

3/2021

Thomas M. Powers, Ph.D.

PROFESSIONAL ADDRESSES

Department of Philosophy
University of Delaware
24 Kent Way
Newark, DE 19716
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University of Delaware
221 Academy Street, Room 471
Newark, DE 19716

BIOGRAPHICAL DATA

Born in Honolulu, Hawaii; U.S. Citizen

EDUCATION

University of Texas, Austin: Ph.D. in Philosophy. Dissertation: "Formalism in Kant's Ethics" 1995
Ludwig-Maximilians-Universität, Munich: DAAD-Fulbright dissertation-year fellow, 1993-1994
College of William and Mary, Williamsburg: B.A. in Philosophy (with high honors), 1987

ACADEMIC APPOINTMENTS

University of Delaware: Associate Professor of Philosophy (2013-), Assistant Professor (2006-13), Temporary Assistant Professor 2005-06; Delaware Biotechnology Institute, Resident Faculty (2006-17), Affiliate (2017-); Joint Appointments: Biden School of Public Policy and Administration (2012-), Linguistics and Cognitive Science (2012-), and Energy and Environmental Policy (2017-)

Universitat des les Illes Balears: Visiting Research Professor (summer 2018)

Sorbonne University: Visiting Researcher, Laboratoire d'Informatique (UPMC) – Équipe: Agents Cognitifs et Apprentissage Symbolique Automatique, (Fall 2015, Winter 2018, Summer 2019, Winter 2019)

University of Virginia: NSF Research Fellow, School of Engineering and Applied Science (2003-05)

Santa Clara University: Lecturer in Philosophy (1997-2003); Adjunct Professor, Computer Engineering (2000-03)

Central Michigan University, Visiting Assistant Professor of Philosophy (1996-97)

College of William & Mary, Visiting Assistant Professor of Philosophy (1995-96)

OTHER SERVICE ROLES/APPOINTMENTS

Director, UD Center for Science, Ethics & Public Policy (2011-) & Program for SEPP (2007-11)

UD Faculty Affiliations: Delaware Environmental Institute (2013-); Data Science Institute (2018-); Center for Autonomous and Robotic Systems (2019-); Master of Science in Robotics (2019-); Sociotechnical Systems Center (2020-)
UD Strategic Planning Committee on “Expanding Interdisciplinary and Global Opportunities” (2021-)
UD Faculty Senate Committee On Committees And Nominations (2020-)
UD Academic Committee on Sustainability (2020-)
UD Graduate College Council (2019-) alternate
UD Council of Community Engagement and Public Service Centers, UD (2016-)
UD Institutional Review Board alternate (2011-14) and voting member (2013)
UD Respect Committee (2015-17)
State of Delaware Health and Social Services Human Subjects Review Board (2013-)
National Academy of Engineering Online Ethics Center, Leadership Team and International Perspectives Editor (2015-)
Associate Editor, Springer *Philosophy & Technology* (2014-)
Stanford Encyclopedia of Philosophy Editorial Board, Subject Editor for "Ethics and Information Technology" (2010-)
American Philosophical Association, Committee on Philosophy & Computers Chair (2013-16), Associate Chair (2012-13)

AREAS OF RESEARCH

Ethics (Environmental, Scientific Research, Information and other Emerging Technologies)

PUBLICATIONS

Edited Books

Powers, TM, editor (2017). *Philosophy and Computing: Essays in Epistemology, Philosophy of Mind, Logic, and Ethics*, Springer Publishing
Powers, TM, and Kamolnick, P, editors (1999). *From Kant to Weber: Freedom and Culture in Classical German Social Theory*, eds., Krieger Publishing

Articles, Chapters, and Proceedings

Robinson, P, A Sun, H Furey, R Jenkins, CR Phillips, TM Powers, R Ritterson, Y Xie, R Casagrande, and N.G. Evans (forthcoming). Modelling Ethical Algorithms in Autonomous Vehicles Using Crash Data, in *IEEE Transactions on Intelligent Transportation Systems*
Powers, TM, and Ganascia, JG, (2020). The Ethics of the Ethics of Artificial Intelligence, in *Oxford Handbook of Ethics of AI*, eds. M Dubber, F Pasquale, and S Das, Oxford University Press
Tolmeijer, S, A Weiss, M Hanheide, F Lindner, TM Powers, C Dixon, and M Tielman (2020). Taxonomy of Trust-Relevant Failures and Mitigation Strategies, in *Proceedings of Human Robot Interaction 2020 (HRI '20)*, ACM, New York, NY, USA.
Ganascia, JG, C Tessier, and TM Powers, (2018). On the autonomy and threat of “killer robots”
APA Newsletter on Philosophy and Computers 17 (2)
Powers, TM (2017). Intersecting Traditions in the Philosophy of Computing, in *Philosophy and Computing: Essays in Epistemology, Philosophy of Mind, Logic, and Ethics*, ed. TM Powers, Springer Publishing
Powers, TM and Shah, SI (2017). Technological Ethics in Context: The Case of Nanotechnology, in *Philosophy: Technology*, ed. AF Beavers, Gale Cengage: Macmillan Interdisciplinary Handbooks
Powers, TM (2016). Prospects for a Kantian Machine, in *Machine Ethics and Robot Ethics*, eds. W. Wallach and P. Asaro, Ashgate Publishing/Routledge 2017 paperback [republication of Powers TM (2006)]

- Shah, SI and Powers, TM (2015). Nanotechnology: A Path Forward for Developing Nations, *Institute of Physics Conference Series* 92
- Powers, TM (2014). Consequentialism, in *Ethics, Science, Technology and Engineering: A Global Resource*, 2nd Edition, ed. JB Holbrook, Macmillan Reference USA [revision of Powers, TM (2005)]
- Powers, TM (2014). Deontology, in *Ethics, Science, Technology and Engineering: A Global Resource*, 2nd Edition, ed. JB Holbrook, Macmillan Reference USA [revision of Powers, TM (2005)]
- Powers, TM (2014). Models for Machine Ethics, *APA Newsletter on Philosophy and Computers* 14 (1)
- Powers, TM (2014). Orientation in Philosophical Research, *APA Newsletter on Philosophy and Computers* 13 (2)
- Johnson, DG and Powers, TM (2014). Ethics and Technology: A Program for Future Research in *Society, Ethics, and Technology*, 5th edition, eds. M Winston and R Edelbach, Wadsworth Publishing, Boston Mass. [republishing of Johnson & Powers (2005)]
- Powers, TM and Shah, SI (2013). Teaching a Course on Ethics in Nanoscience, *Journal of Nano Education* 5, 1-6
- Powers, TM (2013). On the Moral Agency of Computers, *Topoi: An International Review of Philosophy* 32 (2)
- Powers, TM (2011). Prospects for a Kantian Machine, in *Machine Ethics*, eds. M. Anderson and S. Anderson, Cambridge University Press [republishing of Powers TM (2006)]
- Powers, TM (2011). Incremental Machine Ethics, *IEEE Robotics and Automation* 18 (1)
- Powers, TM (2009). Machines and Moral Reasoning, *Philosophy Now* 72
- Powers, TM (2009). Preface, in *Creating a Global Dialogue on Value Inquiry*, J. Yan & D. Schrader (eds.), Edwin Mellen Press
- Powers, TM (2008). Environmental Holism and Nanotechnology, in *Nanotechnology and Society: Current and Emerging Ethical Issues*, eds. F Allhoff and P Lin, Springer Publishing
- Johnson, DG, and Powers, TM (2008). Computers as Surrogate Agents, in *Information Technology and Moral Philosophy*, eds. MJ van den Hoven and J Weckert, Cambridge University Press
- Powers, TM (2006). Prospects for a Kantian Machine, *IEEE Intelligent Systems* 21 (4)
- Johnson, DG, and Powers, TM (2005). Computer Systems and Responsibility: A Normative Look at Technological Complexity, *Ethics and Information Technology* 7(2), Kluwer Publishing
- Johnson, DG, and Powers, TM (2005). Ethics and Technology: A Program for Future Research, in *Encyclopedia of Science, Technology, and Ethics*, ed. C Mitcham, Gale Publishing
- Powers, TM (2005). Consequentialism, in *Encyclopedia of Science, Technology, and Ethics*, ed. C Mitcham, Gale Publishing
- Powers, TM (2005). Deontology, in *Encyclopedia of Science, Technology, and Ethics*, ed. C Mitcham, Gale Publishing
- Powers, TM (2005). Deontological Machine Ethics, *Technical Report*, American Association for Artificial Intelligence, Palo Alto, 2005
- Powers, TM (2004). Ideas, Expressions, Universals, and Particulars: Metaphysics in the Realm of Software Copyright Law, in *Intellectual Property Rights in a Networked World*, H Tavani and R Spinello, Idea Group Publishing
- Powers, TM (2004). Real Wrongs in Virtual Communities, *Ethics and Information Technology* 5 (4), Kluwer Publishing
- Powers, TM (2002). Responsibility in Software Engineering: Uncovering an Ethical Model, in *The Transformation of Organizations in the Information Age: Proceedings of the Sixth International ETHICOMP Conference*, Universidade Lusitana de Lisboa
- Powers, TM (1999). The Legacy of Kantian Rationalism for Social Theory, in *From Kant to Weber: Freedom and Culture in Classical German Social Theory*, eds. TM Powers and P Kamolnick, Krieger Publishing
- Powers, TM (1999). The Integrity of Body: Kantian Moral Constraints on the Physical Self, in *Philosophy and Medicine* 60, Kluwer Publishing.

Book Reviews

Powers, TM (2019). Review of *Living with Robots* by Paul Dumouchel and Luisa Damiano, Cambridge, MA: Harvard University Press, 2017, in *Philosophy, Theology and the Sciences*, pp. 211-14.

Powers, TM (2014). Review of *Emerging Pervasive Information and Communication Technologies: Ethical Challenges, Opportunities, and Safeguards*, ed. KD Pimple, 2014, in *Journal of Philosophy, Science & Law* 14, pp. 1-5.

FUNDED RESEARCH

1. Herman & Charlotte Glotzer Award for Scholarship on the Study of Ideas, University of Delaware 2019 (\$4,000)
2. NSF REU SITE: Interfacing Sustainable Energy and Materials, 2015-18, Senior Personnel (\$360,577)
3. Supplement to NSF SES "Becoming the Online Resource Center for Ethics Education in Engineering and Science" (with the National Academy of Engineering, PI R. Hollander), 2014-2019, Delaware Lead Investigator, (\$209,239)
4. NSF IGERT Systems Biology in Engineered Environments, 2012-17, Faculty Personnel, (\$3 million)
5. USDA/NIFA International Science and Education "Agriculture's Global Challenges: Food Security, Bioenergy, and Biodiversity--Building Educational and Research Partnerships with Brazil," 2011-14, Co-PI (\$150,000)
6. NSF OISE U.S.-Pakistan Workshop on Environmental Nanotechnology & Ethics, 2011, Co-PI (\$60,000)
7. NSF EPSCoR Research Infrastructure Improvement Grants (2), 2007-2013, Co-PI (\$20.5 million)
8. NSF NUE Connecting Nanotechnology and Alternative Energy Approaches through Undergraduate Education in Engineering, 2009-13, Co-PI (\$199,190)
9. Delaware Humanities Forum Grant, 2009, Principal Investigator, (\$13,000)
10. American Philosophical Association Conference Grant for "The Ethics of Climate Change" 2009, Principal Investigator, with Fred Schueler (\$5,000)
11. NSF Research Experiences for Undergraduates, "Nature InSpired Engineering" University of Delaware, 2009-2012, Faculty Personnel
12. UD Graduate Improvement and Innovation Grant, RAISE-2, 2008-2009, Principal Investigator (\$67,000)
13. NSF EESE "RAISE: Research And Integrity in Science and Engineering" 2007-2009, Principal Investigator (\$99,800)
14. NSF New England Workshop on Science and Social Change "Collaborative Generation of Environmental Knowledge and Inquiry" Woods Hole, Mass., April 2007, Participant
15. NSF Research Experiences for Undergraduates, "Creating Computer Applications for Medicine" University of Virginia, Summers 2005 and 2006, Ethics faculty personnel
16. NSF DOLCE Workshop on Teaching Computer Ethics, Golden, Co., May 2002, Participant
17. Center for Science, Technology, and Society Summer Faculty Research Grant, "Defining the Parameters of Undergraduate Web-based Research" Santa Clara University June 2000, Principal Investigator
18. Center for Science, Technology, and Society Summer Faculty Research Grant, "Developing a Text for the Philosophy Course: Science, Technology, and Ethics" Santa Clara University June 1999, Principal Investigator
19. School of Engineering Grant for Engineering Ethics, Santa Clara University, Summer 1999, Principal Investigator
20. University Curriculum Development Grant "Developing a New Graduate Course in Software Engineering Ethics" Santa Clara University 1998-99, Co-P.I.
21. Markkula Center for Applied Ethics Grant, Faculty Seminar on Affirmative Action, Santa Clara University 1998-99, Participant
22. NEH Summer Seminar on German Social Theory, University of Chicago, 1995, Participant

INVITED TALKS AND PRESENTATIONS

1. "'The Right' and 'The Good' in STEM Ethics" UD Materials Research Society, March 2021
2. "What are the Ethics of Data Science and AI?" UD Center for Bioinformatics and Computational Biology, March 2021
3. "A Data Ethics Ontology" UD Computational Social Science Symposium, October 2020
4. "Considerations of the Ethics of AI" IEEE Delaware Bay Section, October 2020
5. "The Predicament of the Ethics of AI" North Carolina State University, February 2020

6. "Machine Ethics: Philosophical Approaches" Dagstuhl seminar on "Ethics and Trust: Principles, Verification and Validation," *Leibniz-Zentrum für Informatik*, Germany, April 2019
7. "Computational Data Science: Epistemological and Ethical Challenges" Keynote Address, International Association for Computing and Philosophy, Warsaw, Poland, June 2018
8. "Answering CP Snow's 'Two Cultures': Doing Philosophy *with* Science" Universitat des les Illes Balears, Spain, June 2018
9. "Artificial Intelligence, Automation, and Autonomy" Workshop on the Regulation of Artificial Intelligence, University of Surrey School of Law, Surrey, England, March 2018
10. "Globalizing Science and Engineering Ethics: Convergence or Equilibrium?" Society for Philosophy and Technology, Darmstadt, Germany, June 2017
11. "The Ambivalent Ethics of Autonomous Vehicles" Transport Futures: Mobility Pricing and Automated Vehicles Conference, Toronto, November 2016
12. "Perspicuous Normative Language" Automated Vehicles Symposium, San Francisco July 2016
13. "Understanding International Perspectives in Science and Engineering Ethics" American Society for Engineering Education, New Orleans, June 2016
14. "Towards a Prescriptive Deontological Non-Monotonic Machine Ethics" (with Jean-Gabriel Ganascia), International Association for Computing and Philosophy, Ferrara Italy, June 2016
15. "Robots: Ethical, Social, and Legal Issues" Osher Institute, Wilmington, Delaware, April 2016
16. "Nanotechnology: A Path Forward for Developing Nations" (with Ismat Shah) Science in the Developing World: Enhancing Research Capacity Workshop, University of Waterloo, Canada, September 2015
17. "Top-down Machine Ethics" Pacific Division Meeting of the American Philosophical Association, Vancouver, April 2015
18. "Science and Ethics: A Shifting Relationship" Delaware Environmental Institute, Wilmington, February 2015
19. "Can There Be an Ethics of Design?" SRPoiSE Group Meeting, Eastern Division Meeting of the American Philosophical Association, Philadelphia, December 2014
20. "Information Justice" Eastern Division Meeting of the American Philosophical Association, Philadelphia, December 2014
21. "The Ethics of High-Tech Warfare" Pennsylvania Alliance for STEM Education, West Chester Pennsylvania, November 2014
22. "The Promise and Peril of Principles in Research Ethics" (with Mark Greene) 9th Annual Nursing Research Conference, Newark Delaware, November 2014
23. "Safety, Privacy, and Meta-Data" (with Eric Best) Computer Ethics--Philosophical Enquiry, Paris France, June 2014
24. "Parameters and Information Sources for an Autonomous Robot" (Panel Session on Ethics and Autonomous Agents) Computer Ethics--Philosophical Enquiry, Paris, June 2014
25. "The Ethics of the Bioenergy Market" Brazil Symposium: Global Challenges in Agriculture, Environment, and Energy, Newark Delaware, May 2014
26. "The Public Computer System and Accountability" Northeast Conference on Public Administration, Newark Delaware, November 2013
27. "Prospects for a Smithian Machine" International Association for Computing and Philosophy, College Park, Maryland, July 2013
28. "Environmental Ethics and Nanotechnology" Joint International Workshop on Nanotechnology: Policy, Ethics and Science, Islamabad, Pakistan March 2013
29. "A New Naturalism for Environmental Ethics" University of Genoa, Italy, January 2013
30. "Teaching Ethics to Scientists: Why Rules and Consequences Matter" University of Miami, September 2012
31. "Teaching a Course in Ethics in Nanoscience" AAAS Science & Human Rights Meeting, Washington D.C., July 2012
32. "Explaining Technological Action" Delft University of Technology, the Netherlands, July 2012
33. "Aggregation and Future Individuals" International Conference on Interpretive Policy Analysis, Tilburg University, the Netherlands, July 2012
34. "Science-related Ethics and Public Policy Research" Universidade Federal de Lavras, Brazil, April 2012
35. "Cases and Methods in Research Ethics" Medical Society of Delaware Spring CME Symposium, Newark DE, April 2012

36. "Decision Procedures for Nanotechnology Development" 3rd Int'l Conference on Nanotechnology (Al Ain, U.A.E.) and ISESCO-COMSATS-NSF Int'l Conference on Nanomaterials & Nanoethics (Lahore, Pakistan), December 2011
37. "Fabrics of Science: Quine and the Possibility of Collaboration" Pacific Division Meeting of the American Philosophical Association, San Diego, April 2011
38. "The Machines are Here and are Driving Us" (author-meets-critics: Allen and Wallach's *Moral Machines*) International Association for Computing and Philosophy/Pacific Division Meeting of the American Philosophical Association, San Francisco, April 2010
39. "Kantian Humanism and Human Enhancement" Oxford University, December 2009
40. "Author Meets Critics" session for Jerry Gaus (Kavka Prize in Political Philosophy), Pacific Division Meeting of the American Philosophical Association, Vancouver, April 2009
41. "Ethics and Biofuels: Distributive and Intergenerational Justice" Society of Toxicology Annual Meeting, Baltimore, March 2009
42. "Author Meets Critics" session for *Moral Machines* by C. Allen and W. Wallach, Annual Meeting of the Association for Practical and Professional Ethics, Cincinnati, March 2009
43. "Virtual Action Theory" Conference on Virtual Worlds and Interpretive Communities, University of Nevada, Las Vegas, February 2009
44. "Getting 'Good Science' Right: Research Ethics and the America COMPETES Act" California Polytechnic University, San Luis Obispo, February 2009
45. "AI and Eldercare" (invited ethics symposium speaker) Association for the Advancement of Artificial Intelligence Fall Symposium, November 2008
46. "Bioethics in a Time of Changing Technologies" Nemours Center for Pediatric Research, Delaware, September 2008
47. "The Ethics of Biofuels: Starving Peter to Drive Paul?" Plants & Soils: Montreal '08 (invited plenary symposium speaker) July 2008
48. "Neuroimaging and Philosophical Moral Psychology" Institute for Clinical Research, Montreal, July 2008
49. "Is Ethics Computable?" (invited plenary session panelist) North American Computers and Philosophy Conference, Indiana, July 2008
50. "Smith and Kant on Moral Psychology" University of Delaware, April 2008
51. "Discovering Engineering Ethics in the Silicon Valley" American Society for Engineering Education Annual Conference, July 2007
52. "Design and Action: A Framework for the Philosophy of Engineering" University of North Carolina-Charlotte, February 2007
53. "Can There Be a Science of Ethics?" Delaware Biotechnology Institute, October 2006
54. "Distributive Justice and Information Technology" Georgia Tech School of Public Policy, January 2006
55. "Deontological Machine Ethics" Association for the Advancement of Artificial Intelligence Fall Symposium, November 2005
56. "An Account of the Moral Agency of Technology" University of North Texas, February 2005
57. "Towards a Kantian Critique of Technology (the Long Route)" Drexel University, January 2005
58. "On Richard De George's *The Ethics of Information Technology and Business*" Eastern Division Meeting of the American Philosophical Association, Boston, December 2004
59. "Normative Arguments and the Apparent Conflict of Values" University of Delaware General Education Institute, June 2004
60. "Intentionality and Moral Agency in Computers" Computers and Philosophy, Europe (E-CAP), Pavia, Italy, June 2004
61. "Computers as Surrogate Agents" (with Deborah Johnson) ETHICOMP-Syros, April 2004
62. "How Much Theory: Towards a Meta-Applied Ethics" 13th Annual Meeting of the Association for Practical and Professional Ethics, Cincinnati, February 2004
63. "A Kantian Critique of Technology" Society for Social Studies of Science Annual Meeting, October 2003
64. "The World According to Kant" Philosophical Forum, Linköping, Sweden, September 2003
65. "The Moral Agency of Technology" University of Linköping, Sweden, September 2003
66. "Real Wrongs in Virtual Communities," Fifth International Conference of Computer Ethics - Philosophical Enquiry (CEPE), Boston College, June 2003

67. "Ideas, Expressions, Universals, and Particulars," Sixth Annual Ethics and Technology Conference, Boston College, June 2003
68. "The Computer Layer in Pedagogy" Pacific Division Meeting, American Philosophical Association and the Society for Philosophy and Technology, April 2003
69. "Responsible Computing: Towards a Policy for University Computer Use," Markkula Center for Applied Ethics, Santa Clara University, April 2003
70. "An Idiosyncratic Philosophy of Technology," TCC Colloquium, University of Virginia, January 2003
71. "Responsibility in Software Engineering: Uncovering an Ethical Model," ETHICOMP-Lisbon, November 2002
72. "Kantian Freedom and the Defeasible Conception of Dignity," Pacific Division Meeting of the American Philosophical Association, San Francisco, March 2002
73. "A Kantian Account of Dignity," Markkula Center for Applied Ethics, Santa Clara University, January 2001
74. "The Kantian Critique of Technology," San Jose Intercollegiate Philosophy Forum, November 2000
75. "Consistency and the Categorical Imperative," University of California at Santa Cruz, November 1997
76. "Some Problems with Kantian Ethical Formalism," Central Division Meeting, American Philosophical Association, Pittsburgh, PA, May 1997
77. "Georg Simmel as a Neo-Kantian," Simmel Conference, University of Colorado at Boulder, April 1996
78. "The 'Object of Experience' in Kant's Critical Metaphysics," St. Joseph's University, February 1996
79. "Kantian Reflections on Bodies and Body-Parts," Northern Arizona University, January 1996

NATIONAL AND INTERNATIONAL PROFESSIONAL SERVICE

National Science Foundation Grant Proposal Review Panels, STS and AI & Society, 2014-16, 2019

Swiss National Science Foundation Grant Proposal Reviewer, 2020

Netherlands Organization for Scientific Research (NWO) Grant Proposal Reviewer, 2017 & 2019

International Association for Computing and Philosophy Executive Board and Director, Minds & Machines SIG 2016-
Editorial Board, *International Journal of Technoethics*, 2020-

Editorial Advisory Board, *Techné: Research in Philosophy and Technology*, 2016-

Reviewer for the journals *Medicine, Healthcare and Philosophy, IEEE Technology & Society, Science and Engineering Ethics, Minds & Machines, Idealistic Studies, mBio, Annals of Mathematics and Artificial Intelligence, International Journal of Human-Computer Interaction, Ethics and Information Technology, Journal of Business Ethics, Accountability in Research, and Ethical Theory and Moral Practice*

Advisory Board, *The Nanoethics Group*

Ethics Advisory Board, *The Lifeboat Foundation*

Board of Management, Consortium for Socially-Relevant Philosophy of/in Science and Engineering (SRPoISE), 2014-
AAAS Science & Human Rights Coalition, Ethics and Human Rights Working Group, 2012

Committee on Bioethics and Ethics in Science of the *Fédération Internationale des Sociétés de Philosophie* (FISP)

Committee on Public Philosophy, American Philosophical Association, Member 2009-2012

Faculty Scholar, Markkula Center for Applied Ethics, Santa Clara University, 1997-2003