Xiaofei Shi

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Positions

- **Term Assistant Professor,** Department of Statistics, Columbia University, New York, NY — July 2020 - now
- **Visiting Graduate Student,** Simons Institute, University of California Berkeley, Berkeley, CA — October 2018 - December 2018

Education

- **PhD in Mathematical Sciences,** — May 2020
  Carnegie Mellon University, Pittsburgh, PA
  Thesis title: "Equilibrium Asset Pricing and Transaction Costs"
  Supervisor: Prof. Johannes Muhle-Karbe
- **Master in Machine Learning,** — July 2019
  Carnegie Mellon University, Pittsburgh, PA
- **Master of Mathematics in Statistics,** — August 2015
  University of Waterloo, Canada
  Thesis title: "Supremum Location of Self-similar Stationary Increment Processes"
  Supervisor: Prof. Yi Shen
- **Bachelor of Science in Physics,** — July 2013
  Peking University, Beijing, China
- **Bachelor of Science in Statistics (Double Major),** — July 2013
  Peking University, Beijing, China

Research Interests

- Mathematical Finance, Market Microstructure, Equilibria and Liquidity Risk
- Stochastic Calculus and Forward-backward Stochastic Differential Equations
- Machine Learning, Game Theory with Applications in Strategyproof Conference Review
- Dynamical Systems, Reinforcement Learning and Compressed Sensing with Applications in Big Data

Preprints

- Johannes Muhle-Karbe, James Sefton, **Xiaofei Shi**: Dynamic Portfolio Optimization with Transaction Costs, 2021 (In progress, tentative title).
- Johannes Muhle-Karbe, **Xiaofei Shi**, Daran Xu, Zhanhao Zhang: Deep Learning Algorithms for an Equilibrium Model with Frictions, 2021 (In progress, tentative title).
- **Xiaofei Shi**, Daran Xu, Zhanhao Zhang: Deep Learning Algorithms for Portfolio Optimizations with Market Frictions, 2021 (In progress, tentative title).

- Agostino Cappoini, Johannes Muhle-Karbe, **Xiaofei Shi**: Liquidity Risk and Asset Prices, 2019 (In progress, tentative title).
- Johannes Muhle-Karbe, **Xiaofei Shi**, Chen Yang: An Equilibrium Model for the Cross-Section of Liquidity Premia, 2020 (Submitted). *arxiv.org/abs/2011.13625*.

Publications

- Lukas Gonon, Johannes Muhle-Karbe, **Xiaofei Shi**: Asset Pricing with General Transaction Costs: Theory and Numerics, 2020 (Forthcoming, Mathematical Finance). *arxiv.org/abs/1905.05027*.
- Yichong Xu, Han Zhao, **Xiaofei Shi**, Nihar B. Shah: On Strategyproof Conference Peer Review, IJCAI 2019 (*The 28th International Joint Conference on Artificial Intelligence*).
- **Xiaofei Shi**, David P. Woodruff: Sublinear Time Numerical Linear Algebra for Structured Matrices, AAAI 2019 (*The 33th Association for the Advancement of Artificial Intelligence conference*).
- Vasileios Nakos, **Xiaofei Shi**, David P. Woodruff, Hongyang Zhang: Improved Algorithms for Adaptive Compressed Sensing, ICALP 2018 (*The 45th International Colloquium on Automata, Languages and Programming*).

Invited Talks

- Broad Directions in Mathematical Finance, — Postponed
  Rutgers University, New Brunswick-Piscataway, NJ
- Conference on "Frictions in Finance" — Postponed
  Imperial College London, London, United Kingdom
- Conference on "Equilibrium Theory" — Postponed
  Imperial College London, London, United Kingdom
- Informs Annual Meeting — October 2021
  Anaheim, CA
- Berlin Workshop for Young Researchers on Mathematical Finance — August 2021
  Virtual Talk
- SIAM Annual Meeting — June 2021
  Virtual Conference (originally scheduled in Philadelphia, PA)
- SIAM Early Career Talk — April 2021
  Virtual Talk
- Financial Mathematics and Engineering Seminars — December 2020
  Hong Kong Consortium of Quantitative Finance, Virtual Seminar
- Warwick Stochastic Finance Seminars — November 2020
  University of Warwick, Virtual Seminar
- SIAM Annual Meeting — July 2020
  Virtual Conference (originally scheduled in Toronto, ON, Canada)
- Mathematical Finance Seminar — January 2020
  Columbia University, New York, NY

- The CFM-Imperial Workshop on "Market Microstructure" — December 2019
  HSBC Global Markets, London, United Kingdom
- Eastern Conference on Mathematical Finance — October 2019
  Boston University, Boston, MA
- Probability and Computational Finance Seminar — September 2019
  Carnegie Mellon University, Pittsburgh, PA
- Equilibria in Markets, Strategic Interactions, and Complex Systems — July 2019
  ZiF Bielefeld University, Bielefeld, Germany
- SIAM Mini Conference, — April 2019
  Carnegie Mellon University, Pittsburgh, PA
- Sublinear Algorithms and Nearest-Neighbor Search — November 2018
  Simons Institute, University of California Berkeley, Berkeley, CA

Professional Experience

- **ICAIF 2021 Women in AI and Finance**, November 2021, *Program Committee*
  Virtual Conference
- **Women in STEM Panel**, August 2021, *Panelist*
  Virtual Event, Columbia University
- **Women and Mathematics at CMU**, April 2019, *PhD Organizer*
  Department of Mathematical Sciences, CMU
- **Quantathon**, April 2019, *Judge*
  Department of Mathematical Sciences, CMU
- **Women and Mathematics at CMU**, April 2018, *Panelist*
  Department of Mathematical Sciences, CMU

Department Service

- **Admissions Committee** for Masters Program in Statistics, — November 2020 - Now
  Department of Statistics, Columbia University

Honors

- Statistics & Actuarial Science Chair's Award (University of Waterloo) — July 2015
- University of Waterloo Graduate Scholarship (University of Waterloo) — May 2015
- International Masters Student Award (University of Waterloo) — 2014 - 2015
- Mathematics Graduate Experience (University of Waterloo) — 2014 - 2015
- Excellent Undergraduate of China (Peking University) — July 2013
- Innovation Award (Peking University) — September 2013

Teaching Experience

Instructor

- At the undergraduate level, Columbia University
  - Fall 2021: *Applied Statistical Methods*
  - Fall 2020 & Fall 2021: *Linear Regression Models*
  - Spring 2020: *Statistical Machine Learning*
- In the Master of Arts in Statistics program, Columbia University
  - Fall 2020 & Fall 2021: *Linear Regression Models*
  - Spring 2020: *Statistical Machine Learning*

Teaching Assistant

- In the Master of Science in Computational Finance (MSCF) program, Carnegie Mellon University
  - Spring 2019 & Spring 2020: *Stochastic Calculus for Finance II*
  - Fall 2018 & Fall 2019: *Advanced Derivative Models*
  - Fall 2017: *Introduction to Fixed Income*
  - Fall 2015 & Spring 2016: *Numerical Methods*
- In the Bachelor of Science in Computational Finance (BSCF) program, Carnegie Mellon University
  - Spring 2017 & Spring 2018: *Continuous Time Finance*
  - Fall 2016: *Discrete Time Finance*
- In the Master of Mathematics in Statistics (MMath) program, University of Waterloo
  - Winter 2015: *Generalized Linear Models and Applications*
  - Fall 2014: *Stochastic Processes*
- At the undergraduate level, University of Waterloo
  - Spring 2015: *Advanced Level Probability*
  - Spring 2015: *Advanced Level Statistics*
  - Winter 2015: *Stochastic Processes*
  - Fall 2014: *Probability*