

Philip S. Chodrow

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I am an applied mathematician working on problems in complex systems theory and quantitative social science. I use information theory, statistics, and dynamical systems theory to learn about inequality, segregation, and modernity. I am also passionate about teaching, and putting powerful tools in the hands of those who aim to change the world for the better. I make regular contributions to the Boston nonprofit community, and organize a by-students-for-students course in statistical computing at MIT.

Education

2015-		Ph.D. Candidate in Operations Research, MIT. Expected graduation May, 2020.
2008-12		B.A. with High Honors in Pure Mathematics and Philosophy, Swarthmore College

Recognitions and Honors

2017-20		NSF Graduate Research Fellowship supporting research in modeling difference, disparity, and group dynamics in cities.
2012		Fulbright Scholarship supporting a year of research in Oslo, Norway.
2012		Ivy Award “recognizing the man of the graduating class who is outstanding in leadership, scholarship, and contributions to the college community.”
2012		Brinkmann Award recognizing “the best student paper on a mathematical subject.”
2012		Phi Beta Kappa inducted member.
2010		Eugene Lang Summer Initiative Grant , supporting a summer of undergraduate research.

Papers

2016		Chodrow, P. S. (2016). The Structure of Spatial Segregation. <i>Working paper</i>
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- Chodrow, P. S., Awwad, Z., Jiang, S., and González, M. C. (2016a). Demand and Congestion in Multiplex Transportation Networks. *PLoS ONE*, 11(9):1–10
- Chodrow, P. S., Mannherz, W., and Michaelson, J. (2016b). How We Grow. *Working paper*

Research Talks

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| 2016 | An Information Theoretic Lens on Urban Diversity. <i>2016 Conference on Complex Systems</i> , Amsterdam, Netherlands |
| | Demand and Congestion in Multiplex Transportation Networks. <i>2016 Conference on Complex Systems</i> , Amsterdam, Netherlands |
| 2013 | Relativism, Cooperation, and the Practice of Inquiry. <i>Conference on the Metaphysics of Culture</i> , Helsinki, Finland. |
| 2013 | The Right Way to Care About the Truth. <i>Filosofisk Supplement</i> , the student philosophical society at the University of Oslo, Oslo, Norway. |

Teaching and Mentorship

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| 2017- | Recitation Leader: MIT Course 1.204, “Computer Modeling: From Individual Mobility to Networks” with Marta González. |
| 2017 | Organizer: “Computing in Optimization and Statistics”, student-taught January term course at MIT. |
| 2017 | Instructor: “Advanced Topics in Data Science”, 3-Hour workshop session at MIT. |
| 2016 | Group Co-Leader: Workshop in Predictive Policing at the Institute for Computational and Experimental Research in Mathematics, Providence, RI. |
| | Instructor: “Data Wrangling in R” at MIT’s January course “Software Tools in Statistics and Optimization.” |
| 2010-12 | Mathematics Academic Support at Swarthmore College, Swarthmore PA. |
| 2009-12 | Writing Mentor at Swarthmore College, Swarthmore PA. Paper areas including philosophy, mathematics, English, sociology, and anthropology. Worked in-depth over a full year with two students writing senior theses. |
| 2012 | Teaching Assistant for intermediate-level course on the philosophy of Plato at Swarthmore College, Swarthmore PA. |

Academic Service

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| 2017- | Program Committee Member. Conference on Complex Systems, Cancun, Mexico. |
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Research & Professional Experience

2015-	Group Member , Human Mobility and Networks Laboratory at MIT, Cambridge MA. Supervised by Marta González.
2013-15	Analyst , Health Leads, Boston MA
2012-14	Research Assistant , Laboratory for Quantitative Medicine
2012-13	Visiting Researcher , Center for the Study of Mind in Nature, Oslo, Norway
2011-12	Senior Honors Thesis in philosophy, entitled <i>Perception and Moral Goodness</i> , Swarthmore College.
2010	REU Fellow in matrix analysis, College of William and Mary, Williamsburg VA.
2009	Research Assistant in theoretical plasma physics, James Madison University, Harrisonburg VA.

Community Service

2015 -	Analytics Consultant , Health Leads, Boston MA
2014	Analytics Consultant , Tech Networks of Boston Pro Bono Consulting Evening
2010-12	Cofounder and Director , NinjaGram Charities, Swarthmore College, Swarthmore MA
2011-12	Assistant Children's Instructor , Aikido Kokikai of Swarthmore, Swarthmore PA
2008-12	Cofounder and Director , Swarthmore Martial Arts Club, Swarthmore PA

Skills

Languages: English (native), German (reading and listening), Norwegian Bokmal (reading and listening)

Software: R, Python, Maple, L^AT_EX, Linux, Jekyll, Matlab

Other Activities

Aikido (Aikikai). Current rank: 2nd Kyu

Taekwondo (ITF). Current rank: 1st Dan.

Chess. Current Elo: 1937. Virginia High School co-Champion, 2008.