that took place, asking [What if: Robots Go to War?](#) Experts in multiple fields were invited to the discussion. The four participants were [Stuart Russell](#), [Alan Winfield](#), [Angela Kane](#), and [Sir Roger Carr](#).

The Discussion

Stuart Russell, a researcher of Control, Intelligent Systems, and Robotics (CIR) at Berkeley, began the discussion by explaining some questions that have been asked about LAWS. First, whether these robots, if they were developed, could follow the rules of combat. He used an example of a pilot who has ejected out of his aircraft, which, according to rules of engagement, cannot be fired at by enemies; the question is if a fully autonomous weapon would be able to distinguish these rules without human intervention. He brought up the idea, that previous discussions have held,of robots replacing soldiers.

Russell said it is naïve to believe countries would produce extremely advanced robots to fight battles such as human soldiers would, because it would not be "strategic". If you think about it, robots that just bash each other as if in a schoolyard brawl, or shoot each other blindly like a teen playing Call of Duty, wouldn't last long. These robots would cost millions of dollars to produce and would be lost within minutes. He went on to say "a million machine guns can wipe-out everyone in New York City, but only if you have a million soldiers to carry them, and five million human beings to support those soldiers". As opposed to the humans, he says one million drones could carry out the same action with only one human giving them an order. This is the danger of the technology; deadly robots that can be mass produced.

Sir Roger Carr, experienced businessman and chairman of [BAE Systems](#), explained that Russell's examples are extremes of what can happen. There are already technologies in place that are autonomous, but it is important to note that these technologies exist "without removing responsibility from the individual". He went on to say that "there is no anonymity when a person

presses the button". Though he is Chairman of a weapon systems company, Carr believes that there is an important line of morality that would be crossed by developing these weapons.

Angela Kane, is an expert in politics and negotiations at the Vienna Center for Disarmament and Non-Proliferation. When working for the UN, Kane urged for them to look at the issue, but it was taken lightly. Though the development of this technology is "limited to a number of advanced countries", she said, this technology must still be heavily regulated in order to prevent anybody with bad intentions from getting their hands on it. As an advocate for disarmament and peace, Kane is worried, because warfare with technology like this would bring "only economic cost, and not a human cost". When human cost is taken out of the issue, the need to end conflict does not seem so urgent, yet peace is something that the world should always try to achieve.

Alan Winfield, professor at University of West of England and expert on Artificial Intelligence (AI), added to Carr's statement on responsibility by stating that giving a weapon the ability to decide when to fire is "giving the robot moral agency". Humans are the only creatures with the ability to distinguish morals, attempting to give robots an opportunity to make moral decisions, such as killing, without the ability to think morally is unethical. He is an advocate for the banning of fully autonomous weapons, because they are unethical.

Russell stated that the United States is the only country in the world to establish any form of policy banning fully autonomous weapons. The US is a leader in the technologies in these weapons, but has started paving the way towards international bans. Kane responds, saying these policies are far behind in UN discussions. She advocates for the establishment of some framework in the UN to ban dangerous weapons. She and Carr agree that the industry for these technologies need to regulated first of all to prevent the ability of others to obtain them.

Russell and Winfield slightly disagreed on just how far the technology can be within a couple years. However, they both agree that the weaponry, even if not working perfectly, could be

developed soon. Russell then stated that someone like ISIS would not care how accurate something this deadly would be, as long as it had a devastating effect, which they all seem to agree is possible.

It was asked by an audience member if these weapons could have some sort of deterrent value. They all seemed to agree that these weapons would not make great deterrents. The development cost for rich countries would be low, says Winfield, which would mean they could produce many and send them to attack other countries. Kane explains, unlike using nuclear weapons there is not a huge risk to using these weapons against an enemy, which makes them dangerous if many countries own them. And when the people with bad intentions get their hands on them, it is the innocent that will be harmed.

Russell ends the discussion by restating that having robots fight our battles will not bring peace, because wars end when the cost of human life gets too high to justify continuing. We should not be developing new technologies for war, we should develop new technologies for peace.

Conclusion

All members of the discussion agreed that there must be some sort of ban or regulation on the weapons at hand. While the technologies being developed is great and can be useful, LAWS are not the way to use them. As the discussion continues within other groups, the community waits in anticipation for the UN to meet in April 2016, once again, to discuss the issue at hand. Hopefully some progress is made within the UN to establish some sort of ground rules for autonomous weaponry.

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