Daniel E. Rigobon

CONTACT INFORMATION

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EDUCATION

Princeton University, Princeton, NJ
Candidate for Ph.D. in ORFE, 2018-Present

- Relevant Coursework: Probability in High Dimensions, Stochastic Calculus, PDE Methods for Financial Mathematics, Statistical Foundations of Data Science, Convex and Conic Optimization.
- Research Interests: Network Estimation, Dynamical Networked Systems, Network Control and Optimization, Systemic Risk, Algorithimic Fairness.
- Cumulative GPA: 3.97

Massachusetts Institute of Technology, Cambridge, MA
B.S. Mechanical Engineering, June 2018

- Minors in Economics, Statistics
- Thesis: *Models of Entrainment of Human Walking*
- Cumulative GPA: 4.8

TEACHING EXPERIENCE

Princeton University

TA for ORF526 (Probability Theory)	Fall 2019, 2021
TA for ORF387 (Networks)	Spring 2020, 2022
TA for ORF455 (Energy and Commodity Markets)	Fall 2020
TA for ORF473 (Fintech and Data Driven Innovation)	Spring 2021
STWG (Senior Thesis Writing Group)	Fall 2019 - Spring 2022

- Assisted undergraduate thesis work with workshops, weekly office hours, and guidance throughout their research process.

Garden State Youth Correctional Facility
Teacher for COMP102 (Computer Literacy) — Fall 2021

First Republic Bank, Research and Lifelong Learning
Teacher of Optimization Workshop — Oct. 2022

RESEARCH EXPERIENCE

Princeton University
Ph.D. Student — 2018 - Present

- Studying the optimization of network structures to drive consensus-forming (Rácz and Rigobon, 2022).
- Studying models of systemic risk propagation in financial networks (Rigobon and Sircar, Working Paper).
- Proposing a novel framework of procedural algorithmic fairness in learning models.

Fields Institute: Focus Program on Systemic Recovery
PhD Participant — April 2021

- Designed a webscraping pipeline to detect business entry and exits in Canada using Google Places API. (Rigobon et al., 2022; Duprey et al. Working Paper)

- Highlighted the tradeoff between efficiency and resilience of socioeconomic systems through Macroeconomic Agent-Based Models.
- Presented results at Fields' Symposium for Systemic Recovery.

State Street Associates
Portfolio Risk and Research Intern — Summer 2020
- Studied the relationship between centrality of global financial institutions and volatility.
- Communicated findings to clients through monthly newsletters and short research summaries.
- Contributed to new group mentorship and sponsorship programs in State Street's Global Markets Division.

MIT Media Lab
Research Assistant in 'Human Dynamics' — 2017 - 2018
- Analyzed network game data in Python to study effects of social influence.
- Participated in the 'Fragile Families Challenge' of predicting out-of-sample outcomes from social science data using machine learning and data science methods. (Rigobon et al. 2019; Salganik et al, 2020)
- Trained Convolutional Neural Nets on Satellite Imagery to improve targeting of conditional cash transfer programs in Mexico City.

Newman Biomechanics Laboratory
Undergraduate Research Assistant — 2016 - 2018
- Developed an energy-based controller to replicate experimental entrainment behavior in human walking. (Rigobon, 2018; Rigobon et al, 2017)
- Submitted findings for publication and presentation at ASME DSCC 2017.

Honors and Awards

Participant in Extended Problem Solving Workshop on Systemic Recovery, Fields Institute; 2021

President's Fellowship (for interdisciplinary research), Princeton University; 2018

John C. and Elizabeth J. Chato Award (for excellence in Bioengineering), MIT; 2018

Member of Pi Tau Sigma (mechanical engineering honors society), MIT; 2017-2018

AMP Inc. Award (for excellence in 2.002), MIT; 2016

Working Papers

(Publications with * indicate authors are sorted by contribution)

*T. Duprey, D. E. Rigobon, A. Kotlicki, P. Schnattinger; *Business Closures and (Re) Openings in Real Time Using Google Places*; Bank of Canada; 2022.

M. Rácz, D. E. Rigobon; *Towards Consensus: Reducing Polarization by Rewiring Social Networks*; arXiv:2206.08996; 2022.

D. E. Rigobon, R. Sircar; *Optimal Systemic Portfolio Allocation Under Liquidity Risk*; 2022.

Peer-Reviewed Publications

*D. E. Rigobon, T. Duprey, A. Kotlicki, P. Schnattinger, S. Baharian, T. R. Hurd; *Business Closures and (Re) Openings in Real-Time Using Google Places: Proof of Concept*; Journal of Risk and Financial Management; 2022.

B. Jiang, D. E. Rigobon, R. Rigobon; *From "Just in Time" to "Just in Case": Simple Models of Global Supply Chains and Aggregate Shocks*; IMF Economic Review; 2021.

*M. Salganik et al.; *Measuring the Predictability of Life Outcomes with a Scientific Mass Collaboration*; Proceedings of the National Academy of Sciences; 2020.

*D. E. Rigobon, E. Jahani, Y. Suhara, K. AlGhoneim, A. Alghunaim, A. Pentland, A. Almaatouq; *Winning Models for GPA, Grit, and Layoff in the Fragile Families Challenge*; Socius: Sociological Research for a Dynamic World; 2019.

D. E. Rigobon; *Models of Entrainment of Human Walking*; MIT Thesis; 2018.

*D. E. Rigobon, J. Lee, N. Hogan; *Effect of Stochastic Parameter Variation on Entrainment Behavior of a Stable Ankle-Actuated Walking Model*; MIT Undergraduate Research Journal; 2017.

*D. E. Rigobon, J. Ochoa, N. Hogan; *Entrainment of Ankle-Actuated Walking Model to Periodic Perturbations via Leading Leg Angle Control*; ASME Dynamics Systems and Controls Conference; 2017.

Presentations

Towards Consensus: Reducing Polarization by Rewiring Social Networks, Princeton Institute for Computational Science and Engineering (PICSciE) Graduate Colloquium. (April 2022)

Entrainment of Ankle-Actuated Mechanical Walker, ASME Dynamic Systems and Controls Conference. (October 2017)

Programming Languages

Fluent in: Python, R, LaTeX, MATLAB, HTML, CSS
Familiar with: Java, JavaScript, C++

References

(References with * indicate letter writers.)

*__Prof. Miklós Racz__, Assistant Professor, ORFE, Princeton University
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*__Prof. Ronnie Sircar__, Eugene Higgins Professor, ORFE, Princeton University
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*__Dr. Margaret Holen__, Lecturer, ORFE, Princeton University
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__Prof. Mykhaylo Shkolnikov__, Associate Professor, ORFE, Princeton University
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Prof. Alex Pentland, Toshiba Professor of Media Arts and Sciences, MIT
sandy@media.mit.edu

Prof. Abdullah Almaatouq, Douglas Drane Career Development Professor in Information Technology, MIT Sloan
amaatouq@media.mit.edu

Languages and Hobbies	Fluent in Spanish and English; Proficient in French. Interested in Ceramics, Music, Cooking, and Philosophy.