Luhao Zhang

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(Updated in Dec 2025)

Positions

Johns Hopkins University, Baltimore, MD, USA — Jan 2025 -

Assistant Professor, Department of Applied Math and Statistics

Columbia University, New York, NY, USA — Sep 2023 - Dec 2024

Postdoctoral Research Scientist, Department of IEOR

Education

The University of Texas at Austin, Austin, TX, USA

Ph.D. in Mathematics — Aug 2018 - Aug 2023

Xi'an Jiaotong University, Xi'an, Shaanxi, China

B.S. in Mathematics and Applied Mathematics (Honors Program) — Aug 2014 - June 2018

Special Class for the Gifted Young — Aug 2012 - June 2014

Publications & Preprints

1. Luhao Zhang, Jincheng Yang, Rui Gao. *Optimal Robust Policy for Feature-Based Newsvendor* (2023), ***Management Science*** 70(4):2315-2329.
2. Luhao Zhang, Jincheng Yang, Rui Gao. *A Short and General Duality Proof for Wasserstein Distributionally Robust Optimization* (2025), ***Operations Research*** 73(4):2146-2155.
3. Luhao Zhang, Mohsen Ghassemi, Ivan Brugere, Alan Mishler, Niccolo Dalmasso, Vamsi Potluru, Tucker Balch, Manuela Veloso. *Conditional Demographic Parity Through Optimal Transport* (2022), accepted by ***NeurIPS*** Workshop on Algorithmic Fairness through the Lens of Causality and Privacy.
   - A conference version (2025) is accepted by **AAAI** Conference on Artificial Intelligence 39(16), 16808-16816.
4. Jincheng Yang, Luhao Zhang, Ningyuan Chen, Rui Gao, Ming Hu. *Decision-making with Side Information: A Causal Transport Robust Approach*, ***Operations Research***, Minor revision.
5. Renyuan Xu, Thaleia Zariphopoulou, Luhao Zhang. *Decision Making under Costly Sequential Information Acquisition: the Paradigm of Reversible and Irreversible Decisions*, Submitted.
6. Tianyu Wang, Luhao Zhang, Rachel Cummings. Integrating Feature Correlation in Differential Privacy with Applications in DP-ERM, Submitted.
7. Ian McPherson, Yizhe Huang, Rui Gao, Shuang Li, Luhao Zhang. *Neural Dynamic Portfolio Control with Provable Learning Guarantees*. Submitted.

Patents

1. *Method and system for obtaining conditional demographic parity through optimal transport in data-driven model* (2024), U.S. 2024/0303532 A1.

Working papers

1. Rui Gao, Jincheng Yang, Luhao Zhang. A Class of Interpretable and Decomposable Multi-period Convex Risk Measures, Working paper.
2. Michael Li, Luhao Zhang, Ruijia Zhang. Learning Optimal Robust Policies under Observational Data with Causal Transport, Working paper.
3. Anran Hu, Luhao Zhang, Xunyu Zhou, Fine-tune Diffusion Models with Online Human Feedback. Working paper.
4. Luhao Zhang, Xunyu Zhou, Exploration Learning with Costly Information Acquisition, Working paper.
5. Shengtai Yao, Rui Gao, Jincheng Yang, Luhao Zhang. Finite-Sample Guarantees for Causal Distributionally Robust Optimization. Working paper.

Award

Meritorious Service Award, Mathematical Programming	2023
Student Travel Award, SIAM	May 2023
Professional Development Award, UT Austin	Spring, Fall 2022
Graduate Continuing Bruton Fellowship, UT Austin	Spring 2022
Frank Gerth III Teaching Excellence Award, UT Austin	2021
Selected to present at the Cornell ORIE Young Researchers Workshop	Summer 2021
Graduate School Summer Fellowship, UT Austin	Summer 2021

Professional Service

Referee

- Mathematical Programming
  (2023 Meritorious Service Award)
- Operations Research
- Management Science
- Mathematics of Operations Research
- Production and Operations Management
- 3rd ACM International Conference on AI in Finance
- AISTATS 2026

Session Chair

- Joint Mathematics Meeting 2026, AWM Special Session On Recent Trends Of Stochastic Methods In Modern Generative AI
- 12th General AMaMeF Conference 2025, Invited session of Reinforcement Learning
- INFORMS 2024, Invited session of Decision-making under Uncertainty
- ICSP 2023, Mini-symposium of Causal transport and adapted Wasserstein distance

- INFORMS 2023, Invited session of Decision-making under Uncertainty
- INFORMS 2022, Invited session of Data-driven Decision Making
- INFORMS 2021, Invited session of Learning and Decision-making with Contextual Information

Invited Talks

- INFORMS Optimization Society Conference, Atlanta, GA — March 2026
- Joint Mathematics Meetings 2026, Washington D.C. — January 2026
- Workshop on Stochastic Control, Financial Technology, and Machine Learning, Hong Kong PolyU — December 2025
- Workshop on Optimal transport: stochastics, projections, and applications, Fields Institute, Toronto — November 2025
- Rotman Young Scholar Seminar, University of Toronto, Toronto — November 2025
- 2025 SIAM New York-New Jersey-Pennsylvania Section Conference, PSU — October 2025
- INFORMS Annual Meeting, Atlanta, Ga — October 2025
- Machine Learning, Data Mining, and Data Assimilation in Geospace (LMAG25), JHU APL, Baltimore — October 2025
- Workshop on Advances in Mathematics of Randomness for Handling Risks in Finance and Insurance, CIRM, Luminy, France — September 2025
- Mathematical Congress of the Americas 2025 (MCA 2025), Miami, FL — July 2025
- 2025 International Conference on Continuous Optimization (ICCOPT 2025), Los Angeles, CA — July 2025
- SIAM Conference on Financial Mathematics and Engineering (FM25), Miami — July 2025
- 12th General AMaMeF Conference, Verona, Italy — June 2025
- University of Miami, Miami, FL — April 2025
- Joint SIAM-BFS Mathematical Finance Online Seminar, Invited Launch Speaker — March 2025
- INFORMS Annual Meeting, Seattle, WA — October 2024
- Workshop on Mathematical Insights from Markets, Control, and Learning, **Spotlight talk**, Aussois, France — September 2024
- INFORMS Conference on Financial Engineering and FinTech, Hong Kong — August 2024
- International Symposium on Mathematical Programming (ISMP), Montréal, Canada — July 2024
- Bachelier World Congress of the Bachelier Finance Society, Rio de Janeiro, Brazil — July 2024

- Actuarial Science and Financial Mathematics seminar series, University of Waterloo, Waterloo, Canada July 2024
- Mathematical Finance Seminar Series, Columbia University, NY March 2024
- INFORMS Optimization Society Conference, Houston, TX March 2024
- Workshop on Decision Making and Uncertainty, IMSI, Chicago, IL February 2024
- INFORMS Annual Meeting, Phoenix, AZ October 2023
- International Conference Stochastic Programming (ICSP), Davis, CA July 2023
- SIAM Conference on Optimization (OP23), Seattle, Washington May 2023
- Western Conference on Mathematical Finance, UC Berkeley, CA March 2023
- INFORMS Annual Meeting, Indianapolis, IN October 2022
- SIAM Annual Meeting, Pittsburgh, PA July 2022
- INFORMS Optimization Society Conference, Greenville, SC March 2022
- Texas Women in Math Symposium, Rice University February 2022
- Conference on Artificial Intelligence, Machine Learning, and Business Analytics, Rutgers University December 2021
- INFORMS Annual Meeting, Anaheim, CA October 2021
- Cornell ORIE Young Researchers Workshop, Ithaca, NY October 2021
- International Conference of the Chinese Scholars Association for Management Science and Engineering (CSAMSE), Shanghai Jiaotong University July 2021
- Robust Optimization Webinar Series May 2021

Teaching

Instructor

Johns Hopkins University

- Bayesian Statistics Spring, Fall 2025
- Stochastic Controls, Games, and Learning Fall 2025, Spring 2026

Industry Experience

J.P.Morgan Chase, AI Research, New York, NY

AI Researcher (Intern) June - Aug 2022

- Developed an efficient algorithm to achieve conditional demographic parity using causal transport distance
- Preliminary results accepted by *NeurIPS Workshop on Algorithmic Fairness through the Lens of Causality and Privacy*

Outreach

Directed Reading Program

- Sonali Singh, on the topic of *Stochastic Calculus for Finance* — Spring 2020
- Wenxuan Jiang, on the topic of *Stochastic Calculus for Finance* — Fall 2021
- Haoze Yan, on the topic of *Stochastic Programming* — Spring, Fall 2022
- Yuxiang Gao, on the topic of *Elements of Statistical Learning* — Spring 2022