

Heather M. Roff

EDUCATION

Ph.D., Political Science, 2010 University of Colorado at Boulder, Colorado,
Major Field: Political Theory; Minor Field 1: International Relations; Minor Field
2: Methods

M.A., Political Science, 2007 University of Colorado at Boulder, Colorado,
Major Field: Political Theory; Minor Field: International Relations

M.A., Political Science, 2005 University of Wisconsin, Milwaukee, Wisconsin.
Major Field: Political Theory; Minor Field: International Relations

B.A., Political Science/Classics, 2001 University of Arizona, Tucson, Arizona.

FIELDS OF CONCENTRATION

Political Theory: International Ethics, Ethics, Just War Theory, Immanuel Kant's Moral and Political Theory, History of Political Thought, Modern Political Thought, Philosophy of Law, Theories of Self-Defense, Feminist Political Thought, Liberalism and Its Critics, Contemporary Political Theory, Environmental Political Thought, Political Obligation, Multiculturalism; Theory of Mind

International Relations: Ethics of Autonomous Warfare, Artificial Intelligence and International Security, Arms Control of Lethal Autonomous Robots, Ethics of Cyber Warfare, Human Security, Security Studies, Conflict, Institutions, Theories of Foreign Policy, US Foreign Policy, International Humanitarian Law & International Human Rights Law, IR Theory, International Organizations, Human Rights, Humanitarian Intervention & Complex Emergencies, Responsibility to Protect (R2P)

Methodology: Research Design, Philosophy of Science, Feminist Methodology

EMPLOYMENT

Johns Hopkins University Applied Physics Laboratory – National Security Analysis Department:

Senior Research Analyst: 2018 - date

DeepMind – DeepMind Ethics & Society Team:

Senior Research Scientist 2017-2018

University of Oxford – Department of Politics and International Relations:

Senior Research Fellow 2015-2017

Arizona State University – Global Security Initiative:

Research Scientist 2015-2017

Josef Korbel School of International Studies – University of Denver:

Assistant Teaching Professor 2013-2015

Visiting Professor – 2012-2013

University of Waterloo:

Assistant Professor – Department of Political Science, 2011-2012

United States Air Force Academy:

Instructor - Department of Political Science, 2011 Spring Term

University of Colorado at Boulder:

Graduate Part-Time Instructor - Department of Political Science, 2007- 2010

FELLOWSHIPS & OTHER ROLES

Defense Innovation Board, US Department of Defense

Special Governmental Expert, 2018-2019

Brookings Institution

Nonresidential Fellow, Foreign Policy, 2018-2019

University of Cambridge, Cambridge United Kingdom

Associate Fellow Leverhulme Centre for the Future of Intelligence 2017-2020

New America Foundation – Washington, D.C.

National Cybersecurity Fellow (nonresident) 2015-2017

Future of War Fellow (nonresident) 2016-2018

Eisenhower Center for Space and Defense Studies, US Air Force Academy

Resident and Nonresident Fellow 2011-2016

PUBLICATIONS

Monographs:

Global Justice, Kant and the Responsibility to Protect: A Provisional Duty (Routledge Press, June 2013).

Peer Reviewed Articles:

“Lethal Autonomous Weapons & Article 36 Weapons Reviews” Co-authored with Chris Jenks, *SMU Law Review*, forthcoming 2018

“The Necessity and Limits of Trust in Autonomous Weapons Systems” Co-

authored with David Danks, *Journal of Military Ethics*, 2018

“Gendering a Warbot: Gender and Lethal Autonomous Weapons” *International Feminist Journal of Politics*, (online Jan. 2016)

“The Responsibility to Protect and Covert Action” *Global Responsibility to Protect*, Vol. 7 (2015): 167-189. * Solicited

“Lethal Autonomous Weapons and Proportionality” *Case Western Reserve Journal of International Law*, Vol. 47, (2015): 37-52.

“The Social Critic and Universal Morality: A Response to Finn” *Global Discourse*, Vol. 5, No. 2 (2015): 297-303. * Solicited

“The Strategic Robot Problem” *Journal of Military Ethics*, Vol. 13, no. 3 (2014): 211-227.

“A Provisional Duty to Intervene” *Global Responsibility to Protect*, Vol. 3 (2011): 152-171.

“Kantian Provisional Duties” *Jahrbuch für Recht und Ethik/Annual Review for Law and Ethics*, Vol. 18 (2010): 533-562.

“Response to Pattison: Whose Responsibility to Protect?,” *Journal of Military Ethics*, Vol. 8, No. 1 (2009): 79-85.

Book Chapters in Peer Reviewed Edited Volumes:

“Jeff McMahan” in *Just War Thinkers: From Cicero to 21st Century War*, edited by Daniel R. Brunstetter and Cian O’Driscoll (Routledge Press, 2017): 238-249.

“Advancing Human Security Through Artificial Intelligence” in *Emerging Technologies and Human Security*, (Chatham House, 2017)

“An Ontology of Autonomy: Autonomy in Weapons Systems” in *The Ethics of Autonomous Weapons*, edited by Claire Finkelstein, Duncan MacIntosh, and Jens David Ohlin (Oxford University Press, forthcoming).

“Cyber Perfidy, Ruse and Deception” in Bradley Jay Strawser, Adam Henschke, and Fritz Allhoff, eds., *The Ethics of Cyberwarfare* (Oxford University Press, 2016).

“Provisional Publicity: Kant’s Principle of Publicity as a Provisional Duty” in *Kant, Cosmopolitics, and Publicity*, eds. Garrett Wallace Brown, Tom Baily and John Cabot (Edinburgh University Press, 2016).

“Killing in War: Responsibility, Liability and Lethal Autonomous Robots” in *Routledge Handbook of Ethics and War: Just War Theory in the 21st Century*, eds. Adam Henschke, Nick Evans and Fritz Allhoff (Routledge Press, 2013).

“What Ethical Complexities do Humanitarian Actors Face?” in *Negotiating Relief: The Dialectics of Humanitarian Space*, ed. Michele Acuto, (Hurst & Co./Columbia University Press, 2013).

Other Scholarly Writing:

“The Folly of Trolleys: Ethical Challenges and Autonomous Vehicles” Brookings Institution. (December 2018). <https://www.brookings.edu/research/the-folly-of-trolleys-ethical-challenges-and-autonomous-vehicles/>

“Cyber Peace: Cybersecurity Through the Lens of Positive Peace” New America Foundation. (February 2016) <https://www.newamerica.org/cybersecurity-initiative/cyber-peace/>

“Civilian Harm and Lethal Autonomous Weapons” *The Bulletin of the Atomic Scientists* (November 2015-2016) * Solicited

“After Assad: Syria’s Post-Conflict Reconstruction” *Human Rights and Human Welfare*, (January, 2013). * Solicited

“Strategies & Decisiveness: What is Implied by a ‘Timely & Decisive’ Response for R2P Situations” *Human Rights and Human Welfare*, (December, 2012)
* Solicited

Book Reviews:

Domanski, Robert J. *Who Governs the Internet? A Political Architecture, Perspectives on Politics*, forthcoming.

Pattison, James. *Humanitarian Intervention & The Responsibility to Protect: Who Should Intervene? Global Responsibility to Protect Vol.2* (2011): 111-119.

Blogs:

Huffington Post: <http://www.huffingtonpost.com/heather-roff>
The Duck of Minerva (Permanent Contributor):
<http://www.whiteoliphant.com/duckofminerva/author/hroff-perkins>

Op-Eds:

Heather M. Roff. “How Understanding Animals Can Help Us Maximize Artificial

Intelligence” *The Conversation*, April 2, 2017.

<https://www.scientificamerican.com/article/how-understanding-animals-can-help-us-maximize-artificial-intelligence/>

Heather M. Roff. “What Do People Around the World Think About Killer Robots: International Law Needs to Consider Public Opinion?” *Slate*, February 8, 2017.

http://www.slate.com/articles/technology/future_tense/2017/02/what_do_people_around_the_world_think_about_killer_robots.html

Heather M. Roff & Peter W. Singer. “The New President Needs a Policy on Autonomous Weapons” *Wired Magazine*, September 6, 2016.

<https://www.wired.com/2016/09/next-president-will-decide-fate-killer-robots-future-war/>

Heather M. Roff. “Killer Robots on the Battlefield: the danger of using a war of attrition strategy with autonomous weapons” *Slate*, April 7, 2016.

http://www.slate.com/articles/technology/future_tense/2016/04/the_danger_of_using_an_attrition_strategy_with_autonomous_weapons.html

Heather M. Roff, David Dank & Joseph Danks. “Fight ISIS by Thinking Inside the Bot: How we can use artificial intelligence to distract ISIS recruiters.” *Slate*, October 21, 2015.

http://www.slate.com/articles/technology/future_tense/2015/10/using_chatbots_to_distract_isis_recruiters_on_social_media.html

Heather M. Roff “The New Cold War is Going Digital” *Slate*, August 13, 2015

http://www.slate.com/articles/technology/future_tense/2015/08/russia_joint_chiefs_of_staff_hack_deterrence_doesn_t_work_with_cyberattacks.html

Heather M. Roff “Should Washington Allow Companies to Strike Back Against Hackers?” *Wall Street Journal*, May 10, 2015. <http://www.wsj.com/articles/should-washington-allow-companies-to-strike-back-against-hackers-1431022206>

H.M. Roff & Bessma Momani “The Morality of Robotic Warfare” *National Post*, October 6, 2011.

H.M. Roff & Bessma Momani: “The Tactics of Intervention: Why Syria will Never be Libya” *Globe and Mail*, October 25, 2011.

WORKS IN PROGRESS

Books:

Swipe Right to Kill: Lethal Autonomous Weapons & The Future of War

Articles:

Expected Utilitarianism (to be submitted for peer review 2018)

Artificial Practical Wisdom: A Virtue Ethics Approach to Ethical Artificial Intelligent Agents

What's Wrong with An Autonomous Weapon? Understanding Authorization and Delegation

Autonomy in Weapons Systems or Autonomous Systems? A Data Driven Approach to the Ontology of Autonomous Weapons

Cyber Warriors & Unjust Enemies: Kant & The Future of War

Jus Ad Vim & Cyber Attacks: Governing the Use of Force in Cyberspace

Self-Defense without a Self: Justifying the Use of Force with Lethal Autonomous Weapons in War

Command Responsibility for Lethal Autonomous Weapons

SELECTED GRANTS, AWARDS AND HONORS

Google - Deepmind Project Grant:

"Project Phronemos: Creating a Practically Wise Artificial General Intelligence" (\$200,000)

Canadian Department of National Defence Targeted Engagement Grant

"Lethal Autonomous Weapons, Meaningful Human Control, and Artificial Intelligence" (\$25,000)

Future of Life Institute Project Grant:

"Lethal Autonomous Weapons, Meaningful Human Control and Artificial Intelligence" (\$136, 918)

University of Denver – Josef Korbel School of International Studies:

Faculty Research Grant: \$3600

SELECTED INVITED INTERNATIONAL POLICY SERVICE ACTIVITIES

United Nations Institute for Disarmament Research – Convention on Certain Conventional Weapons, Group of Governmental Experts on Lethal Autonomous Weapons, United Nations, Geneva April, 2018: Invitation to participate of the UNIDIR Delegation to the CCW Group of Governmental Experts Meeting on Autonomous Weapons.

United Nations Institute for Disarmament Research – Convention on Certain

Conventional Weapons, Group of Governmental Experts on Lethal Autonomous Weapons, United Nations, Geneva August 21-25, 2017: Invitation to participate of the UNIDIR Delegation to the CCW Group of Governmental Experts Meeting on Autonomous Weapons.

AI Now, Boston MA, July 10, 2017. Invitation to contribute to the AI Now research initiative on the social and economic impacts of AI systems.

Aspen Institute Ideas Festival, Aspen CO June 28-July 1, 2017. Invitation to speak on artificial intelligence, strategy, and ethics.

Chatham House – The Royal Institute of International Affairs, July 18-19, 2017: Invitation to participate in a workshop for policy formulation on risks of emerging technology development on nuclear weapons.

Global Initiative for Ethical Considerations in the Design of Autonomous Systems, Austin, TX June 5-6, 2017. Invitation to write a selection for code of conduct and provide best practices and policies to members of the IEEE, the AAAI and other technical organizations for the design of autonomous weapons technologies. Sponsored by the IEEE Symposium on Ethics of Autonomous Systems.

Future of Life Institute 2nd Conference, Asilomar, CA January 5-8, 2017: Invitation to attend and present research findings to the Future of Life Institute.

Halifax National Security Forum, Halifax Canada November 18-20, 2016: Invitation to attend and participate at this year's Forum on emerging global security threats.

Chatham House – The Royal Institute of International Affairs, October 13-14, 2016: Invitation to participate in a Scenario Exercise for policy formulation on a code of conduct for the use of autonomous weapons.

United Kingdom Ministry of Defence, Development, Concepts and Doctrine Centre, Shrivenham, U.K. October 11-13, 2016: Invitation to contribute to the Second International Weapon Review Forum. Meeting consisting of 20 States parties concerning weapons review policies and procedures, as well as the ICRC, several NGOs and academics to guide policy formation for lethal autonomous weapons reviews.

Global Initiative for Ethical Considerations in the Design of Autonomous Systems, The Hague August 28-29, 2016: Invitation to write a selection for code of conduct and provide best practices and policies to members of the IEEE, the AAAI and other technical organizations for the design of autonomous weapons technologies. Sponsored by the IEEE Symposium on Ethics of Autonomous Systems, SEAS Europe.

AI Now, New York, NY July 6-7, 2016: Invitation to attend and contribute to provide recommendations to President Obama's White House Initiative on AI's social and economic impacts.

Canadian Department of National Defence, Ottawa June 8-9, 2016: Invitation to present expert evidence on the emerging technology security trends to the Canadian Defence Forces to enable development of new national defence policies.

United Nations Institute for Disarmament Research, United Nations, Geneva, April 6-8, 2016: Invitation to workshop on the intersection of cybersecurity and autonomous weapons for Phase II of “The Weaponization of Increasingly Autonomous Technologies” Project. Workshop on autonomy and risk.

United Nations Convention on Conventional Weapons March 11-15, 2016: Invitation to contribute to informal international expert meetings side events concerning the ban of lethal autonomous weapons under the Convention on Conventional Weapons.

International Committee for the Red Cross, Geneva March 15-16, 2016: Invitation to present to States parties at the Second Experts Meeting on “Autonomous Weapons System: Understanding Autonomy in Critical Functions of Weapons.”

Halifax National Security Forum, Halifax Canada November 20-22, 2015: Invitation to participate on a panel as an expert in discussion over autonomous weapons systems and artificial intelligence.

United Nations Institute for Disarmament Research, United Nations, Geneva, November 9-10, 2015: Invitation to workshop on the intersection of cybersecurity and autonomous weapons for Phase II of “The Weaponization of Increasingly Autonomous Technologies: Addressing Competing Narratives” Project.

United Nations Institute for Disarmament Research, United Nations New York City, NY, October 9, 2015: Invitation to speak at a UNIDIR sponsored side event on cybersecurity and autonomous weapons at the 2015 United Nations First Committee.

United Nations Convention on Conventional Weapons, United Nations Geneva, April 13-17, 2015: Invitation to speak as an expert at the informal meeting of experts concerning lethal autonomous weapons under the auspices of the Convention on Conventional Weapons.

Future of Life Institute, “The Future of AI: Opportunities and Challenges” First Conference, San Juan Puerto Rico, January 2-5, 2015: Invitation to speak and present on the challenges and risks associated with lethal autonomous weapons systems.

The Hague Institute for Global Justice, The Hague, Netherlands, October 22-23, 2014: Invitation to workshop on the Responsibility to Protect Doctrine.

International Committee for the Red Cross, Geneva May 21-22, 2014: Invitation to workshop on moral and legal issues pertaining to cyber war and cyber uses of force under international humanitarian law.

United Nations Convention on Conventional Weapons May 14-16, 2014: Invitation to contribute to informal international expert meetings side events concerning the ban of lethal autonomous weapons under the Convention on Conventional Weapons.

DATASETS

Survey of Autonomy in Weapons Systems

Creation of the first dataset of all publically fielded weapons systems from the top 5 weapons exporting countries. Codes all weapons systems capabilities and measures them on three sub-component indices of autonomy: Self-Direction, Self-Mobility and Self-Determination. Dataset is free for public download. Project funded through the Future of Life Institute. Data online September 30, 2016.

SELECTED INVITED TALKS & INTERVIEWS

Stockholm International Security Conference, Stockholm Sweden, September 19-20, 2018.

Conference on World Affairs, University of Colorado at Boulder, April 9-13, 2018.

“Nukes of Hazard: Mapping the Risks Emerging Technologies Pose to Nuclear Weapons Modernization” Leverhulme Centre for the Future of Intelligence, University of Cambridge, September 25, 2017.

“An Ontology of Autonomy for Weapons Systems” University of Oxford, Oxford’s Changing Character of War Programme, Pembroke College, October 18, 2016.

“Kill Webs & The Future of War” University of Oxford, Oxford’s Changing Character of War Programme meeting held for the UK Ministry of Defence. Pembroke College, May 17, 2016.

“All Roads Lead to Rome: Autonomous Weapons and Super-Intelligence” Future of Humanity Institute, University of Oxford, May 3, 2016.

“Artificial Intelligence and Targeting Doctrine: Technological Heuristics, Proxies and the Difficulty of Compliance” University of Zurich, Zurich Switzerland November 6-7, 2015. Workshop on the Transformation of War Through Information Technology and its Impacts on the Ethics and Law of Armed Conflict.

“Gendering a Warbot: Policy Fallout for Gendering Autonomous Weapons” Reed College, Portland Oregon September 28-29, 2015.

“Command Responsibility and Lethal Autonomous Weapons” Governing Emerging Technologies, Arizona State University May 26-28, 2015.

“What Can Kant Teach Us About Cybersecurity?” New America Foundation, Washington, D.C., February 23, 2015.

“Ethics of Autonomous Weapons” The Future of Life Institute, Massachusetts Institute of Technology, San Juan Puerto Rico, January 2-5, 2015.

Panel Participant on lethal autonomous weapons for the Consortium on Emerging Technologies, Military Operations, and National Security, Case Western University School of Law, September 5, 2014.

“*Jus ad Vim* and Forcible Alternatives to War” 5th Annual Ethics, Law and Armed Conflict Workshop, Merton College, Oxford University, Oxford, United Kingdom, September 5-6, 2014

“Drones, International Security and Law” at the University of Colorado at Boulder, Boulder, Colorado, October 4, 2013.

“Ethics and the Future of Autonomous Weapons” at the Naval Post Graduate School, Monterrey, CA, September 23, 2013.

“Military Human Enhancement: Design for Responsibility and Combat Systems” at the Oxford Institute for Ethics, Law and Armed Conflict, Oxford University, Oxford, United Kingdom, July 11-13, 2013

“Strategic Robots: Military Objectives, Lethal Autonomous Robots and the Business of Strategy” Delivered at Pace University Symposium on Autonomous Robots and Armed Conflict, Pace University, New York, NY, June 6, 2013.

“The Responsibility to Protect: Doctrine, Practice and Future Challenges” Delivered at the One Earth Future Foundation March 2, 2012

“Kant’s Permissive Law: A Principle for the Perplexed” Delivered at the Center for Values and Social Policy, Department of Philosophy, University of Colorado at Boulder, February 26, 2010.

SELECTED CONFERENCE PAPERS

“Centaur, Spiders, Oracles and Genies: Strategy and Technology in the Future of War” International Studies Association, Baltimore, MD February 2017

“Beneficiaries, Harm, and Fairness: Justifying Harm to Noncombatants” Oxford Institute for Ethics of Law and Armed Conflict Annual Workshop, European University Institute, Florence, Italy September 2016.

“Command Responsibility for Lethal Autonomous Weapons” The Future of Just

- War Conference, Naval Postgraduate School, Monterey, CA October 2015.
- “Gendering a Warbot” International Studies Association, New Orleans, LA, February 2015
- “Self-Defense Without a Self: Justifying the Use of Force with Lethal Autonomous Robots in War” International Studies Association, Toronto, Canada, March 2014
- “Jus ad Vim & Cyber Attacks: Governing the Use of Force Short of War in Cyberspace” International Studies Association, Toronto, Canada, March 2014
- “Cyber Warriors & Unjust Enemies: The Future of War” American Political Science Association, Chicago, IL September 2013
- “A Provisional Duty of Humanitarian Intervention” American Political Science Association, Washington D.C., September 2010
- “Kantian Provisional Duties” United Kingdom Kant Society, Lancaster, United Kingdom, August 2009
- “Provisional to Perfect: A Kantian Theory of Humanitarian Intervention,” Association for Political Theory, Middletown, CT, October 2008
- “A Third Option: Kantian Provisional Duties” American Political Science Association, Boston, MA, August 2008
- “Damocles’ Sword: The National Security Strategy and Preventive War,” International Studies Association, Chicago, IL, March 2007
- “The Philosopher's Stone: Kant and the Democratic Peace Theory” Midwestern Political Science Association, Chicago, IL April 2007
- “Escaping Morality: The Argument from Extremity Revisited,” International Studies Association, San Diego, CA March 2006

PROFESSIONAL SERVICE

Editor of International Philosophy; Cosmopolitanism; and Intervention at <http://philpapers.org/>

Political Science Department Undergraduate Curriculum Committee, University of Waterloo, 2011-2012.

LANGUAGES

German
Spanish

PROFESSIONAL ASSOCIATIONS

American Political Science Association
Association for Political Theory
European Consortium for Political Research
International Studies Association
North American Kant Society
United Kingdom Kant Society

REFEREES

<i>Journal of Politics</i>	<i>Ethics & Information Technology</i>
<i>Global Responsibility to Protect (GR2P)</i>	<i>Routledge Press</i>
<i>Foreign Policy Analysis</i>	<i>Mind and Machine</i>
<i>International Political Theory</i>	<i>Res Publica</i>
<i>Ethics and International Affairs</i>	<i>Canadian Journal of Political Science</i>
<i>Review for Political Studies</i>	<i>Review of International Studies</i>
<i>De Ethica</i>	<i>Leiden Journal of International Law</i>
<i>American Political Science Review</i>	<i>Perspectives on Politics</i>
<i>Journal of Cybersecurity</i>	<i>Philosophy & Technology</i>

ACADEMIC REFERENCES

Available on request