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The Rise of A.I. Fighter Pilots

Artificial intelligence is being taught to fly warplanes. Can the technology be trusted?

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On a cloudless morning last May, a pilot took off from the Niagara Falls International Airport, heading for restricted military airspace over Lake Ontario. The plane, which bore the insignia of the United States Air Force, was a repurposed Czechoslovak jet, an L-39 Albatros, purchased by a private defense contractor. The bay in front of the cockpit was filled with sensors and computer processors that recorded the aircraft's performance. For two hours, the pilot flew counterclockwise around the lake. Engineers on the ground, under contract with DARPA, the Defense Department's research agency, had choreographed every turn, every pitch and roll, in an attempt to do something unprecedented: design a plane that can fly and engage in aerial combat—dogfighting—without a human pilot operating it.

The exercise was an early step in the agency's Air Combat Evolution program, known as ACE, one of more than six hundred Department of Defense projects that are incorporating artificial intelligence into war-fighting. This year, the Pentagon plans to spend close to a billion dollars on A.I.-related technology. The Navy is building unmanned vessels that can stay at sea for months; the Army is developing a fleet of robotic combat vehicles. Artificial intelligence is being designed to improve supply logistics, intelligence gathering, and a category of wearable technology, sensors, and auxiliary robots that the military calls the Internet of Battlefield Things.

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