

Autonomous Robots on the Battlefield

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Is it ethical to rely on autonomous robots in the battlefield?

Background

- Autonomous robots perform behaviors/tasks with a high degree of autonomy
- US Army investing millions of dollars into R&D for military applications of autonomous robots

Proponents

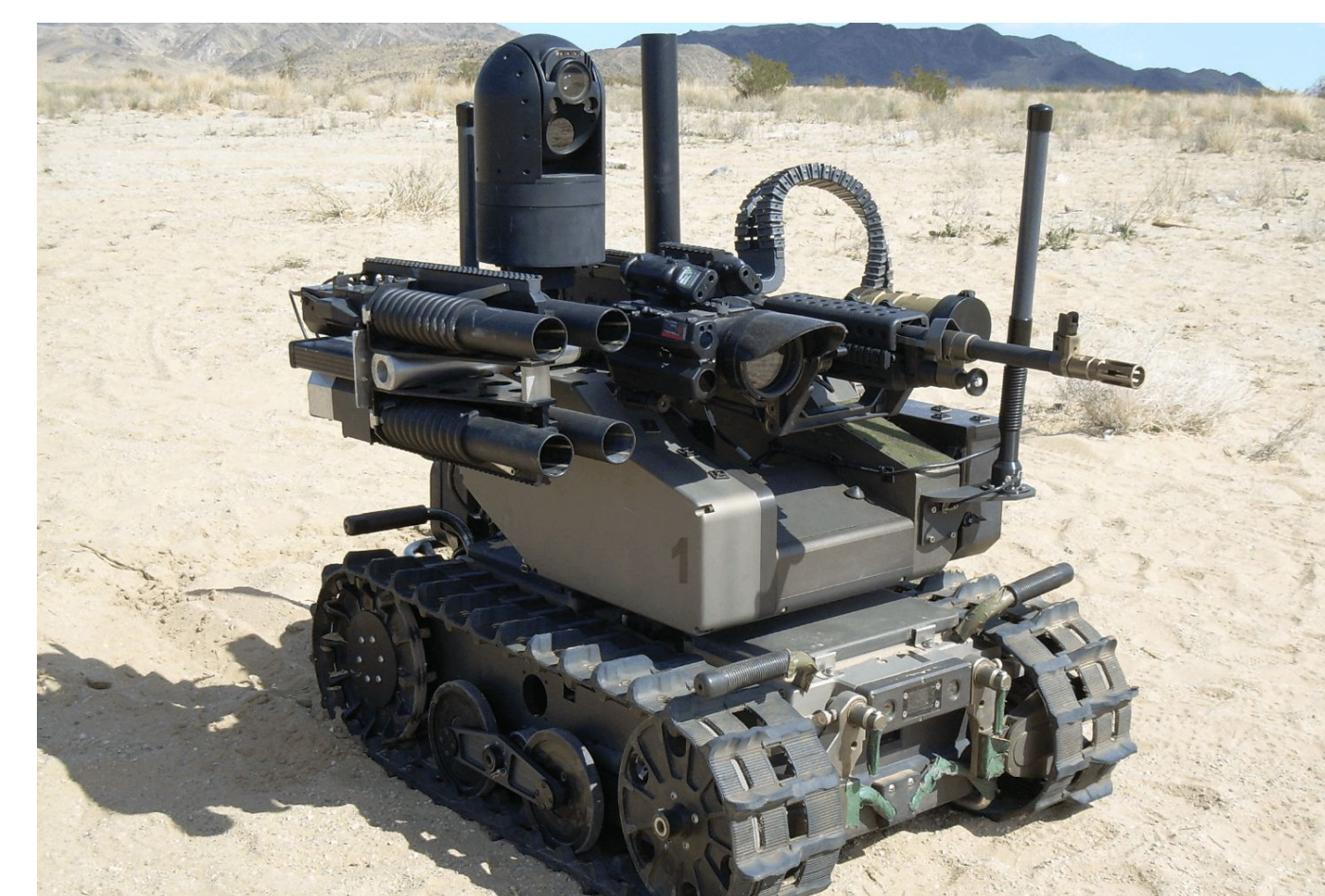
- Human soldiers do not necessarily demonstrate best of humanity during warfare
- Faster, cheaper, better, longer range, higher immunity
- No need for self-preservation

Opponents

- AI lacks ability to distinguish when to use violent force based on the circumstance
- A future with autonomous robots on the battlefield is unpredictable

It is ethical to rely on robots in the battlefield as long as they are never used to injure humans.

- Medical robots have the potential to save lives
- Even if such robots are hacked, they are unlikely to cause much damage as they are not equipped to hurt humans
- Robots used to injure humans will pose as a threat in the long term
- Autonomous weapons could be hacked or hijacked and directed against their owners/used for evil



Relevance

(Discretionary Budget Authority) + OCO + Emergency	FY2019
Military Personnel	\$152,883,052
Operations and Maintenance	\$283,544,068
Procurement	\$144,340,905
RDT&E	\$92,364,681
Revolving and Management Funds	\$1,557,305
Defense Bill	\$674,690,011
Military Construction	\$9,801,405
Family Housing	\$1,582,632
Military Construction Bill	\$11,384,037
Total Base + OCO + Emergency	\$686,074,048

- U.S. Department of Defense is approximately \$700bn
- Robotics and AI integrated into many industries
- Such a new technology implies an uncertain future

Implications

- *Jus ad bellum*: condition of just warfare by relying more on machine than humans
- Potential that not utilizing offensive capabilities will prevent U.S. from the full benefits of robots
- Many lives will be spared with robots on the battlefield

Works Cited

- Arkin, Ronald. "Ethical Robots in Warfare." IEEE Technology and Society Magazine, vol. 28, no. 1, 2009, pp. 30-33, doi:10.1109/mts.2009.931858.
- Asaro, Peter. "Ban Killer Robots before They Become Weapons of Mass Destruction." Scientific American, 7 Aug. 2015, www.scientificamerican.com/article/ban-killer-robots-before-they-become-weapons-of-mass-destruction/.
- Bachman, Justin. "The U.S. Army Is Turning to Robot Soldiers." Bloomberg Technology, 18 May 2018, The U.S. Army Is Turning to Robot Soldiers.
- Hambling, David. "Why the U.S. Is Backing Killer Robots." Popular Mechanics, 14 Sept. 2018, www.popularmechanics.com/military/research/a23133118/us-ai-robots-warfare/.
- International Committee of the Red Cross (ICRC). "Ethics and autonomous weapon systems: An ethical basis for human control?" Geneva, 3 April 2018, https://www.icrc.org/en/document/ethics-and-autonomous-weapon-systems-ethical-basis-human-control.
- Martinez, Gary. "Glimpses of Future Battlefield Medicine – the Proliferation of Robotic Surgeons and Unmanned Vehicles and Technologies." Journal of Military and Veterans' Health, vol. 22, no. 3, 2017.
- Roff, Heather M., and David Danks. "'Trust but Verify': The Difficulty of Trusting Autonomous Weapons Systems." Journal of Military Ethics, vol. 17, no. 1, 2018, pp. 2-20, doi:10.1080/15027570.2018.1481907.
- Singer, Peter W. "Wired for War: The Future of Military Robots." Brookings Institute, 28 Aug. 2009, www.brookings.edu/opinions/wired-for-war-the-future-of-military-robots/.