Yuan Shi

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Research Interests & Methodologies

I apply data-driven optimization, game theory, behavioral and field experiments for social good, in domains such as smallholder supply chains, sustainability and social-sector operations. I am driven by developing innovative, practical solutions with real-world impact that addresses the United Nations Sustainable Development Goals.

Education

Massachusetts Institute of Technology, Cambridge, MA, US — **September 2021 – June 2026 (Expected)**
PhD Candidate in Operations Research; GPA: 5.0/5.0
Advisor: Prof. Yanchong (Karen) Zheng

Stanford University, Stanford, CA, US — **September 2019 – June 2021**
Master's in Management Science & Engineering; GPA: 4.078/4.3 *(equivalent to 4.0/4.0)*

University of Cambridge, Cambridge, UK — **September 2015 – June 2018**
Bachelor of Arts in Natural Sciences (Physics); First Class Honors

Publications / Submitted Papers

(*indicates first author by contribution)

1. **Incentivizing Smallholder Farmer Sustainability under Behavioral Regularities**
   Yuan Shi*, Iskandar Z Siregar and Yanchong Zheng, *Submitted to Management Science*
   - Winner, MIT Operations Research Center (ORC) Best Student Paper Award, 2025
   - Accepted for presentation at *2025 MSOM Sustainable Operations SIG*
   - Accepted for presentation at *18th Annual Behavioral Operations Conference*

2. **Incentive Design for Sustainable Practices in Smallholder Supply Chains**
   Yuan Shi*, Joann de Zegher and Yanchong Zheng, *Submitted to Management Science*
   - Accepted for presentation at *2024 MSOM Main Conference*
   - Accepted for presentation at *2025 Early-Career Sustainable Operations Management Workshop*

3. **Two-sided Benefits of Price Transparency in Smallholder Supply Chains**
   Yuan Shi*, Joann de Zegher and Irene Lo, ***Accepted at Management Science***
   - 2nd Place, POMS College of Supply Chain Management Best Student Paper Award

- Accepted for presentation at *2022 Marketplace Innovation Workshop*
- Accepted for presentation at *2022 ACM conference on Equity and Access in Algorithms, Mechanisms, and Optimization (EAAMO'22)*

4. **Surgical Scheduling via Optimization and Machine Learning with Long-Tailed Data**
   Yuan Shi*, Saied Mahdian, Jose Blanchet, Peter Glynn, Andrew Y. Shin, David Scheinker
   ***Health Care Management Science**, September 4, 2023, Vol. 26, 692-718*
   - Featured as outstanding publication in Health Care Management Science at *2024 INFORMS Annual Meeting*

5. **Criteria for Early Pacemaker Implantation in Patients with Postoperative Heart Block After Congenital Heart Surgery**
   Son Q Duong, Yuan Shi, David Scheinker, Claudia Algaze, et al.
   ***Circulation: Arrhythmia and Electrophysiology,** November 2022, 15(11), e011145*

Work in Progress

6. **Optimizing Nonprofit Warehouse Operations under Display-Dependent Demand**
   With Mahyar Eftekhar and Yanchong Zheng, in collaboration with Midwest Food Bank (Arizona), *Manuscript in preparation*
   - Accepted for presentation at *2025 MSOM Main Conference*

7. **Payment Models for Climate-Targeted Farming: A Field Experiment in India**
   With Alp Sungu and Yanchong Zheng, in collaboration with the World Bank 2030 Water Resources Group, *Pilot experiment under way*

Selected Talks

"Incentivizing Smallholder Farmer Sustainability under Behavioral Regularities"

- 2025 INFORMS Annual Meeting (upcoming)
- 2025 MSOM Sustainable Operations SIG
- 18th Annual Behavioral Operations Conference, 2025
- 35th Annual POMS Conference, 2025

"**Optimizing Nonprofit Warehouse Operations under Display-Dependent Demand**"

- 2025 INFORMS Annual Meeting (upcoming)
- 2025 MSOM Main Conference
- 2025 INFORMS Computing Society Conference
- 35th Annual POMS Conference, 2025

"Incentive Design for Sustainable Practices in Smallholder Supply Chains"

- 2025 Early-Career Sustainable Operations Management Workshop
- 2024 MSOM Main Conference
- 34th Annual POMS Conference, 2024
- 2023 and 2024 INFORMS Annual Meeting

"Two-sided Benefits of Price Transparency in Smallholder Supply Chains"

- 35th Annual POMS Conference, 2025
- 2022 INFORMS Annual Meeting
- 2022 Marketplace Innovation Workshop

"Surgical Scheduling via Optimization and Machine Learning with Long-Tailed Data"

- 2024 INFORMS Annual Meeting

Selected Scholarships and Awards

Winner, MIT Operations Research Center (ORC) Best Student Paper Award	**2025**
2nd Place, POMS College of Supply Chain Management Best Student Paper	**2025**
Martin Fellowship, MIT Martin Family Society of Fellows for Sustainability	**2025-2026**
Rosemary Murray Scholarship for Academic Excellence	**2016, 2017 and 2018**
Silver Medal, Singapore Physics Olympiad	**2014**
Gold Medal, Singapore Mathematics Olympiad	**2011**

Industry Experience

Pempem, Montreal, Canada

Summer Research Intern **Summer 2023**

- *Developed centralized, data-driven pricing algorithms for smallholder commodity supply chains*

Morgan Stanley, London, UK

Full-time Fixed Income Analyst **June 2018 – July 2019**

- *FX derivative structuring and pricing for hedge fund clients in Europe and Asia*

Sales and Trading Summer Analyst **Summer 2017**

Teaching Experience

Teaching Assistant, 15.769 Operations Strategies (Spring 2025), MIT

- *MIT Sloan MBA Elective with 84 MBA students*
- *Held weekly office hours, graded cases and reports. Student Rating: 6.9/7.0*

Instructor, 15.S60 Computing in Optimization and Statistics (Winter 2025), MIT

- *Led a 3-hour data analytics session using R with 22 first-year doctoral students*

Teaching Assistant, MS&E 220 Probabilistic Analysis (Summer 2020), Stanford University

- *Graduate-level class with 33 students*
- *Developed material, held weekly office hours, graded assignments and exams.*

Professional Services and Volunteering

Reviewer for *Health Care Management Science, Manufacturing & Service Operations Management*

Coordinator, MIT ORC Seminar Series **2025**

Session Chair, 2025 INFORMS Annual Meeting **2025**

Session Chair, 35th Annual POMS Conference **2025**

Global Impact Manager, Bridges for Enterprise **2019 – Present**

- *Co-led impact research division, tracking the nonprofit's social impact and publishing annual reports for management and fundraising.*

Skills

Programming / Technical Tools: Python, R, Julia, LaTeX, Gurobi, SSH

Languages: English (fluent) and Mandarin Chinese (native)