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# Military & Defense Research Subject Aid

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## Description

A short guide to some key resources and readings on the topic of ethics in military and defense research.

## Body

Certain research areas are controversial insofar as they raise special ethical concern; one such area is that of research for military or defense purposes – with an offensive or defensive military or security goal. In addition, ethical issues arise for research that may be practiced or provide results that may be used in military contexts, and for what is called “dual use” research or emerging technological developments that can be turned to military or defense purposes. These research areas involve numerous scientific and engineering disciplines.

Research with an offensive purpose may have the most apparent ethical importance, since its goal will be to hurt or destroy human beings or the environments that sustain them. Research with a defensive purpose – such as that intended to defend against chemical or biological attacks – raises ethical concerns about whether it will be adopted for offensive purposes or lower the barriers to use of offensive weapons. Research in fields such as cyber-operations and human

enhancement can have military and law enforcement applications and purpose, as can research on nonlethal applications such as sonic or olfactory interference. Research in the social and behavioral sciences can have military and defense goals also; examples are research about the effects of propaganda and psychological or sociological research to affect enemy soldiers and civilian populations.

The Second World War and the development and use of the atomic bomb made numerous scientists and engineers highly conscious of their particular role in military and defense contexts. They formed organizations such as the Union of Concerned Scientists as a mechanism to address their concerns.

Professional societies in the social and behavioral sciences also face ethical challenges in conflict situations. Field studies in war zones and other research projects that focus on violence raise particular issues for anthropologists. These projects may raise difficult questions for requirements such as those for informed consent or confidentiality. See Murray L. Wax, Chapter 1, Some Issues and Sources on Ethics in Anthropology in *Ethics Handbook on Ethical Issues in Anthropology,* Ed. Joan Cassell & Sue Ellen Jacobs, a special publication of the American Anthropological Association number 23.

Psychologists too face a wide spectrum of ethical issues when undertaking mental health studies intended to improve services to soldiers and others in war zones and when responding to requests to assist in assessments of enemy combatants and civilians in those situations. For a review of difficulties and ethical requirements for mental health services to soldiers and others affected by war trauma, see Rae Anne M. Frey. 2017. “Ethical Challenges for Military Psychologists: When Worlds Collide.” *Ethics and Behavior* 27: 4, 283-296. The particular issues the profession faced when members were called upon to assess enemy combatants’ responses to harsh treatment (that amounted to torture at times) created the 2010 modifications to the American Psychological Association’s code of ethics, strengthening members commitments to human rights; the modifications can be found in https://www.apa.org/ethics/code/principles.pdf.

There is ongoing scholarly attention focused on the complex ethical issues and responsibilities that arise for organizations and individuals involved in this research area. The Ethics Education Library has an extensive collection of relevant publications, noted in the Bibliography section below.

A good introduction to philosophical dimensions of personal moral responsibilities for individual scientists and engineers involved in military research can be found in Jesper Ryberg's chapter "Ethics and Military Research: On the Moral Responsibility of Scientists" in *Mathematics and War*, edited by Bernhelm Booss-Bavnbek and Jens Hoyrup (2003, Springer International Publishing). Ryberg argues that positions defending the view that scientists do not carry any responsibility (or only a marginal responsibility) for the ways in which their work is used are not convincing. However, he also finds that the links between the ways in which results are used and the moral responsibility of scientists are complex.

# Subject Overviews

**Brunstetter, Daniel, and Megan Braun. 2011. "The Implications of Drones on the Just War Tradition." *Ethics & International Affairs* 25: 337-358. DOI: 10.1017/S0892679411000281.**

> Increasingly, the United States has come to rely on the use of drones to counter the threat posed by terrorists. Drones have arguably enjoyed significant successes in denying terrorists safe haven while limiting civilian casualties and protecting U.S. soldiers, but their use has raised ethical concerns. This article explores some of these ethical issues using the just war tradition as a foundation. It argues that drones may allow leaders to act more proportionately on just cause, thus extending the threshold of last resort for large-scale wars. However, they may be seen as a level of force short of war to which the principle of last resort does not apply; while drones are technically capable of improving adherence to principles of discrimination and proportionality, concerns regarding transparency and the potentially indiscriminate nature of drone strikes, especially those conducted by the Central Intelligence Agency (CIA) as opposed to the military, may undermine the probability of success in combating terrorism.

**Fichtelberg, Aaron. 2006. "Applying the Rules of Just War Theory to Engineers in the Arms Industry." *Science and Engineering Ethics* 12(4): 685-700.**

> Given the close relationship between the modern arms industry and the military, engineers and other professionals who work in the arms industry

should be held accountable to the principles of just war theory. While they do not deploy weapons on the battlefield and are not in the military chain of command, technical professionals nonetheless have a moral duty to abide by principles of jus ad bellum (whether the war is just) and jus in bello (whether the war is justly conducted). They are morally responsible both for choosing the companies that employ them (and to whom these companies sell arms) and a well as what types of arms they develop.

**Nixdorff, Kathryn, and Wolfgang Bender. 2002. "Ethics of University Research, Biotechnology and Potential Military Spin-off." *Minerva* 40(1): 15-35.**

The paper provides a brief introduction to the biotechnology revolution and its impact upon biological research relevant to military uses. It describes the status of biological weapons today, and current efforts to strengthen the Biological Weapons Convention with a legally binding compliance protocol. Specific modifications of microorganisms that may be of military use are discussed. Three examples of dual-use research activities are then used to highlight issues and dilemmas in ethical decision making.

**Sparrow, Robert. 2006. “Building a better WarBot: Ethical issues in the design of unmanned systems for military applications.” *Science and Engineering Ethics* 15(2): 169-187. doi: 10.1007/s11948-008-9107-0.**

Unmanned systems in military applications will often play a role in determining the success or failure of combat missions and thus in determining who lives and dies in times of war. Designers of UMS must therefore consider ethical, as well as operational, requirements and limits when developing UMS. The author groups the ethical issues involved in UMS design under two broad headings, Building Safe Systems and Designing for the Law of Armed Conflict, and identifies and discusses a number of issues under each of these headings. As well as identifying issues, he offers some analysis of their implications and how they might be addressed.

# Policy and Guidance

**Committee on Offensive Information Warfare, Computer Science and Telecommunications Board, Division on Engineering and Physical Sciences, and National Research Council of the National Academies. 2009. *Technology, Policy, Law, and Ethics Regarding U.S. Acquisition and Use of Cyberattack Capabilities*, edited by William A. Owens, Kenneth W. Dam, and Herbert S. Lin. Washington DC: National Academies Press. doi: 10.17226/12651. https://www.nap.edu/catalog/12651/technology-policy-law-and-ethics-regarding-us-acquisition-and-use-of-cyberattack-capabilities. Accessed 5/30/2017.**

> The United States and many other nations increasingly depend on information and information technology for both civilian and military purposes. Although there is a substantial literature on the potential impact of a cyberattack on the societal infrastructure of the United States, little has been written about the use of cyberattack as an instrument of U.S. policy. Cyberattacks — actions intended to damage adversary computer systems or networks — can be used for various military and intelligence purposes, such as covert action. They may be useful for certain domestic law enforcement purposes and for certain private sector entities who are themselves under cyberattack. This report considers all of these applications from an integrated perspective that ties together technology, policy, legal, and ethical issues. It focuses on the use of cyberattack as an instrument of U.S. national policy and explores important characteristics of cyberattack. It describes the current international and domestic legal structure as it might apply to cyberattack, and considers analogies to other domains of conflict to develop relevant insights. While of special interest to the military, intelligence, law enforcement, and homeland security communities, this report provides a point of departure for nongovernmental researchers interested in this rarely discussed topic.

**National Academies of Sciences, Engineering, and Medicine. 2014. *Emerging and Readily Available Technologies and National Security: A Framework for Addressing Ethical, Legal, and https://www.nap.edu/catalog/18512/emerging-and-readily-available-technologies-and-national-security-a-framework* Added to the OEC 12/17/2015; Updated 5/3/2016; Accessed 5/30/2017.**

> Articulates a framework for policy makers, institutions, and individual researchers to think about ethical issues as they relate to these technologies of

military relevance and makes recommendations for how each of these groups should approach these considerations in its research activities, where rapid technological change may outpace the ability to foresee consequences. The military is at the forefront of technology development, and quite often new military products quickly become globally accessible. The rapid development of potentially destructive technologies presents unique ethical and societal challenges.

**Lin, Patrick, Fritz Allhoff, and Neil C. Rowe. 2012. "Computing Ethics – War 2.0: Cyberweapons and Ethics."** ***CACM*** **March. 55(3): 24-26. Accessed June 13, 2017 at http://files.allhoff.org/research/Cyberweapons_Ethics.pdf**

Cyberattacks and defense from them or retaliation for them raise ethical and policy questions to which traditional positions about ethics and warfare do not directly apply. This article examines the ways in which previous ethical analysis can be brought to bear in policy considerations, and identifies ethical questions that stand in need of resolution if norms for just or humane warfare are to be upheld.

**Lin, Patrick. 2016. "The Ethics of Hacking Back: A Policy Paper on Cybersecurity." Accessed at http://ethics.calpoly.edu/hackingback.htm on June 13, 2017.**

Supported by NSF grant 1318126, this policy paper addresses the ethics of hacking back, or attempting to use the tools of cyber-attackers against them. It is widely believed that a cyberattack victim should not "hack back." Among the chief worries are that hacking back is (probably) illegal and immoral; and if it targets foreign networks, then it may spark a cyberwar between states. However, these worries are largely taken for granted: they are asserted without much argument, without considering the possibility that hacking back could ever be justified. This policy paper offers both the case for and against hacking back — examining six core arguments — to more carefully consider the practice.

**Lin, Patrick, Maxwell J. Mehlman and Keith Abney. 2013. "Enhanced Warfighters: Risk, Ethics, and Policy." Report to the Greenwall Foundation. Accessed on June 13, 2017 at http://ethics.calpoly.edu/Greenwall_report.pdf.**

Human enhancement research covers such topics as combating sleep deprivation, improving cognitive performance, increasing strength, decreasing muscle fatigue, and other augmentations intended to enhance human bodies and minds. This report reviews the ethical and policy questions raised particularly by research on enhancement for military purposes and in military contexts to allow these issues to be recognized if not discussed and resolved prior to their implementation.

**Allhoff, Fritz. 2012. "The Paradox of Nonlethal Weapons." *Slate.* November 13. Accessed June 14, 2017 at http://www.slate.com/articles/technology/future_tense/2012/11/nonlethal_weapons**

This article reviews and critiques the rationales for restrictions on using nonlethal weapons — e.g., those resulting in blindness or intense nausea — on the battlefield. These rationales include that against inflicting needless suffering and against weapons deemed inhumane. It posits a need to address the basic paradox in allowing weapons that kill while banning those inflicting less than lethal injuries.

# Bibliography

**The Ethics Education Library has an extensive but unannotated bibliography on "Military and Defense Research." It is found at http://ethics.iit.edu/eelibrary/taxonomy/term/7118. Accessed 5/30/2017.**

**Engineers in the Workplace Bibliography Added 08/17/2010; Updated 09/02/2016; Accessed 05/30/2017**

This bibliography provides an annotated list of relevant references for engineers practicing in a variety of settings and includes subsections on Academia, Corporate Environments, Government Agencies, Military, Non-Profit Organizations, International Organizations, Consulting and Bidding, Engineer/Client Relationships and Whistleblowing.

**Moreno, Jonathan D. 2006. 2012. *Mind Wars: Brain Science and the Military in the 21st Century.* New York: Bellevue Literary Press. ISBN: 978-1-934137-43-7**

The author describes U.S. national security agency support for research on neuro-technologies intended to augment or undermine performance. He calls for addressing the ethical problems that arise in military applications of these technologies, so that needs of both security and civil liberty can be met.

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