Xinyu Li

S3.20 Andrew Wiles Building, Woodstock Rd, Oxford, UK, OX2 6GG
Homepage: `https://xinyu-li-2020.github.io`

POSITION

University of Oxford Postdoctoral Researcher *Sep 2025 – Present*
Mathematical Institute, Erlangen AI Hub

EDUCATION

University of California, Berkeley Operations Research (Ph.D.) *09/2020 - 08/2025*
New York University Shanghai Mathematics (B.S.) *09/2016-05/2020*

RESEARCH INTERESTS

Reinforcement Learning and Machine Learning Theory, Stochastic Control, Game Theory, Mean-Field Systems, Rough Path Theory, Mathematical Finance

INDUSTRY EXPERIENCE

Amazon, Santa Clara, CA *05/2023-08/2023* and *05/2022-12/2022*
Middle Mile Planning, Research & Optimization Sciences
Mentor: Xin Guo, Philip Kaminsky
Efficient freight contract pricing using deep neural networks and transfer learning
Freight market rates forecast using machine learning models and signature transform

PUBLICATIONS AND WORKING PAPERS

- X. Guo, X. Li, Y. Zhang, "Distributed games with jumps: an α-potential game approach", Minor version at *Mathematical Finance*, 2026.
- X. Guo, X. Li, R. Xu, "Fast policy learning for linear quadratic control with entropy regularization", *SIAM Journal on Control and Optimization*, 2026.
- X. Guo, X. Li, Y. Zhang, "An α-potential game framework for N-player dynamic games", *SIAM Journal on Control and Optimization*, 2025.
- H. Gu, X. Guo, X. Li, "Adversarial training for gradient descent: analysis through its continuous-time approximation", Revision at *Journal of Applied Probability*, 2025.
- X. Guo, X. Li, C. Maheshwari, S. Sastry, M. Wu, "Markov α-potential games", *IEEE Transactions on Automatic Control*, 2025.
- H. Gu, X. Guo, TL. Jacobs, P. Kaminsky, X. Li, "Transportation marketplace rate forecast using signature transform", *INFORMS Journal of Applied Analytics*, 2025.

  Finalist of the 2024 *INFORMS Daniel H. Wagner Prize for Excellence in the Practice of Advanced Analytics and Operations Research.*

  A short version was accepted by *30th SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)*, 2024.
- Z. Zong, X. Li, P. Sanaei, "Effects of nutrient depletion on tissue growth in a tissue engineering scaffold pore", *Physics of Fluids*, 2021.

AWARDS AND SCHOLARSHIPS

- Finalist, INFORMS Daniel H. Wagner Prize for Excellence in the Practice of Advanced Analytics and Operations Research *2024*

- Berkeley Marshall-Oliver-Rosenberger Fellowship *2024*
- UC Berkeley IEOR Departmental Fellowship *2020*
- Zhang Xiaoqi & Cheung Kwok Ching Global Future Scholar (with ¥120k scholarship) *2018-2020*

PROFESSIONAL SERVICE

Reviewer: Journal of Machine Learning Research, SIAM Control and Optimization, SIAM Applied Mathematics, Mathematical Finance, Journal of Applied Probability, Applied Mathematics and Optimization, Applied Mathematical Finance, IEEE Transactions on Human-Machine Systems, NeurIPS 2025 GenAI in Finance Workshop

Organizer: Co-organizer of the workshop "Reinforcement Learning for Science: Discovery and Automation" at the Isaac Newton Institute Satellite Program (March 2026)

INVITED TALKS

- Stochastic Finance Seminar, The University of Warwick, Coventry, UK, 2025
- PGMODAYS, EDF Lab Paris-Saclay, Palaiseau, France, 2025
- Bridging Stochastic Control and Reinforcement Learning: Theories and Applications, Newton Institute, Cambridge, UK, 2025
- 2023-2025 INFORMS Annual Meetings
- Oxford Mathematical and Computational Finance Seminar, Oxford University, Oxford, UK, 2025
- Machine Learning and Data Science Seminar, Oxford University, Oxford, UK, 2025
- Oxford-Princeton Workshop on Stochastic Analysis and Mathematical Finance, Oxford University, Oxford, UK, 2025
- SIAM Conference on Financial Mathematics and Engineering (FM25), Miami, FL, 2025
- Advances in Stochastic Control and Reinforcement Learning, Banff, Canada, 2025
- 2025 Western Conference on Mathematical Finance, USC, CA, 2025
- 2024 Joint Statistical Meetings, Portland, OR, 2024
- Banff Workshop on "New Trends and Challenges in Stochastic Differential Games", Canada, 2024 (Online)
- Cyber Risk and Insurance France-Berkeley Conference, UC Berkeley, CA, 2024
- 58th Annual Conference on Information Sciences and Systems, Princeton University, NJ, 2024
- 4th ACM International Conference on AI in Finance, NY, 2023 (Online)
- International Congress on Industrial and Applied Mathematics, Waseda University, Tokyo, Japan, 2023 (Online)
- Berkeley-Columbia Workshop, Columbia University, NY, 2023
- Western Conference on Mathematical Finance, UC Berkeley, CA, 2023
- NYU Courant Summer Undergraduate Research Fund symposium, New York University, NY, 2019

TEACHING EXPERIENCE

Graduate Student Instructor at UC Berkeley:

- IEOR 221 Introduction to Financial Engineering (Graduate), Spring 2025, Spring 2024
- IEOR 222 Financial Engineering System (Graduate), Spring 2023
- IEOR 242 Application in Data Analysis (Graduate), Spring 2022
- IEOR 142 Introduction to Machine Learning and Data Analysis, Fall 2022