Xiaofei Shi

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Positions

- **Assistant Professor**, Department of Statistical Sciences, University of Toronto, Toronto, ON, Canada — July 2022 - now
- **Term Assistant Professor**, Department of Statistics, Columbia University, New York, NY, United States — July 2020 - June 2022
- **Visiting Graduate Student**, Simons Institute, University of California Berkeley, Berkeley, CA, United States — October 2018 - December 2018

Education

- **PhD in Mathematical Sciences,** — May 2020
  Carnegie Mellon University, Pittsburgh, PA, United States
  Thesis title: "Equilibrium Asset Pricing and Transaction Costs"
  Supervisor: Prof. Johannes Muhle-Karbe
- **Master in Machine Learning,** — July 2019
  Carnegie Mellon University, Pittsburgh, PA, United States
- **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, Stochastic Optimization and Stochastic Differential Equations
- Machine Learning, Transfer Learning, Reinforcement Learning and Deep Reinforcement Learning

Preprints

- Sebastian Jaimungal, Xiaofei Shi: Pricing of the Information (tentative title), 2023 (In progress).
- Johannes Muhle-Karbe, James Sefton, **Xiaofei Shi**: Managing Transaction Costs in Dynamic Trading, 2021 (Working paper).
- Agostino Capponi, Johannes Muhle-Karbe, **Xiaofei Shi**: Liquidity Risk and Asset Prices, 2019 (In progress).

Publications

- **Xiaofei Shi**, Daran Xu, Zhanhao Zhang: Deep Learning Algorithms for Hedging with Frictions, 2023 (Forthcoming, Digital Finance).
- Johannes Muhle-Karbe, **Xiaofei Shi**, Chen Yang: An Equilibrium Model for the Cross-Section of Liquidity Premia, 2022 (Forthcoming, Mathematics of Operations Research).
- Lukas Gonon, Johannes Muhle-Karbe, **Xiaofei Shi**: Asset Pricing with General Transaction Costs: Theory and Numerics, 2021 (Mathematical Finance 31 (2), 595-648).
- 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

- Recent Advances in Quantitative Finance — August 2023
  Hong Kong Polytechnic University, Hong Kong, China
- Statistical Society of Canada Annual Meeting 2023 — May 2023
  Carlton University, Ottawa, Ontario
- Young Talents in Actuarial Science and Quantitative Finance — April 2023
  University of Waterloo, Waterloo, Ontario
- Control and Optimization Seminar — February 2023
  University of Connecticut, Virtual Seminar
- World Online Seminars on Machine Learning in Finance — November 2022
  Virtual Talk
- Financial Mathematics Seminar — November 2022
  Princeton University, Princeton, NJ
- 6th Eastern Conference on Mathematical Finance — October 2022
  Rutgers University, New Brunswick, NJ
- 11th World Congress of the Bachelier Finance Society — June 2022
  Virtual Talk (originally scheduled in Hong Kong, China)
- Informs Annual Meeting 2021 — October 2021
  Anaheim, CA
- Berlin Workshop for Young Researchers on Mathematical Finance — August 2021
  Virtual Talk
- SIAM Annual Conference on Financial Mathematics and Engineering 2021 — 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 Conference on Financial Mathematics and Engineering 2020 — July 2020
  Virtual Conference (originally scheduled in Toronto, ON, Canada)
- Conference on "Frictions in Finance" — (Postponed) May 2020
  Imperial College London, London, United Kingdom
- Conference on "Equilibrium Theory" — (Postponed) May 2020
  Imperial College London, London, United Kingdom
- Broad Directions in Mathematical Finance, — (Postponed)April 2020
  Rutgers University, New Brunswick-Piscataway, NJ
- 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
- 4th 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
- Sublinear Algorithms and Nearest-Neighbor Search — November 2018
  Simons Institute, University of California Berkeley, Berkeley, CA

Professional Experience

- **3rd ACM International Conference on AI in Finance**, November 2022, *Program Committee*
  Hybrid Conference, New York City
- **11th World Congress of the Bachelier Finance Society**, June 2022, *Session Chair*
  Virtual Conference
- **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 & February 2022 & February 2023, *Judge*
  Department of Mathematical Sciences, CMU
- **Women and Mathematics at CMU**, April 2018, *Panelist*
  Department of Mathematical Sciences, CMU

Department Service

Department of Statistical Sciences, University of Toronto

- **Admissions Committee** for PhD in Statistics, November 2022 - now

Department of Statistics, Columbia University

- **Admissions Committee** for MA in Statistics, November 2020 - July 2022
- **Advisor** for MA Mentored Research Program, September 2020 - September 2022

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 2012

Teaching Experience

Instructor

- In the PhD program, University of Toronto
  - Winter 2023: STA 2211 - Graduate Probability II
- In the Master of Financial Insurance program, University of Toronto
  - Fall 2022: STA 2530 - Applied Time Series
- At the undergraduate level, Columbia University
  - Fall 2021: *Applied Statistical Methods*
  - Fall 2020 & Fall 2021: *Linear Regression Models*
  - Spring 2021 & Spring 2022: *Statistical Machine Learning*
- In the Master of Arts in Statistics program, Columbia University
  - Fall 2020 & Fall 2021: *Linear Regression Models*
  - Spring 2021 & Spring 2022: *Statistical Machine Learning*