Xiaofei Shi

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POSITION

- **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, Equilibrium Models, Information Asymmetry.
- Stochastic Calculus, Stochastic Optimization, Stochastic Differential Equations.
- Machine Learning, Transfer Learning, Deep Reinforcement Learning

AWARDS & FUNDINGS

- NSERC RGPIN-2024-04569 — 2024-2029
- NSERC DGECR-2024-00444 — 2024-2025
- Connaught New Researcher Award — 2022-2023

PREPRINTS

- Generative Market Equilibrium Models with Stable Adversarial Learning via Reinforcement Link
  Anastasis Kratsios, **Xiaofei Shi**, Qiang Sun, Zhanhao Zhang
  2025 (Submitted).
- A Dynamic Equilibrium Model of Liquidity Risk
  Agostino Capponi, Johannes Muhle-Karbe, **Xiaofei Shi**
  2025 (Submitted).

PUBLICATIONS

8. Dynamic Portfolio Choice with Intertemporal Hedging and Transaction Costs
   Johannes Muhle-Karbe, James Sefton, **Xiaofei Shi**
   Forthcoming, Management Science, 2025.
7. The Price of Information
   Sebastian Jaimungal, **Xiaofei Shi**
   SIAM Journal on Financial Mathematics Vol. 15, No. 3, pp. 54-67, 2024.
6. Deep Learning Algorithms for Hedging with Frictions
   Xiaofei Shi, Daran Xu, Zhanhao Zhang
   Digital Finance Vol. 5, 113-147, 2023.
5. An Equilibrium Model for the Cross-Section of Liquidity Premia
   Johannes Muhle-Karbe, **Xiaofei Shi**, Chen Yang
   Mathematics of Operations Research Vol. 48(3), 1423-1453, 2022.
4. Asset Pricing with General Transaction Costs: Theory and Numerics,
   Lukas Gonon, Johannes Muhle-Karbe, **Xiaofei Shi**
   Mathematical Finance Vol. 31(2), 595-648, 2020.
3. On Strategyproof Conference Peer Review
   Yichong Xu, Han Zhao, **Xiaofei Shi**, Nihar B. Shah,
   IJCAI 2019 (*The 28th International Joint Conference on Artificial Intelligence*).
2. Sublinear Time Numerical Linear Algebra for Structured Matrices
   Xiaofei Shi, David P. Woodruff,
   AAAI 2019 (*The 33th Association for the Advancement of Artificial Intelligence conference*).
1. Improved Algorithms for Adaptive Compressed Sensing
   Vasileios Nakos, **Xiaofei Shi**, David P. Woodruff, Hongyang Zhang,
   ICALP 2018 (*The 45th International Colloquium on Automata, Languages and Programming*).

INVITED TALKS

44. Canadian Mathematical Society (CMS) Winter Meeting 2025 — December 2025
    Toronto, ON, Canada
43. IEOR seminar — November 2025
    Columbia University, New York, NY, USA
42. 9th Eastern Conference on Mathematical Finance — October 2025
    Carnegie Mellon University, Pittsburgh, PA, USA
41. Mathematical Sciences Colloquium — September 2025
    Worcester Polytechnic Institute, MA, USA
40. Quantitative Finance Conference 2025 — August 2025
    National University of Singapore, Singapore.
39. MCA Annual Meeting in Applied Mathematics — July 2025
    Miami, FL, USA
38. SIAM Annual Meeting in Financial Mathematics — July 2025
    Miami, FL, USA
37. Mathematical Finance Seminar — April 2025
    University of Miami, Miami, FL, USA
36. HDSI Seminar — April 2025
    University of California San Diego, San Diego, CA, USA
35. CFMAR Seminar — March 2025
    University of California Santa Barbara, Santa Barbara, CA, USA
34. Scientific Seminar — March 2025
    HEC Montreal, Montreal, QC, Canada
33. Mathematics and Statistics Colloquium — February 2025
    McMaster University, Hamilton, ON, Canada
32. 19th Research in Options: RiO 2024 — December 2024
    FGV, Rio de Janeiro, Brazil
31. Modeling, Learning and Understanding Workshop — November 2024
    BIRS workshop, Banff, AB, Canada
30. 12th World Congress of the Bachelier Finance Society — July 2024
    FGV, Rio de Janeiro, Brazil
29. 2024 Annual Meeting of the Canadian Applied and Industrial Mathematics Society — June 2024
    Queens University, Kingston, ON, Canada
28. Fields-CFI Bootcamp on Machine Learning for Finance — April 2024
    Fields Institute, Toronto, ON, Canada
27. Financial and Actuarial Mathematics Seminar — April 2024
    Dublin City University, Dublin, Ireland
26. Probability and Computational Finance Seminar — February 2024
    Carnegie Mellon University, Pittsburgh, PA, USA

25. Wolfe Research Virtual Event — October 2023
Virtual Talk

24. Recent Advances in Quantitative Finance — August 2023
Hong Kong Polytechnic University, Hong Kong, China

23. Statistical Society of Canada Annual Meeting 2023 — May 2023
Carlton University, Ottawa, ON, Canada

22. Young Talents in Actuarial Science and Quantitative Finance — April 2023
University of Waterloo, Waterloo, ON, Canada

21. Control and Optimization Seminar — February 2023
University of Connecticut, Virtual Seminar

20. World Online Seminars on Machine Learning in Finance — November 2022
Virtual Talk

19. Financial Mathematics Seminar — November 2022
Princeton University, Princeton, NJ, USA

18. 6th Eastern Conference on Mathematical Finance — October 2022
Rutgers University, New Brunswick, NJ, USA

17. 11th World Congress of the Bachelier Finance Society — June 2022
Virtual Talk (originally scheduled in Hong Kong, China)

16. Informs Annual Meeting 2021 — October 2021
Anaheim, CA, USA

15. Berlin Workshop for Young Researchers on Mathematical Finance — August 2021
Virtual Talk

14. SIAM Annual Conference on Financial Mathematics and Engineering 2021 — June 2021
Virtual Conference (originally scheduled in Philadelphia, PA)

13. SIAM Early Career Talk — April 2021
Virtual Talk

12. Financial Mathematics and Engineering Seminars — December 2020
Hong Kong Consortium of Quantitative Finance, Virtual Seminar

11. Warwick Stochastic Finance Seminars — November 2020
University of Warwick, Virtual Seminar

10. SIAM Annual Conference on Financial Mathematics and Engineering 2020 — July 2020
Virtual Conference (originally scheduled in Toronto, ON, Canada)

9. Conference on "Frictions in Finance" — (Postponed) May 2020
Imperial College London, London, United Kingdom

8. Conference on "Equilibrium Theory" — (Postponed) May 2020
Imperial College London, London, United Kingdom

7. Broad Directions in Mathematical Finance, — (Postponed) April 2020
Rutgers University, New Brunswick-Piscataway, NJ, USA

6. Mathematical Finance Seminar — January 2020
   Columbia University, New York, NY, USA

5. The CFM-Imperial Workshop on "Market Microstructure" — December 2019
   HSBC Global Markets, London, United Kingdom

4. 4th Eastern Conference on Mathematical Finance — October 2019
   Boston University, Boston, MA

3. Probability and Computational Finance Seminar — September 2019
   Carnegie Mellon University, Pittsburgh, PA

2. Equilibria in Markets, Strategic Interactions, and Complex Systems — July 2019
   ZiF Bielefeld University, Bielefeld, Germany

1. Sublinear Algorithms and Nearest-Neighbor Search — November 2018
   Simons Institute, University of California Berkeley, Berkeley, CA, USA

PROFESSIONAL EXPERIENCE

- **Bridging Theory and Practice in Finance (25w5414)**, August 2025, *Core Organizer*
  BIRS-IASM Workshop, Hangzhou, Zhejiang, China
- **Market Design, Liquidity, and Strategic Behavior**, August 2025, *Session Chair*
  Quantitative Finance Conference 2025, NUS, Singapore
- **Theory and Applications of Stochastic Control and Game models in Energy Markets and Climate Control**, July 2025, *Minisymposium Co-organizer*
  SIAM Annual Meeting in Mathematical Finance, Miami, FL, USA
- **3rd ACM International Conference on AI in Finance**, November 2022, *Program Committee*
  Hybrid Conference, New York City, NY, USA
- **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**, 2019 - 2024, *Judge*
  Department of Mathematical Sciences, CMU
- **Women and Mathematics at CMU**, April 2018, *Panelist*
  Department of Mathematical Sciences, CMU

SERVICE

Department of Statistical Sciences, University of Toronto

- **Admissions Committee** for PhD in Statistics, November 2022 - now
- **Admissions Committee** for Masters in Financial Insurance (MFI), November 2022 - now
- **Admissions Committee** for Masters in Statistics, November 2022 - now

- **Advisor for MFI Summer Research Program**, Summer 2024

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

- *University of Toronto*

  In the PhD program
  - *STA 2211 - Graduate Probability II*: Winter 2023 & 2024

  In the Master of Financial Insurance program (MFI)
  - *STA2503 - Applied Probability for Mathematical Finance*: Fall 2024
  - *STA 2530 - Applied Time Series*: Fall 2022 & 2023 & 2024

  At the undergraduate level
  - *ACT 370 - Discrete-Time Finance*: Winter 2025

- *Columbia University*

  In the Master of Arts in Statistics program
  - *Linear Regression Models*: Fall 2020 & 2021
  - *Statistical Machine Learning*: Spring 2021 & 2022

  At the undergraduate level
  - *Applied Statistical Methods*: Fall 2021
  - *Linear Regression Models*: Fall 2020 & 2021
  - *Statistical Machine Learning*: Spring 2021 & 2022: