Shengyu Cao

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Research Interests

Revenue Management and Pricing; Platform Operations and Algorithmic Market Design; Agentic AI in Operations; Robust Optimisation; Healthcare Management.

Academic Positions

2023–present **Postdoctoral Principal Researcher**
Rotman School of Management, University of Toronto
Advisor: Professor Ming Hu

Education

2018–2023 **Ph.D. in Management**, Shanghai University of Finance and Economics
Research Institute for Interdisciplinary Sciences
Thesis: *Design and Optimisation of Service System Resource Allocation*
Advisor: Professor Simai He

2014–2018 **B.A. in Management**, Shanghai University of Finance and Economics
School of Accountancy

Publications

1. Shengyu Cao, Simai He, Zizhuo Wang, Yifan Feng. "Optimal Partition for Multi-Type Queueing System." *Mathematics of Operations Research*, 51(1):277–298, 2025.
2. Shengyu Cao, Simai He, Zhening Li, Zhen Wang. "Extreme Ratio Between Spectral and Frobenius Norms of Nonnegative Tensors." *SIAM Journal on Matrix Analysis and Applications*, 44(2):919–944, 2023.

Working Papers

1. Shengyu Cao, Ming Hu. "Shaping Inventory Competition via Algorithmic Demand Allocation." Major revision at *Management Science*.
2. Shengyu Cao, Ming Hu. "A Solicit-Then-Suggest Model of Agentic Purchasing." Major revision at *Management Science*.
3. Shengyu Cao, Ming Hu. "Supracompetitive Pricing Under AI Monoculture." Major revision at *Manufacturing & Service Operations Management*.
4. Shengyu Cao, Jianjun Gao, Simai He, Yunkai Jia, Zhen Wang. "Lift-Sample-Repair for BOM-Structured Production Planning with Agent-Assisted Policy Search." Under review at *Management Science*.

Conference Presentations and Invited Talks

May 2026	"A Solicit-Then-Suggest Model of Agentic Purchasing." *MIW 2026* (virtual).
Oct 2025	"Shaping Inventory Competition via Algorithmic Demand Allocation." *INFORMS Annual Meeting*, Atlanta, GA, USA.
Aug 2025	"Optimal Healthcare Resource Allocation with Aggregated Information." *ICSSSM 2025*, Nanchang, China.
May 2024	"Algorithmic Demand Allocation to Heterogeneous Sellers in Inventory Competition." *MIW 2024* (virtual).
May 2023	"Extreme Ratio Between Spectral and Frobenius Norms of Nonnegative Tensors." *MOS 2023 Meeting*, Chengdu, China.
Apr 2023	"Optimal Partition for Multi-Type Queueing System." *ORSC Annual Meeting*, Changsha, China.

Teaching Experience

Teaching Assistant, Shanghai University of Finance and Economics

Spring 2021	Game Theory
Spring 2020	Optimisation Theory
Autumn 2019	Linear Algebra
Spring 2019	Deep Learning

Industry and Research Experience

2021	**Research Assistant,** China Europe International Business School (CEIBS) Consumer behaviour analytics (coupon effects)
2020	**Algorithm Engineer,** Cardinal Operations, Shanghai L'Oréal demand forecasting

Honours and Awards

2019	**First-Class People's Scholarship,** Shanghai University of Finance and Economics
2019	**Fosun Pharma Scholarship,** Shanghai University of Finance and Economics
2018	**Outstanding Graduates Award,** Shanghai University of Finance and Economics

Professional Service

Memberships	Member, Institute for Operations Research and the Management Sciences (INFORMS)
Reviewing	*Management Science*, *European Journal of Operational Research*

References

Professor Ming Hu
University of Toronto Distinguished Professor of Business Operations and Analytics
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Professor Youhua (Frank) Chen
Chair Professor of Management Sciences
Department of Decision Analytics and Operations, College of Business, City University of Hong Kong
youhchen@cityu.edu.hk

Professor Simai He
Professor, Department of Data and Business Intelligence
Antai College of Economics and Management, Shanghai Jiao Tong University
simaihe@sjtu.edu.cn