Tyler Millhouse

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Areas of Specialization Philosophy of Cognitive Science, Philosophy of Mind

Areas of Competence Philosophy of Science, Moral Psychology

Education

PhD, Philosophy, University of Arizona (Expected Spring 2018)
MA, Philosophy, Tufts University (2014)
BA, Philosophy, Ashland University (2011)

Dissertation

Title *Patterns, Simplicity, and Physical Computation*

Committee Shaun Nichols (chair), Terry Horgan, Jonathan Weinberg

Abstract The development of modern computers is the result of decades of theoretical and applied research across a wide range of disciplines. This might lead one to believe that it is extremely difficult to design a physical system that implements a computer. Nevertheless, 'triviality arguments' have attempted to show that a wide range of ordinary objects (e.g., rocks or buckets of water) implement sophisticated computers. In general, these arguments rely on constructing a *computational interpretation* of the target physical system—that is, a mapping from states of the physical system to states of a computer (abstractly described). I argue that triviality arguments can be overcome by imposing a simplicity constraint on these mappings. My simplicity criterion draws on existing work in information theory and extends the idea of real patterns, first explored by Daniel Dennett and recently championed by David Wallace, James Ladyman, and Don Ross. After outlining an account of physical computers, I extend my simplicity criterion to other entities proposed by the special sciences. I then address potential objections to simplicity criteria in particular and Gualtiero Piccinini's objections to mapping accounts more generally. Finally, I apply elements of my criterion to the skeptical puzzles surrounding Boltzmann brains (i.e., observers which arise from random fluctuations and may have experiences subjectively indistinguishable from our own).

Publications

Millhouse, T. "A Simplicity Criterion for Physical Computation." *The British Journal for the Philosophy of Science* (2017). https://doi.org/10.1093/bjps/axx046.

Millhouse, T. "Virtual Machines and Real Implementations." *Minds and Machines* (2017). 28(3), 465-489. https://doi.org/10.1007/s11023-018-9472-7.

Millhouse, T., Ayars, A., & Nichols, S. "Learnability and Moral Nativism: Exploring Wilde Rules," in J. Suikkanen and A. Kauppinen (eds.), *New Methods in Ethics.* Routledge, forthcoming.

Millhouse, T., Bush, L.S. & Moss, D. "The Containment Problem and the Evolutionary Debunking of Morality," in T.K. Shackelford and R.D. Hansen (eds.), *The Evolution of Morality.* Cham, Switzerland: Springer, 2016, 115-135.

Work in Progress

"Virtual Machines and Real Implementations" (under review)
"The Care and Feeding of Boltzmann Brains" (under review)
"Really Real Patterns"
"In Defense of Mapping Accounts"
"Simplicity, Explanation, and the Special Sciences"
"Do Moral Foundations Predict Moral Beliefs?" (with Dave Gottlieb, Stanford)
"A Normative Confound for Research on Moral Relativism" (with L.S. Bush, Cornell)

Presentations

"The Care and Feeding of Boltzmann Minds," Center for the Study of Language and Information Workshop, Stanford University, June 3, 2017.

"Operationalizing Metaethics: The Disagreement Paradigm in Empirical Moral Psychology" (with L.S. Bush), Society for Philosophy & Psychology, University of Texas, Austin, June 4, 2016.

"Possible Metaethics and Alternative Moral Domains" (with L.S. Bush), Boston Area Moral Cognition Research Group, Boston University, March 25, 2014.

Research Positions

Research Assistant, Christopher Hamilton, University of Arizona (Summer 2017 - Present)

I am developing deep neural networks for classifying images from the Mars Reconnaissance Orbiter. The primary aim of the project is to map the extent of volcanic rootless cones which indicate the presence of water in the ancient past.

Research Assistant, Shaun Nichols, University of Arizona (Fall 2016)

I collaborated with Shaun Nichols to design and conduct studies on moral psychology and moral rule learning. In particular, we investigated whether (and how easily) individuals can learn uncommon or unusual kinds of rules.

Research Assistant, Liane Young, Boston College (Summer 2013 - Fall 2013)

While pursuing my MA at Tufts University, I worked as a research assistant in Liane Young's Morality Lab at Boston College. I conducted studies designed by Larisa Heiphetz on the development of metaethical views in children (aged 4-6).

Teaching

Instructor

Minds, Brains, and Computers, University of Arizona (Fall 2018)
The Moral Mind, University of Arizona (Summer 2018)
The Moral Mind, University of Arizona (Spring 2018)
Minds, Brains, and Computers, University of Arizona (Fall 2017)
Minds, Brains, and Computers, University of Arizona (Summer 2017)
Practical Thinking, Ashland University (Spring 2017)
The Moral Mind, University of Arizona (Summer 2016)
Minds, Brains, and Computers, University of Arizona (Summer 2015)

Teaching Assistant

Philosophical Perspectives on the Individual, University of Arizona (Terry Horgan, Spring 2017)
Practical Thinking, University of Arizona (Jonathan Weinberg, Spring 2016)
Mind, Matter, and God, University of Arizona (Terry Horgan, Fall 2015)

Justice and Virtue, University of Arizona (Michael Gill, Spring 2015)
Logic, Tufts University (Susan Russinoff, Fall 2013)
Philosophy of Language, Tufts University (Dilip Ninan, Spring 2013)

Graduate Coursework

Philosophy of Mind/Cognitive Science

Philosophy of Mind, University of Arizona (Terry Horgan, Fall 2016)
Introduction to Machine Learning, University of Arizona (Clayton Morrison, Fall 2015)
Computational Cognitive Neuroscience, University of Arizona (Robert Wilson, Fall 2015)
Knowledge and Cognition, University of Arizona (Juan Comensaña, Fall 2015)
Artificial Intelligence, University of Arizona (Clayton Morrison, Spring 2015)
Philosophy of Mind, University of Arizona (Jonathan Weinberg, Spring 2015)
Philosophy and Cognitive Science, University of Arizona (Shaun Nichols, Fall 2014)
Intuitions (Independent Study), Tufts University (Daniel Dennett, Fall 2013)
Chomsky, Tufts University (Jody Azzouni, Spring 2013)
Semantics, Tufts University (Ray Jackendoff, Spring 2013)
Foundations of Cognitive Science, Tufts University (Daniel Dennett, Fall 2012)

Philosophy of Science

Philosophy of Physical Science, University of Arizona (Richard Healey & Jenann Ismael, Fall 2016)
Philosophy of Science, Tufts University (George Smith, Spring 2014)
Nature and Norms, Tufts University (Mario De Caro, Fall 2012)

Moral Psychology/Value Theory

Moral Philosophy, University of Arizona (Julia Annas, Spring 2015)
Social Norms, University of Arizona (Gerald Gaus, Fall 2014)
Cultural Evolution, Tufts University (Daniel Dennett, Spring 2014)
Evolution of Minds and Morals, Tufts University (Patrick Forber, Spring 2014)

References

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Terrence Horgan
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Jenann Ismael
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Jonathan Weinberg
Associate Professor of Philosophy
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