PHILIP SOLIMINE

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EXPERIENCE

Vancouver School of Economics, University of British Columbia

· Postdoctoral Fellow - VSE & Centre for Innovative Data in Economics Research 2022 - Present

Departments of Economics and Scientific Computing, Florida State University

· Charles & Persis Rockwood Fellow 2017-2022
· L. Charles Hilton Fellow 2020-2022
· Research Associate - XSFS Experimental Social Sciences Lab 2016-2017

EDUCATION

Florida State University

PhD Economics July 2022
Dissertation: Economic behavior in dynamic networks
Committee: Matthew Gentry (co-chair), Luke Boosey (co-chair), Cynthia Yang, R. Mark Isaac

MS Scientific Computing July 2022
Thesis: Optimal control for networked moments
Committee: Anke Meyer-Baese (chair), Max Gunzburger, Paul Beaumont

MS Economics Dec 2018
BA Mathematics (minor in Physics) Dec 2016
BS Economics (minor in Computer Science) Dec 2016

RESEARCH

Working Papers

· **Strategic formation of collaborative networks** (with Luke Boosey) (*submitted*)
· Investment incentives and regulatory distortion in natural gas pipelines (with Paul Schrimpf) (*contact for draft*)
· Optimal platform design for managing misinformation in social networks (with Wei Li) (*contact for draft*)
· Barriers to entry and network effects with dynamic community structure (with Angelo Mele) (*contact for draft*)

Publications

1. **Solimine, P.** and Isaac, RM. (2023). Reputation and market structure in experimental platforms. *Journal of Economic Behavior & Organization*, 205, 528-559. Elsevier.
2. Dunkle, B., Isaac, RM., and **Solimine, P.** (2022). The robustness of lemons in experimental markets. *Experimental Law and Economics.* Research in Experimental Economics, Vol. 21, Emerald.
3. **Solimine, P.** and Meyer-Baese, A. (2022). Input design for the optimal control of networked moments. *Proceedings of the 61st IEEE Conference on Decision and Control (CDC).* 5894-5901. IEEE.

Pre-Doctoral Publications

4. **Solimine, PC.** (2021). Network controllability metrics for corruption research. *Corruption Networks.* Understanding Complex Systems. Springer.
5. **Solimine, PC.** (2020). Political corruption and the congestion of controllability in social networks. *Applied Network Science* (Vol. 5, p. 23). Springer.
6. Tahmassebi, A., Mohebali, B., **Solimine, P.**, Meyer-Baese, U., Pinker, K., & Meyer-Baese, A. (2019, May). Model reduction of structural biological networks by cycle removal. *Proceedings of the SPIE: Smart Biomedical and Physiological Sensor Technology XVI* (Vol. 11020, pp. 105-112). SPIE.
7. Tahmassebi, A., Mohebali, B., Meyer-Baese, L., **Solimine, P.**, Pinker, K., & Meyer-Baese, A. (2019, May). Determining driver nodes in dynamic signed biological networks. *Proceedings of the SPIE: Smart Biomedical and Physiological Sensor Technology XVI* (Vol. 11020, pp. 53-60). SPIE.

SKILLS AND TECHNICAL EXPERTISE

Programming Languages	Python, C/C++, Julia, R, SQL, MATLAB, Stata
Machine Learning	JAX, PyTorch, TensorFlow, Scikit-learn
Big Data Tools	Hadoop, Spark, MPI, CUDA
Specialties	Networks, Machine Learning, Structural Estimation, Causal Inference, A/B Testing, Experimentation, Industrial Organization, Dynamic Games
Software Tools	Git, Docker, Kubernetes, VS Code, JIRA

PROJECTS

- **Barriers to entry and network effects with dynamic community structure** (with Angelo Mele)
  Explore the relationship of pricing with usage, engagement dynamics, and social network evolution in a popular digital platform. Use mean-field equilibrium and variational approximations to estimate demand with dynamic and structured network effects, solving a massive dynamic network formation game with entry and exit. Simulate counterfactuals to investigate the effects of reduced entry costs on social network dynamics.

- **Viral dynamics and coordinated promotion in digital platforms** (with Matthew Gentry)
  Estimate price sensitivities, price dispersion and consumer dynamics on large platform markets for PC video games. Document a pattern of pricing strategies that use temporary promotions to create lasting demand. Develop a structural econometric model to characterize firm pricing strategy in competitive video game markets characterized by a small number of highly central firms.

- **Investment incentives and misallocation in resource transmission networks: The case of US natural gas pipelines** (with Paul Schrimpf)
  Investigate the relationship between price regulation and development investment incentives in the U.S. natural gas pipeline network. Structurally estimate the impact of regulation pipeline network resilience and reliability. Use doubly robust machine learning to causally identify regulatory costs and inefficiencies in a novel empirical framework.

- **Robustness and regulation in the face of adversarial discord** (with Wei Li and Jesse Perla)
  Apply control theoretic tools to social science problems to understand network robustness and manipulation in digital social networks. Characterize the incentives of network operators to incorporate robust control principles in network design. Develop open-source tools for networked platforms to counter manipulation through information design.

TEACHING

University of British Columbia

- **ECON 622 Computational Economics (PhD) (instructor)** 2023-
  Topics covered: Graphical models, MCMC, Gibbs sampling, Probabilistic programming, Frequentist and Bayesian inference, Dynamic discrete choice, Machine learning, NLP
- **ECON 526 Quantitative Economics (MA) (instructor)** 2023-
  Topics covered: Research design, Statistical inference, Directed Acyclic Graphs, Causal inference, Experiment design, Data ethics
- **ECON 323 Quantitative Economic Modeling and Data Science (instructor)** 2022-
  Topics covered: Programming fundamentals in Python, Data engineering with Pandas, Data science tools, Applied linear algebra, Numerical methods, Visualization, Machine learning, Network economics

Florida State University

- **ECO 4400 Games and Decisions (instructor)** 2020 (online), 2021
  Topics covered: Decision theory, Optimization, Decision under risk, Nash equilibrium, Stategy, Industrial organization, Cournot competition, Bertrand competition, Dynamic games, Auctions
- **ECO 2023 Principles of Microeconomics (instructor)** 2019
  Topics covered: Opportunity cost, Marginal cost and marginal benefit, Supply and demand, Revenue and cost curves, Profits and utility, Equilibrium, Introduction to game theory
- **ECO 5434 Analysis of Economic Data (MS) (guest lecturer)** 2022
  Topics covered: Social and economic networks

AWARDS & GRANTS

- Postdoctoral Fellowship, Vancouver School of Economics 2022-
- Charles & Persis Rockwood Doctoral Research Fellowship 2017-2022
- L. Charles Hilton Center Research Fellowship 2020-2022
- FSU Open Access Publishing Grant 2020
- L. Charles Hilton Center Summer Research Fellowship 2019-2021
- FSU College of Social Sciences and Public Policy Research Support Grant 2019

CONFERENCE TALKS & PRESENTATIONS

- **2024**: UBC Sauder Industrial Organization Workshop, Conference of Network Science in Economics, INFORMS
- **2023**: International Industrial Organization Conference; UBC Econometrics Seminar
- **2022**: IEEE Conference on Decision and Control, UBC Econometrics Group (invited); Conference of Network Science in Economics (×2); FSU Computational Xposition; FSU Quantitative Methods Group; FSU Microeconomic Theory Seminar
- **2021**: Conference of Network Science in Economics; Economic Science Association Job-Market Candidates Seminar; North American Meeting of the Economic Science Association; Networks 2021 (NetSci and Sunbelt); Conference of the Southern Economic Association; FSU Experimental Seminar
- **2020**: NetSci 2020 (invited); Network Science in Economics; Global Meeting of the Economic Science Association; FSU Computational Xposition; FSU Experimental Seminar
- **2019**: Caltech Symposium in Honor of Charles R. Plott (invited); Conference of the Southern Economic Association; NetSci 2019; FSU Experimental Seminar

PROFESSIONAL REFERENCES

Paul Schrimpf
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