YU LUO

University of Delaware, 150 Academy St., Newark, DE 19716
https://l16cn.github.io

EDUCATION

Columbia University, Graduate School of Arts and Sciences 02/2017
Doctor of Philosophy, Chemical Engineering

Columbia University, Fu Foundation School of Engineering and Applied Science 05/2012
Master of Science, Chemical Engineering
Full GPA

National University of Singapore, Faculty of Engineering 06/2011
Bachelor of Engineering, Chemical Engineering
First Class Honors

PUBLICATIONS

Yu Luo, Garud Iyengar, and Venkat Venkatasubramanian. Social influence makes self-interested crowds smarter: an optimal control perspective. *IEEE Transactions on Computational Social Systems*, 5(1):200–209, March 2018

Yu Luo, Garud Iyengar, and Venkat Venkatasubramanian. Soft regulation with crowd recommendation: coordinating self-interested agents in sociotechnical systems under imperfect information. *PLoS ONE*, 11(3):e0150343, 2016

Venkat Venkatasubramanian, Yu Luo, and Jay Sethuraman. How much inequality in income is fair? A microeconomic game theoretic perspective. *Physica A: Statistical Mechanics and its Applications*, 435:120–138, 2015. **Featured by the "ScienceDirect Top 25 List of Most Downloaded Articles"**

Richard Bookstaber, Paul Glasserman, Garud Iyengar, Yu Luo, Venkat Venkatasubramanian, and Zhizun Zhang. Process systems engineering as a modeling paradigm for analyzing systemic risk in financial networks. *The Journal of Investing*, 24(2):147–162, 2015

Yu Luo, Robert J. Lovelett, J. Vincent Price, Devesh Radhakrishnan, Kristopher Barnthouse, Gene Schaefer, John Cunningham, Ping Hu, Kelvin H. Lee, and Babatunde A. Ogunnaike. Multiscale modeling of antibody production and glycosylation for improved upstream process design. In preparation[1]

AWARDS AND HONORS

SSRN Top Ten List (4) 08/2017–10/2017

Elsevier Outstanding Contribution in Reviewing 07/2017

AIChE CAST Division Director's Student Presentation Award (Finalist) 05/2016

ScienceDirect Top 25 List of Most Downloaded Articles 06/2015

Undergraduate Degree with First Class Honors 06/2011

National University of Singapore Dean's List (3) 08/2007–06/2011

[1] My postdoctoral research involves a close collaboration with a major pharmaceutical company and lengthy internal reviews are required to protect the company's intellectual properties. This manuscript is listed here because I believe that it would have been otherwise published.

EXPERIENCE

University of Delaware, Chemical and Biomolecular Engineering 06/2017–Present
Postdoctoral Researcher *Newark, DE*

- **Advisors**: Prof. Babatunde Ogunnaike and Prof. Kelvin Lee
- Developed a predictive model of antibody and glycosylation for Chinese hamster ovary (CHO) cells
- Collaborated closely with a major pharmaceutical company and their upstream research scientists
- Implemented an algorithmic decision-making tool to meet production and product quality targets
- Created an empirical model to study amino acid and trace metal effects on cell growth and glycosylation
- Optimized MATLAB codes and made them run 60 times faster than the previous version

Columbia University, Chemical Engineering 09/2011–05/2017
Doctoral Student (2011–2016) and Postdoctoral Researcher (2017) *New York, NY*

- **Advisors**: Prof. Venkat Venkatasubramanian and Prof. Garud Iyengar
- **Dissertation**: Multi-agent control in sociotechnical systems
- Designed control-theoretic soft feedback mechanisms that could make intelligent crowds "smarter"
- Discovered deep connections through game theory between income inequality and thermodynamics
- Conducted behavioral research experiments on social influence with human subjects
- Developed a data-driven early warning system to predict mine accidents based on regulatory data
- Applied process hazard analysis (signed digraph) to identifying vulnerabilities in financial networks
- Worked with Prudential Financial on a financial statement-based risk measure for insurers and banks
- Implemented an agent-based model to understand high-frequency trading and its market impacts
- Modeled collective dynamics of multiple interacting and intelligent agents
- Managed website and assisted in organizing three university-level symposia and workshops
- Collaborated with both world-class scholars and executive-level practitioners on systemic risk research
- Led multiple interdisciplinary research teams of graduate and undergraduate students
- Guest-lectured graduate-level courses including "Managing Systemic Risk in Complex Systems"

PNC Bank 08/2015–12/2015
Quantitative Analyst Intern *New York, NY*

- **Manager**: Dr. Brian Burk
- Supervised two graduate students and collaborated with finance professionals at PNC Bank
- Built an operational risk model based on the loss distribution approach

Singapore-MIT Alliance, Environmental Sensing and Modeling 05/2010–06/2011
Undergraduate Research Assistant *Singapore*

- **Advisor**: Prof. Wing-Keung Law
- Modeled and simulated sand sedimentation dynamics
- Improved image processing algorithm and numerical model for sand sedimentation experiments

PROFESSIONAL SERVICE

Journal of Computers and Chemical Engineering 12/2012–Present
Outstanding Reviewer *New York, NY*

· Reviewed 20+ manuscripts on fault detection, fault diagnosis, optimization, risk management, etc.

Columbia University, Center for the Management of Systemic Risk 12/2012–05/2017
Webmaster and Event Assistant *New York, NY*

· Designed print media, assisted event logistics, and facilitated coordination between schools
· Assisted organizing Symposium on the Management of Systemic Risk in Finance
· Assisted organizing Symposium on Managing Systemic Risk in Energy, Environment, and Infrastructure
· Assisted organizing Workshop on Systemic Risk in Insurance

TECHNICAL STRENGTHS

Language	Python, R, MATLAB, JavaScript, SQL, LISP, HTML, and LaTeX
Simulation	SimuLink, COMSOL, NetLogo, and Aspen HYSYS
Media	Adobe Photoshop, Adobe Illustrator, Adobe Premiere, and Adobe After Effects
Graphic Design	Vector art, brochure design, and event poster
Traditional Art	Portrait painting, calligraphy, and piano
Creative Art	Musical composition, song writing, and video editing