Xiaoyu Fan

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Education

2022 – present

New York University Stern School of Business, New York, NY
Ph.D. Candidate in Operations Management
Advisor: Zhengyuan Zhou

2018 – 2022

Nanjing University Mathematics Department, Nanjing, Jiangsu, China
B.S. in Information and Computational Science

Research Interest

I am interested in designing reinforcement learning algorithms for sequential decision making in structured operations management problems, including inventory control and revenue management, and more recently, post-training for Large Language Models.

Publications

1. **Sample Complexity of Policy Learning for Inventory Control with Censored Demand**
   Xiaoyu Fan, Boxiao Chen and Zhengyuan Zhou
   Second Round Major Revision at Management Science
   ** Finalist, INFORMS Undergraduate Operations Research Prize, 2022*

2. **No-Regret Learning in Multi-Retailer Inventory Control**
   Xiaoyu Fan, Boxiao Chen, Wenqiang Xiao and Zhengyuan Zhou
   Third Round Focused Major Revision at Management Science

3. **Sample Complexity of Inventory Control with Setup Costs Beyond Plug-in Demand Estimation**
   Xiaoyu Fan and Zhengyuan Zhou
   Major Revision at Manufacturing & Service Operations Management
   ** Finalist, Data Mining Best Student Paper Competition, 2025*
   ** Finalist, INFORMS JFIG Paper Competition, 2024*

4. **Learning to Bid in Non-Stationary Repeated First-Price Auctions**
   Zihao Hu, Xiaoyu Fan, Yuan Yao, Jiheng Zhang and Zhengyuan Zhou
   Minor Revision at Operations Research

5. **Product Return as a Sequence of Search Processes: Optimality and Search Duration**
   Xiaoyu Fan, Srikanth Jagabathula, Zijian Liu and Eitan Muller
   Second Round Major Revision at Operations Research

6. **Personalized Dynamic Pricing with Demand Learning: The Impact of Growing Effective Dimensionality**
   Gah-Yi Ban, Xiaoyu Fan, Yanjun Han, Srikanth Jagabathula, N. Bora Keskin and Zhengyuan Zhou
   Major Revision at Operations Research

7. **Don't Follow RL Blindly: Lower Sample Complexity of Learning Optimal Inventory Control Policies with Fixed Ordering Costs**
   Xiaoyu Fan, Boxiao Chen, Tava Lennon Olsen, Hanzhang Qin and Zhengyuan Zhou
   Production and Operations Management, 2025

Working Papers

1. **Towards Optimal Inventory Control under Censored Demand: A Biased Sample-Average Approximation Approach**
   Yuxuan Han, Xiaoyu Fan, Jiawei Zhang and Zhengyuan Zhou
   Under Review at Operations Research

2. **Optimal Sample Complexity of Distributionally Robust Direct Preference Optimization**
   Xiaoyu Fan, Ruyue Qian, Will Ma, Sean X. Zhou and Zhengyuan Zhou

3. **Leveraging Product Variations for Personalized Dynamic Pricing**
   Yanjun Han, Xiaoyu Fan, Srikanth Jagabathula and Zhengyuan Zhou

4. **Generative AI, Model Collapse and Intellectual Property Policy**
   Xiaoyu Fan, Arun Sundararajan and Zhengyuan Zhou

Awards and Honors

- Winner, AI Dissertation Proposal Competition, Texas A&M University, 2026
- NYU Stern CGEB PhD Grant, 2026
- Finalist, Data Mining Best Student Paper Competition, 2025
- Finalist, INFORMS JFIG Paper Competition, 2024
- Finalist, INFORMS Undergraduate Operations Research Prize, 2022

Teaching

Instructor

- **MULT-UB7: Decision Models and Analytics** (Summer 2025)
  NYU Stern undergraduate core
  Teaching evaluation: 4.88/5.00

Teaching Fellow

- **OPMG-GB3321: Stochastic Processes** (Spring 2026)
- **OPMG-GB2350: Decision Models and Analytics** (Fall 2024)
- **SHBI-GB7301: Stochastic Modeling** & **Simulation** (Summer 2024)
- **COR1-GB2114: Operations** (Spring 2024)

Seminars and Invited Talks

- AI Dissertation Proposal Competition, Texas A&M University, Sep 2026
- MOILS Seminar, NYU Stern, Apr 2026
- POMS-HK International Conference, Jan 2026
- INFORMS Annual Meeting, Oct 2025
- NYC Ops Day PhD Colloquium, Mar 2025
- INFORMS Annual Meeting, Oct 2024
- MOILS Seminar, NYU Stern, Sep 2024
- ICSA China Conference, Jun 2024
- POMS-HK International Conference, Jan 2024
- INFORMS Annual Meeting, Oct 2023
- JSM Conference, Aug 2023
- Nanjing University, Jul 2023
- POMS Conference, May 2023
- MOILS Seminar, NYU Stern, Apr 2023
- INFORMS Annual Meeting, Oct 2022

Professional Services

- Organizer:
  - AI Cities Workshop, TAU&NYU, 2026
  - MOILS Seminar, NYU Stern, 2024
- Reviewer: Management Science, Manufacturing & Service Operations Management, Production and Operations Management, Journal of Machine Learning Research, Annals of Operations Research, International Conference on Learning Representations, SIAM Journal on Optimization, IEEE Open Journal of Control Systems, IEEE Robotics and Automation Letters, Operations Research Letters, Conference on Decision and Control