

ARTIFICIAL INTELLIGENCE IN THE MILITARY:  
MORE THAN KILLER ROBOTS

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“Artificial Intelligence (AI) is the future. [...] Whoever leads in AI will rule the world” (Russia Today, 2018). This was the central message that President Vladimir Putin conveyed to more than one million Russian school students in September 2017. He also promised to ensure that Russian knowledge of AI would benefit the world. However, the competition in this field is already playing itself out globally. Besides Russia, the USA and China are already in the race, with China, for example, having recently published an ambitious AI strategy, namely the „New Generation Artificial Intelligence Development Plan” (Webster et al., 2018). This document predicts China’s world leadership in the AI field as soon as 2030. The EU and several other countries – among them Germany in the autumn of 2018 - have followed suit with their own AI strategies.

Most of these strategies are primarily targeting the use of AI in civil society. However, rapid developments in AI and Machine Learning (ML) are having a significant and perhaps even disruptive impact on the military sector, especially in technological areas largely characterised by “dual-use”. These areas include, for example:

- automation, ranging from automating specific tasks to the “autonomous” behaviour of individual systems;
- comprehensive interconnectedness and the analysis of the resulting large amount of data; and
- swarming.

Subtasks within weapons systems and platforms can, as is the case in the civilian arena, be executed (semi)autonomously. Drones are not only able to fly along certain defined routes independently but they also take off or land without human intervention – even from and on an aircraft carrier.

The importance of complex algorithms is also steadily rising in data capture and analysis. The German F124 Sachsen-class Frigate is, for example, able to simultaneously pursue over 1,000 different airborne targets, with each of these targets being up to 400 kilometres away from the ship (RK Marine Kiel, 2016).

To date, the international debate has focused on controversial so-called Lethal Autonomous Weapons (LAWS), also known as “killer robots” among their critics. In 2014, unofficial conversations concerning LAWS started to take place under the umbrella of the UN Convention on Certain Convention-

al Weapons (CCW) in Geneva. The discussions turned official in 2017 with the formation of a Group of Governmental Experts (GGE) on LAWS.

No consistent definition of an autonomous weapon has so far been developed in Geneva. However, a definition can be gleaned from an American document authored in 2012, which states that an autonomous weapon is one which selects and engages targets without human input (Department of Defense, 2012/2017: p.13).

Critics, including some nation states and several NGOs, disapprove of and reject the development and use of autonomous weapons that target humans, on the grounds of the violation of international law and human dignity. They argue that a computer is unable to translate fundamental tenets of International Humanitarian Law (IHL), such as non-discrimination and proportionality, into action. Ethically speaking, allowing an algorithm to decide on the life and death of a human being would be untenable. Therefore, critics are demanding a legally binding ban on LAWS, and that an imperative of Meaningful Human Control (MHC) be enacted (Rosert, 2017). However, not all countries share this view. Russia, for example, is arguing that it is premature to discuss a ban, because there is still too much uncertainty around the technology. The United States see potential benefits in the deployment of LAWS, because they might, in fact, lead to improved adherence to international law.

The increasing deployment of software and AI is, however, creating additional problems in security policy that are not in the spotlight in Geneva, and that should be carefully scrutinised. Two examples of the issues are:

Firstly, the speed of military decision-making and the pace of battles is increasing due to the use of computer systems and extensive networks (Scharre, 2018). Decisions need to be made in ever less time yet must draw on ever more available data.

This inhibits the ability to take a critical look at a crisis while faced with it and undermines strategic stability between military opponents. What's more, a vicious cycle of acceleration is created: in order to retain the ability to make decisions under time pressure, more processes need to be handed over to computers, and the cycle thus goes on and on. There were good reasons for arms control measures to aim at the deceleration of critical processes (Altmann and Sauer, 2017).

Secondly, the stronger the dependence on computers and algorithms in military decision making and action, the greater the chances of unforeseen behaviour and system vulnerabilities. This raises questions of the reliability of systems in a crisis, i.e. when subject to extreme circumstances, and of the systems' resilience in the face of external manipulation. Past events have shown, for example, that even systems that were once considered secure have become victims of attack.

Finally, it should not be obscured that AI can be advantageous for security policy. In the area of arms control, AI-based processes can improve verification, i.e. the accuracy and speed at which contract breaches can be identified, and therefore deter potential fraudsters.

The spectrum of possible applications ranges from the analysis of trade data to uncover clues for the proliferation of weapons of mass destruction, to the identification of landmines that is boosted by AI with improved ground-penetrating radars.

To conclude, using AI in military applications can pose major problems, and at the same time be of value in specific areas in the field of arms control. Thus, policy makers, researchers and military officials should discuss the pros and cons of AI more deeply and openly. Concurrently, efforts to negotiate the ban of LAWS should be re-doubled and the debate brought to a resolution. It will be particularly important to flesh out the available options for reaching an agreement on an international ban. This will likely only be possible if the industry representatives who have spoken out against LAWS in the past (Future of Life Institute) are brought to the table, and the discussion can therefore benefit from their technical expertise. It would be worth a try.

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