



## DEFENSE TECHNOLOGY MONITOR

The American Foreign Policy Council's Review of  
Developments in Defense Technology

# Defense Technology Monitor: No. 30

July 15, 2018 **Richard M. Harrison, Piper Quinn**

**Related Categories:** Cybersecurity and Cyberwarfare; Military Innovation; Missile Defense

### DISPELLING THE "FOG OF DATA"

The overwhelming amount of data collected by the numerous remote sensing satellites and drones active today makes it difficult to quickly process, interpret, and effectively package information for senior leaders and decision makers. Melanie Stricklan, CTO and cofounder of Slingshot Aerospace, is trying to "help commanders 'see through the fog of data' in situations when they have to make decisions very quickly." Her company is focused on developing an artificial intelligence (AI) system capable of remotely manipulating and sifting through data directly onboard satellites in space – rather than using the current cumbersome method of downloading massive amounts of data and employing human analysts to review it. As an interim step, machine-learning algorithms are being placed in a cloud-based platform and fed information from multiple data streams. The Department of Defense is banking on the future of AI technology being a game changer for the military, and has already made a \$10 billion investment in the field of AI research. (*Space News*, May 3, 2018)

### UNLEASHING THE GREMLINS

As part of its military modernization plan colloquially known as the "Third Offset," the Pentagon has been pushing for better, cheaper, faster military equipment. That imperative extends to the "Gremlin" program, which is designed to develop drones capable of being launched and retrieved from the air. Defense contractor Dynetics recently earned a \$38.6 million contract from the Defense Advanced Research Project Agency (DARPA) to serve as the lead developer in an effort to create small, foldable, and inexpensive drones capable of being deployed and collected from a C-130 cargo plane.

The ultimate goal of the program is to be able to release and recover four "gremlins" in a span of 30 minutes, says DARPA project manager Scott Wierzbowski. At \$64 million, funding for the program is comparatively low, but officials believe that further concept development is imperative if the U.S. hopes to keep pace with recent advancements in drone technology taking place in Russia and China. (*Washington Post*, May 6, 2018)

### NAVIGATING THE VIRTUAL BATTLEFIELD

Testing new military hardware, particularly aerial equipment, is always a costly endeavor. Academia, however, is working on a solution. Researchers at the Massachusetts Institute of Technology are developing cost effective methods to test new drone technologies by harnessing virtual reality. Termed "Flight Googles," new software developed by MIT engineers allows the drone to fly in an empty room and navigate around simulated obstacles. Through the use of motion capture cameras placed throughout the room, the drone is fed information about its orientation and virtual images of the obstacles to try and avoid while flying. The main objective of the testing exercise is to maximize speed and develop evasive maneuvering capabilities in drones - a skill particularly useful in urban settings, rescue missions, or on the battlefield. (*Engadget*, May 17, 2018)

[EDITORS' NOTE: Virtual military training is a growing field with important implications for U.S. national security. To learn more, please read AFPC Fellow Jennifer McArdle's recent work on the subject for *War on the Rocks*.]

### HOW TO TRACK HYPERSONIC WEAPONS

As Russia and China continue to advance in their development of hypersonic weapons, the window for the U.S. to guard against these threats is rapidly closing. In response, military analysts are recommending that the Defense Department provide funding for a satellite program that could identify and track hypersonic missile threats. Currently, newer adversarial hypersonic systems are only detectable in their boost phase. That makes space the logical - but largely untested - strategic high ground. According to Tom Karako of the Center for Strategic & International Studies, "to track these ultra-high speed gliders, the vantage point of space would be advantageous... You don't have to fill up the Pacific Ocean with lots of radars looking up at the sky. You can do a lot from space." (*Space News*, May 20, 2018)