

HR319: The Drone Revolutions

Spring 2016

Thomas Keenan (keenan@bard.edu)

Dan Gettinger (dgettinger@bard.edu)

Arthur Holland Michel (aholland@bard.edu)

Tuesdays, 4:40 - 7:00 p.m., RKC 102

2 credits, distribution: SSCI

Description

Military commentators and policymakers claim that the proliferation of drone technology could alter the character of war forever; on the home front, some are describing a \$80 billion industry that will create 75,000 jobs and result in untold efficiencies. But how much of this is true, and how much is science fiction? Peering into a future in which autonomous weapons systems target and kill without human intervention, and drone highways criss-cross the American skies, this seminar should equip students with the knowledge and analytic skills to judge whether we are indeed on the edge of one or more “drone revolutions.” The readings are comprised mostly of source documents — military and government reports, human rights investigations, technical data, legal briefs, and policy documents and speeches — through which students can develop a theoretical and practical framework for understanding how drones operate in both civilian and military spheres, and identify and analyze the ways in which drones will impact the world, and the ways in which they won’t.

Requirements

Students will be required to complete each assigned reading, submit a weekly response to the readings, and a longer briefing paper based on source documents. The briefing papers will be presented and discussed on May 10. Students are also highly encouraged to read the Drone Center’s [Weekly Roundup](#) of drone news, commentary, tech, and art.

Core Text

Singer, P. W. *Wired for War: The Robotics Revolution and Conflict in the Twenty-first Century*. New York: Penguin, 2010. Print.

February 2: Introduction

February 9: History of Drones and the Theory of a Revolution in Military Affairs

- *Wired For War:*

- Chapter 10: “The Big Cebrowski and the Real RMA: Thinking About Revolutionary Technologies.”
- Kakaes, Konstantin, “From Orville Wright to September 11,” from *Drone Wars*, ed. Bergen, Peter and Rothberg, Daniel. 2015
- Selections from “Air Combat Command Concept of Operations for Endurance Unmanned Aerial Vehicles.” December 3, 1996.
- Holland Michel, Arthur. “How Rogue Techies Armed the Predator, Almost Stopped 9/11, and Accidentally Invented Remote War.” *Wired*. December 17, 2015. <http://www.wired.com/2015/12/how-rogue-techies-armed-the-predator-almost-stopped-911-and-accidentally-invented-remote-war/>
- “The Predator Initiative” - CIA History of 9/11 Attacks. (Intelwire)

February 16: Targeted Killing and Terrorism

- *Wired for War*:
 - Chapter 16: “Youtube War: The Public and its Unmanned Wars”
- Shane, Scott. “The Lessons of Anwar al-Awlaki.” *New York Times*. August 27, 2015. <http://www.nytimes.com/2015/08/30/magazine/the-lessons-of-anwar-al-awlaki.html>
- Jon Schwarz, “Drones, IBM, and the Big Data of Death,” and “ISR Support to Small Footprint CT Operations — Somalia/Yemen.” *The Intercept*, October 23, 2015. <https://theintercept.com/2015/10/23/drones-ibm-and-the-big-data-of-death/>
- “Making High-Value Targeting Operations an Effective Counterinsurgency Tool (C//NF)” Central Intelligence Agency. July 7, 2009. <https://wikileaks.org/cia-hvt-counterinsurgency/>
- “[Lawfulness of a Lethal Operation Directed Against a U.S. Citizen Who Is a Senior Operational Leader of al-Qaeda](#).” Department of Justice. November 8, 2011. <https://fas.org/irp/eprint/doj-lethal.pdf>
- “CIA and JSOC Roles in Covert Drone Strikes: Implications for Accountability and Civilian Harm.” Human Rights Clinic, Columbia Law School. September 29, 2012. http://civiliansinconflict.org/uploads/files/publications/The_Civilian_Impact_of_Drones_w_cover.pdf
- “DRONE STRIKES: Investigating covert operations through spatial media.” Forensic Architecture and SITU. <http://www.forensic-architecture.org/case/drone-strikes/>

February 23: Why Does Everybody Want a Drone?

- Wallace-Wells, Benjamin. “Drones and Everything After.” *New York Magazine*. October 5, 2014. <http://nymag.com/daily/intelligencer/2014/10/drones-the-next-smartphone.html>
- An FAA Section 333 Exemption for commercial drone use (TBD)
- 2012 FAA Modernization and Reform Act, Sec. 331-336, “Unmanned Aircraft Systems.” https://www.faa.gov/uas/media/Sec_331_336_UAS.pdf

- Federal Aviation Administration, Advisory Circular 91-57A: Model Aircraft Operating Standards, September 2, 2015. https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_91-57A.pdf
- Federal Aviation Administration, "Exemption No. 11983 Regulatory Docket No. FAA-2015-0464." July 6, 2015. https://www.faa.gov/uas/legislative_programs/section_333/333_authorizations/media/JAYuhasz-HDV-Productions-11983.pdf
- Association for Unmanned Vehicle Systems International, "The Economic Impact of Unmanned Aircraft Systems Integration in the United States," March, 2013. https://higherlogicdownload.s3.amazonaws.com/AUVSI/958c920a-7f9b-4ad2-9807-f9a4e95d1ef1/UploadedImages/New_Economic%20Report%202013%20Full.pdf
- Holland Michel, Arthur and Gettinger, Dan. "Drone Sightings and Close Encounters: An Analysis." Center for the Study of the Drone, December 11, 2015. <http://dronecenter.bard.edu/drone-sightings-and-close-encounters/>

March 1: Arts, Culture, and Surveillance

- *Wired for War*
 - Chapter 17: "Changing the Experience of War and the Warrior"
- Bräunert, Svea, and Meredith Malone. "To See Without Being Seen: Contemporary Art and Drone Warfare." St. Louis: Mildred Lane Kemper Art Museum, 2016
- Rothstein, Adam, "The Complexities of Drones in Art." *Creator's Project*, November 21, 2014. http://thecreatorsproject.vice.com/en_au/blog/longreads-the-complexities-of-drones-in-art
- Lange, Christy, "Blurred Visions." *Frieze*, May 24, 2013. http://www.frieze.com/issue/print_article/blurred-visions/
- [Video] Fast, Omer, "5,000 feet is best." 2011. <https://vimeo.com/34050994>
- Cole, Teju, "Seven Short Stories about Drones." *The New Inquiry*, January 14, 2013. <http://thenewinquiry.com/blogs/dtake/seven-short-stories-about-drones/>
- [Video] KATSU, "Drone Drawing 2015." 2015. <https://www.youtube.com/watch?v=We12p6yvNW0>
- McNeal, Greg. "Drones and Aerial Surveillance: Considerations for Lawmakers." Brookings Institution. November 2014. <http://www.brookings.edu/research/reports2/2014/11/drones-and-aerial-surveillance>

March 8: Our Drone-filled Future

- *Wired for War*
 - Chapter 3: "Robotics for Dummies"

- Chapter 8: “What Inspires Them: Science Fiction’s Impact on Science Reality”
- Greiner, Helen, “CyPhy Works Wants to Be the Boeing of Drones.” Presentation at TechCrunch Disrupt SF, 2015. <http://techcrunch.com/2015/09/21/drones-will-deliver-your-pizza-and-much-much-more/>
- Murgia, Madhumita, “Lord Norman Foster to build world's first droneport in Rwanda,” *Telegraph*. September 21, 2015. <http://www.telegraph.co.uk/technology/news/11879956/Lord-Norman-Foster-to-build-worlds-first-droneport-in-Rwanda.html>
- “Drones build rope bridge that humans can cross,” BBC. September 22, 2015. <http://www.telegraph.co.uk/technology/news/11879956/Lord-Norman-Foster-to-build-worlds-first-droneport-in-Rwanda.html>
- Misener, Paul, Testimony before the Committee on Oversight and Government Reform United States House of Representatives hearing, “Drones: The Next Generation of Commerce?” June 17, 2015. <https://oversight.house.gov/wp-content/uploads/2015/06/Amazon-Misener-HOGR-Testimony-Pkg-6-17-15-rev.pdf>

March 15: Global Drone Proliferation

- *Wired for War*
 - Chapter 13: “Open Source Warfare: College Kids, Terrorists, and Other Uses of Robots at War”
- Horowitz, Michael C. and Kreps, Sarah E. and Fuhrmann, Matthew, “The Consequences of Drone Proliferation: Separating Fact from Fiction.” January 25, 2016. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2722311
- Department of State. “U.S. Export Policy for Military Unmanned Aerial Systems.” February 17, 2015. <http://www.state.gov/r/pa/prs/ps/2015/02/237541.htm>
- Davis, Lynn E., Michael J. McNerney, James S. Chow, Thomas Hamilton, Sarah Harting and Daniel Byman, “Armed and Dangerous? UAVs and U.S. Security.” RAND Corporation, 2014. http://www.rand.org/pubs/research_reports/RR449.html.
- Gettinger, Dan. “An Act of War: Drones are Testing China-Japan Relations.” Center for the Study of the Drone, November 8, 2013. <http://dronecenter.bard.edu/act-war-drones-testing-china-japan-relations/>
- Selections on drone use in Syria.

March 29: Drones in the Near Future and Autonomy

- *Wired for War*
 - Chapter 6: “Always in the Loop? The Arming and Autonomy of Robots”
 - Chapter 20: “Digitizing the Laws of War and Other Issues of (Un)Human Rights.”

- Department of Defense, Directive 3000.09, “Autonomy in Weapon Systems.” November 21, 2012. <http://www.dtic.mil/whs/directives/corres/pdf/300009p.pdf>
- Wilson, J.R. “The Future of Military Unmanned Aircraft.” *Military and Aerospace Electronics*, July 9, 2014. <http://www.militaryaerospace.com/articles/print/volume-25/issue-7/special-report/the-future-of-military-unmanned-aircraft.html>
- Department of Defense, Executive Summary from “Unmanned Systems Integrated Roadmap FY2011-2036.” 2011. <http://www.acq.osd.mil/sts/docs/Unmanned%20Systems%20Integrated%20Roadmap%20FY2011-2036.pdf>
- Brimley, Shawn and Martinage, Robert. “The Navy’s New Museum Drone and Strategic Malpractice.” *War on the Rocks*, April 28, 2015. <http://warontherocks.com/2015/04/the-navys-new-museum-drone-and-strategic-malpractice/>
- DARPA Press Releases and Fact Sheets
 - <http://www.darpa.mil/program/collaborative-operations-in-denied-environment>
 - <http://www.darpa.mil/news-events/2015-12-10>
 - <http://www.darpa.mil/news-events/2015-08-2>
- Future of Life Institute, “Autonomous Weapons: an Open Letter from AI & Robotics Researchers.” August 14, 2015. <https://www3.nd.edu/~dhoward1/FLI%20-%20Future%20of%20Life%20Institute.pdf>

May 10: Student Final Assignment Presentations