

The Transformation of American Warfare: Fighting Wars with Robots

By [Sherwood Ross](#)

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The Pentagon is rapidly improving its ability to fight wars with robots. This capability is “bringing about the most profound transformation of warfare since the advent of the atom bomb,” says *Scientific American*, and raises “a host of ethical and legal issues.”

“Robots are pouring onto battlefields as if a new species of mechanotronic alien had just landed on our planet,” the publication says in an editorial on their development in its July issue. “The prospect of androids that hunt down and kill on their own accord (shades of Terminator) should give us all pause. An automatic pilot that makes its own calls about whom to shoot violates the ‘human’ part of international humanitarian law, the one that recognizes that some weapons are so abhorrent that they just should be eliminated.”

Since 2003, 7,000 unmanned aircraft and 12,000 ground vehicles have entered the U.S. military inventory, “entrusted with missions that range from seeking out snipers to bombing the hideouts of al-Qaeda higher-ups in Pakistan,” writes P.W. Singer in an accompanying article titled “War of The Machines.”

Singer, who directs the 21st Century Defense Initiative at The Brookings Institution, in Washington, D.C., a non-profit research think tank, says robots include:

Lockheed Martin’s High-Altitude Airship, an unmanned blimp that carries a radar the length of a football field and can fly at nearly 19,800 meters for over a month at a time.

Contractor QinetiQ North America’s MAARS robot, resembling a tank that is armed with a machine gun and grenade launcher that does sentry and sniper duty.

The miniature surveillance “bot” from contractor AeroVironment that “mimics a hummingbird in size and its ability to hover over a target” and which flaps its wings frenetically as its cameras observe a scene.

The Counter-Rocket Artillery and Mortar, or C-RAM, which resembles *Star Wars* robot R2-D2 and is armed with a machine gun that can shoot down incoming missiles and is used to protect the Green Zone in Baghdad.

The TALON ground robot that can defuse bombs and peeks over obstacles to hunt for enemies.

The ChemBot, conceived by the University of Chicago and contractor iRobot, of Bedford, Mass., and which is “a bloblike machine that shifts shape, such that it is able to squeeze

through a hole in the wall.”

The Predator drone that can track 12 targets at once and which has been used in combat since 1995. This unmanned aerial vehicle(UAV) from General Atomics is armed with two lethal Hellfire missiles that have killed as many as 40 al-Qaeda leaders but which, by some estimates, have killed as many as 1,000 civilians across Iraq, Afghanistan and Pakistan.

Author Singer writes that robots are machines built to operate in a “sense-think-act” paradigm. Information from their sensors is relayed to computer processors or artificial intelligence software that decide whether to activate their mechanical “effectors.”

“The global Positioning Satellite system, video-game-like remote controls and a host of other technologies have made robots both useful and usable on the battlefield during the past decade,” Singer writes. “The increased ability to observe, pinpoint and then attack targets in hostile settings without having to expose the human operator to danger became a priority after the 9/11 attacks...,” he writes.

What’s more, Singer intimates that we ain’t seen nothin’ yet. “The inexorable growth in computing power means that today’s recently enlisted soldiers may end their careers witnessing robots powered by computers literally a billion times more capable than those currently available,” he writes.

In an editorial titled “Terminate the Terminators,” *Scientific American* warns, “Some might call a ban on autonomous robots naïve or complain that it would tie the hands of soldiers faced with irregular warfare. But although robots have clear tactical advantages, they carry a heavy strategic price.”

“The laws of war are an act not of charity but of self-interest,” the editorial continues. “The U.S. would be weakened, not strengthened, if chemical and biological weapons were widespread, and the same is true of robots. They are a cheap way to offset conventional military, and other nations and groups such as Hezbollah in Lebanon are already deploying them...We can never put the genie back into the bottle, but putting a hold on further development of this technology could limit the damage.”

While this is perfectly true, the sentiment of the Editors is unlikely garner much support inside the Pentagon, which now dominates the planet military from 1,000 bases in the U.S. and 800 more overseas and has the financial wherewithal to manufacture countless robots, which Hezbollah does not.

The prospect of waging wars on battlefields 11,000 kilometers distant by remote control from computer terminals near Las Vegas, Nev., without exposing its own personnel to harm may seem like a dream come true to the Pentagon—but because of its persistent aggressiveness much of the rest of humanity may see it as a nightmare. As the *Scientific American* article points out, as a result of the deadly Predator strikes, a leading Pakistan newspaper has already branded the U.S. a “principal hate figure.” That is, of course, precisely how the “Empire,” with its Imperial Walkers and robot soldiers, was perceived by the “human” rebels in the 1977 movie “Star Wars.” Need I say more?

Sherwood Ross is an American public relations consultant “for good causes.” He has contributed to many national magazines and formerly worked for major dailies and wire services. Reach him at sherwoodross10@gmail.com

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