

XIAOTIAN LIU

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EDUCATION

H. Milton Stewart School of Industrial and Systems Engineering, Georgia Institute of Technology *Atlanta, USA*
Ph.D. Candidate, Advised by Prof. Christos Alexopoulos and Prof. Edwin Romeijn *Sept. 2023 - 2027 (expected)*

School of Electronics Engineering and Computer Science, Peking University *Beijing, China*
B.S. in Electronics Engineering *Sept. 2018 - June 2022*

Guanghua School of Management, Peking University *Beijing, China*
B.S. in Management *Sept. 2019 - June 2022*

RESEARCH INTERESTS

My research focuses on pushing the frontier of operations management (OM) through deep neural models. I investigate how to effectively train deep neural networks (DNNs) for modern OM problems involving high-dimensional data, large-scale systems, and nonlinear dynamics. I also work on combining DNNs with operational knowledge and exploiting advanced DNN architectures, such as transformers, for intelligent and reliable OM decision-making.

JOURNAL PUBLICATIONS

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- [1] **Xiaotian Liu**, Christos Alexopoulos, Yijie Peng, and Cheng Zhang, “Production Planning with Markovian Production Relationships,” *Production and Operations Management* (UTD24), 2026, <https://journals.sagepub.com/doi/10.1177/10591478261445695>
- [2] **Xiaotian Liu**, Ming Hu, Yijie Peng, and Yaodong Yang, “Multi-Agent Deep Reinforcement Learning for Multi-Echelon Inventory Management,” *Production and Operations Management* (UTD24), 2025, <https://journals.sagepub.com/doi/full/10.1177/10591478241305863>
- *Production and Operations Management* Journal 2025 Top-10 Most Downloaded Paper
 - *Production and Operations Management* Journal 2023–2026 Top-20 Most Cited Paper
- [3] **Xiaotian Liu**, Yijie Peng, Gongbo Zhang, and Ruihan Zhou, “An Efficient Node Selection Policy for Monte Carlo Tree Search with Neural Networks,” *INFORMS Journal on Computing* (UTD24), 2024, <https://pubsonline.informs.org/doi/full/10.1287/ijoc.2023.0307>
- *INFORMS Journal on Computing* Meritorious Paper Award (The Only Awardee in 2024)
- [4] **Xiaotian Liu**, Christos Alexopoulos, and Yijie Peng, “A Simulation-Driven Machine Learning Framework for Large-Scale Inventory Management,” *Annals of Operations Research* (ABS3), 2025, <https://link.springer.com/article/10.1007/s10479-025-06857-5>

WORKING PAPERS

(*Authors listed in alphabetical order)

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- [1] (Job Market Paper) Ming Hu*, **Xiaotian Liu***, and Guohan Shen*, “AI as Flesh, OM as Bone: Semiparametric Regression with Deep Neural Networks,” Under revision (previous decision: reject and resubmit) at *Manufacturing & Service Operations Management* (UTD24), 2026, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5460214
- [2] **Xiaotian Liu**, Christos Alexopoulos, and Edwin Romeijn, “Learning Meets Convex Structure: Offline Approximation for Inventory Control,” Under review at *Production and Operations Management* (UTD24), 2026

CONFERENCE PUBLICATIONS

- [1] Qinghao Wang, Jinyang Jiang, **Xiaotian Liu**, Tao Ren, Yi Zheng, Cheng Zhang, Yaodong Yang, and Yijie Peng, “A Unified Framework for Multi-Stage Decision Optimization with Deep Reinforcement Learning and Foundation Models,” *2025 IEEE 21st International Conference on Automation Science and Engineering (CASE)*, 2025, <https://ieeexplore.ieee.org/abstract/document/11163883>
- [2] Gongbo Zhang, **Xiaotian Liu**, and Yijie Peng, “A Simulation Optimization Method for Scheduling Automated Guided Vehicles in a Stochastic Warehouse Management System,” *2023 Winter Simulation Conference (WSC)*, 2023, <https://ieeexplore.ieee.org/abstract/document/10407793>
- Second Place Winning Method in *2022 Winter Simulation Conference Case Study Competition*
- [3] **Xiaotian Liu**, Lei Yang, Xiaoyu Zhang, and Xiaohui Duan, “MA-ResNet50: A General Encoder Network for Video Segmentation,” *2022 International Conference on Computer Vision Theory and Applications (VISAPP)*, 2022, <https://pdfs.semanticscholar.org/3d6f/8f0a026029521815c6402f6c52f937fc7196.pdf>

HONORS & AWARDS

INFORMS Journal on Computing Meritorious Paper (The Only Awardee in 2024)	2025
Second Place Award (ranking 2/31), Winter Simulation Conference 2022 Case Study Competition	2022
Mao Yugang Scholarship for Outstanding Undergraduate in Research (Top 1%, Peking University)	2022
Outstanding Undergraduate Research Program (Top 1%, Peking University)	2021

TEACHING

Deterministic Optimization (ISYE6669)	<i>Georgia Institute of Technology, USA</i>
Teaching Assistant	<i>Spring 2025</i>
Computational Data Analysis (ISYE6740)	<i>Georgia Institute of Technology, USA</i>
Teaching Assistant	<i>Summer 2024, Fall 2024, Summer 2025</i>

PRESENTATIONS / INVITED TALKS

A Unified Framework for Decision Optimization with Deep Reinforcement Learning and Foundation Models	
<i>2025 International Conference on Automation Science and Engineering</i>	<i>Los Angeles, California, USA, 2025</i>
A Simulation-Driven Machine Learning Framework for Large-Scale Inventory Management	
<i>2023 INFORMS Annual Meeting</i>	<i>Phoenix, Arizona, USA, 2023</i>
Second Place Winner Presentation for WSC Data Competition	
<i>2022 Winter Simulation Conference</i>	<i>Singapore, 2022</i>
MA-ResNet50: A General Encoder Network for Video Segmentation	
<i>2022 International Conference on Computer Vision Theory and Applications</i>	<i>Online, 2022</i>

ACADEMIC SERVICE

Paper Reviewer: INFORMS Journal on Computing; Winter Simulation Conference