PHILIP SOLIMINE

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EXPERIENCE

Vancouver School of Economics, University of British Columbia

· Postdoctoral Fellow - 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   Drafts available on www.psolimine.net

· Investment incentives and misallocation in infrastructure networks: The case of U.S. natural gas pipelines (with Paul Schrimpf)

· Strategic formation of collaborative networks (with Luke Boosey) (*submitted*)

· Coarse targeting and strategic moderation in social networks (with Wei Li)

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.

PROJECTS

- **Investment incentives and misallocation in infrastructure networks: The case of U.S. natural gas pipelines** (with Paul Schrimpf)
  Investigating the relationship between price regulation and development investment incentives in the U.S. natural gas pipeline network. Understanding how these incentives impact pipeline network resilience and reliability through spectral graph theory. Using doubly robust machine learning and nonparametric methods 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)
  Continuing my line of published work that applies control theoretic methods to social science problems and understanding network robustness and manipulation. Characterizing the incentives of network operators to incorporate robust control principles in network design. Developing tools for networked platforms to counter manipulation through information design.

- **Barriers to entry and network effects with dynamic community structure** (with Angelo Mele)
  Exploring the relationship of pricing with usage and engagement dynamics along with social network evolution in a popular digital platform. Estimating demand with dynamic and structured network effects by approximating demand with a massive dynamic network formation game.

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

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

SKILLS & TECHNICAL EXPERTISE

Programming Languages	Python, C/C#/C++, Julia, R, Matlab, SQL, Stata
Software & Tools	JAX, Pytorch, TensorFlow, MPI, OpenMP, CUDA
Specialties	Machine learning, Causal inference, Structural econometrics, High-performance computing, Game design, A/B testing, Cybernetics, Neurocomputing, Computer vision, Artificial intelligence, Data science, Optimization, Deep learning, Probabilistic programming, Experimentation, High-dimensional statistics, Computational game theory

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 ($\times 2$); 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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