Renyuan Xu

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POSITION

University of Oxford *September 2019 -*
Hooke Research Fellow, Mathematical Institute, Oxford

EDUCATION

University of California, Berkeley *August 2014 - August 2019*
Ph.D., Industrial Engineering and Operations Research Department
Overall GPA: 4.0/4.0
Thesis Title: Stochastic Games: Nash Equilibrium, Pareto Optimality, Price of Anarchy, and Learning
Advisor: Xin Guo

University of Science and Technology of China *August 2010 - June 2014*
B.S. Mathematics — Overall GPA: 4.01/4.3

University of Sydney *August 2012 - December 2012*
Exchange Student, Mathematics Department — Overall GPA: 4.00/4.00

RESEARCH INTERESTS

- Stochastic Modeling, Stochastic Control and Stochastic Games
- Statistical Learning with Applications in Big Data
- Reinforcement Learning and Data-driven Decision Making
- Mathematical Finance, Market Microstructure and High Frequency Trading

HONORS

- Outstanding Graduate Instructor, UC Berkeley — March, 2019
- Finalist, Applied Probability Society Best Paper Competition INFORMS 2018 — November, 2018
- Second Place, Citadel Data Competition, Berkeley — September, 2018
- Berkeley IEOR Summer Research Grant — 2018
- Berkeley IEOR First Year Fellowship — 2014-2015
- National Scholarship in China (2% of the department) — 2013-2014
- UCLA Summer School Fellowship — 2013
- National Scholarship in China (2% of the department) — 2012-2013

RESEARCH

- X. Guo, R. Xu. "Stochastic games for fuel followers problem: N vs MFG," *SIAM Journal of Control and Optimization*, 2019.
- X. Guo, A. Hu, R. Xu and J. Zhang. "Learning mean field games," Accepted *NeurIPS*, 2019.
- Z. Zhou, R. Xu and J. Blanchet. "Learning in generalized linear contextual bandits with stochastic delays," Accepted *NeurIPS*, 2019.
- X. Guo, W. Tang, and R. Xu. "A class of stochastic games and moving free boundary problems," Major revision, *SIAM Journal of Control and Optimization*, 2019.
- X. Guo, A. Hu, R. Xu and J. Zhang. "Consistency and computation of regularized MLEs for multivariate Hawkes processes," Working paper, 2019.
  - Short version accepted by NeurIPS 2018 Workshop on Causality.

- X. Guo, CA Lehalle, and R. Xu. "Transaction cost data analytics for corporate bonds," Submitted, 2019.
- X. Guo, R. Xu. "Pareto optimality and price of anarchy for a class of stochastic games," Preprint, 2019.
- R. Almgren, R. Xu. "Smart order routing via statistical learning method," Working paper, 2018.

INDUSTRY EXPERIENCE

Quantitative Researcher Intern June 2017 - August 2017
Quantitative Brokers, New York, NY

- Apply statistical learning techniques to build an ensemble model for the prediction of the probability of order fulfillments. Techniques include Random Forest, Gradient Boosting and Recurrent Neural Network.
- Model integrated in cash treasury market production system.

INVITED TALKS

- NeurIPS 2019, Vancouver, Canada. (December 2019)
- Mathematical Finance Seminars, London School of Economics and Political Sciences, UK. (December 2019)
- Mathematical Finance Seminars, Imperial College London, UK. (November 2019)
- Bielefeld Stochastic Afternoon, Bielefeld University, Germany. (October 2019)
- Informs Annual Meeting, Seattle, WA. (October 2019)
- 9^{th} Western Conference in Mathematical Finance, University of Southern California, Los Angeles, CA. (November 2018)
- Informs Annual Meeting, Phoenix, AZ. (November 2018)
  - Selected as one of the four finalists to present in the Applied Probability Society Best Student Paper Competition
- Mathematical Finance Seminars, University of Southern California, Los Angeles, CA. (September 2018)
- Probability and Computational Finance Seminars, Carnegie Mellon University, Pittsburgh, PA. (August 2018)
- Berkeley-Stanford Workshop on Mathematical and Computational Finance, Stanford, CA. (July 2018)
- Berkeley-Columbia Meeting in Engineering and Statistics, Columbia University, New York, NY. (April 2018)
- Probability Seminar, University of Science and Technology of China, Hefei, China. (December 2017)
- Informs Annual Meeting, Houston, TX. (October 2017)
- Fourth Annual Young Researchers Workshop on Data-driven and Decision Making, Cornell University, Ithaca, NY. (October 2017)

POSTER PRESENTATIONS

- Market Microstructure: The CFM-Imperial Workshop, London, UK. (December 2017)

REFEREE LIST

- Professor Xin Guo (IEOR Department, UC Berkeley)
- Professor Jim Pitman (Statistics Department, UC Berkeley)
- Dr Charles-Albert Lehalle (Capital Fund Management and Imperial College London)
- Dr Robert Almgren (Quantitative Brokers)

TEACHING EXPERIENCE

- Graduate Student Instructor: provide weekly discussion sessions, office hours, and homework solutions.
  - Capstone project mentor for IEOR master students, Spring 2018.
  - IEOR 222: Financial Engineering System (Graduate), Fall 2016/Spring 2018.
  - IEOR 241: Risk Modeling, Simulation, and Data Analysis (Graduate), Fall 2017.
  - IEOR 263B: Applied Stochastic Processes II (Graduate), Spring 2017.
  - IEOR 161: Operations Research II, Spring 2016.
  - E120: Introduction to Financial Economics, Fall 2015.
  - UGBA 103: Introduction to Finance, Summer 2015.

TECHNOLOGY SKILLS

- Programming:
  - Expert level at development in R, Python, Pandas, PostgreSQL.
  - Proficient at MATLAB, C, C++, Scala, Q/KDB+.
  - Experience with Spark.
- Optimization: CPLEX, AMPL.
- Database: Managing 10TB Finance Data for RADAR Lab.