YU LUO

University of Delaware | 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. A one-third advice rule based on a control-theoretic opinion dynamics model. *IEEE Transactions on Computational Social Systems*, 6(3):576–581, June 2019

Venkat Venkatasubramanian, Yu Luo, and Zhizun Zhang. Control of complex sociotechnical systems: importance of causal models and game theory. *Computers & Chemical Engineering*, 123:1–11, 2019

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

Garud Iyengar, Yu Luo, Shivaram Rajgopal, Venkat Venkatasubramanian, and Zhizun Zhang. Towards a financial statement based approach to modeling systemic risk in insurance and banking. *Columbia Business School Research Paper*, 17(177), 2017. Available at SSRN. **Featured by the "SSRN Top Ten List" in Banking and Insurance; Risk Management and Analysis in Financial Institutions; Risk Management; and Financial Crises categories**

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

RESEARCH

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

- **Advisors**: Prof. Babatunde A. Ogunnaike and Prof. Kelvin H. Lee
- Modeling antibody production and glycosylation processes
- Design and control of antibody production and glycosylation processes

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
- Multi-agent control in sociotechnical systems
- Income inequality through population games and statistical mechanics
- Managing systemic risk in finance, public health, mining using data science and systems techniques

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

- **Manager**: Dr. Brian Burk
- Measuring operational risk through loss distribution approach

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

- **Advisor**: Prof. Adrian Wing-Keung Law
- Modeling sand sedimentation dynamics

TEACHING

Managing Systemic Risk in Complex Systems (Graduate) Spring 2016
Guest Lecturer Columbia University

Managing Systemic Risk in Complex Systems (Graduate) Fall 2015
Guest Lecturer Columbia University

Molecular Phenomena (Undergraduate) Spring 2012
Teaching Assistant Columbia University

Thermodynamics (Undergraduate) Fall 2011
Teaching Assistant Columbia University

PRESENTATIONS

Yu Luo. Systems and advanced decisions: from biomanufacturing to opinion dynamics applications. Imperial College London, London, U.K., June 2019. Invited seminar

Yu Luo. Systems and advanced decisions: from biomanufacturing to opinion dynamics applications. Clarkson University, Potsdam, NY, June 2019. Invited seminar

Yu Luo. Systems and advanced decisions: from biomanufacturing to opinion dynamics applications. Stevens Institute of Technology, Hoboken, NJ, March 2019. Invited seminar

Yu Luo. Systems and advanced decisions: from biomanufacturing to opinion dynamics applications. University of Waterloo, Waterloo, ON, Canada, March 2019. Invited seminar

Yu Luo, J. Vincent Price, Robert J. Lovelett, 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 *ACS National Meeting & Expo*, Orlando, FL, April 2019. Oral presentation

Yu Luo, J. Vincent Price, Robert J. Lovelett, 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 *Biotherapeutics and Vaccines Development (Gordon Research Conference)*, Galveston, TX, January 2019. Poster presentation

Yu Luo, J. Vincent Price, Robert J. Lovelett, Devesh Radhakrishnan, Kristopher Barnthouse, Gene Schaefer, John Cunningham, Ping Hu, Kelvin H. Lee, Raghu Shivappa, and Babatunde A. Ogunnaike. Multiscale modeling of monoclonal antibody (mAb) production and glycosylation in a Chinese hamster ovary (CHO) cell culture process. In *AIChE Annual Meeting*, Pittsburgh, PA, October 2018. Oral presentation

Yu Luo. Process systems engineering and artificial intelligence for advanced manufacturing: including applications to biopharmaceuticals. In *AIChE Annual Meeting*, Pittsburgh, PA, October 2018. Poster presentation

Yu Luo, J. Vincent Price, Robert J. Lovelett, Devesh Radhakrishnan, Kristopher Barnthouse, Gene Schaefer, John Cunningham, Ping Hu, Kelvin H. Lee, Raghu Shivappa, and Babatunde A. Ogunnaike. Multiscale modeling of monoclonal antibody (mAb) production and glycosylation in a CHO cell culture process. In *AMBIC Semiannual Meeting*, Fremont, CA, June 2018. Poster presentation

Yu Luo, J. Vincent Price, Robert J. Lovelett, Devesh Radhakrishnan, Kristopher Barnthouse, Gene Schaefer, John Cunningham, Ping Hu, Kelvin H. Lee, Raghu Shivappa, and Babatunde A. Ogunnaike. Multiscale modeling of monoclonal antibody (mAb) production and glycosylation in a CHO cell culture process. In *Cell Culture Engineering XVI*, Tampa, FL, May 2018. Poster presentation

Yu Luo, Garud Iyengar, and Venkat Venkatasubramanian. Control with soft feedback in social systems: mathematical principles, empirical evidence, and applications. In *AIChE Annual Meeting*, Minneapolis, MN, November 2017. Oral presentation

Yu Luo, Ashutosh Nanda, Shivaram Rajgopal, Vinay Ramesh, Zhizun Zhang, Catherine Zhao, and Venkat Venkatasubramanian. A data-driven early warning system for mining accidents. In *Global Congress on Process Safety*, San Antonio, TX, March 2017. Oral presentation

Yu Luo, Garud Iyengar, and Venkat Venkatasubramanian. The control of self-interested agents: learning from nature's wisdom of crowds. In *AIChE Annual Meeting*, San Francisco, CA, November 2016. Oral presentation. **Finalist and travel grant recipient for the AIChE CAST Division Director's Student Presentation Award**

Yu Luo, Richard Bookstaber, Paul Glasserman, Garud Iyengar, Zhizun Zhang, and Venkat Venkatasubramanian. Process systems engineering beyond chemical plants: signed digraph as a modeling tool for analyzing systemic risk in financial networks. In *AIChE Annual Meeting*, San Francisco, CA, November 2016. Oral presentation

Yu Luo, Garud Iyengar, and Venkat Venkatasubramanian. Soft regulation: coordinating distributed self-interested agents in sociotechnical systems. In *AIChE Annual Meeting*, Atlanta, GA, November 2014. Oral presentation

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.

AIChE 11/2014–Present
Member *New York, NY*

· Severed as session chair for the Pharmaceutical Discovery, Development, and Manufacturing Forum

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