

Yanqiu Ruan

3 Research Link

Institute of Operations Research and Analytics

National University of Singapore

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ACADEMIC APPOINTMENT

National University of Singapore

Research Fellow, Institute of Operations Research and Analytics

Advisor: Chung-Piaw Teo

Singapore

Sep 2025 - Present

EDUCATION

Singapore University of Technology and Design(SUTD) - National University of Singapore(NUS) Singapore

SUTD-NUS joint program Ph.D. in Operations Research; GPA: 5.09/5

Sep 2020-Aug 2025

Advisors: Karthik Natarajan, Karthyek Murthy, Xiaobo Li

Thesis: A Nonparametric Approach with Marginals for Consumer Choice and Beyond

Huazhong University of Technology and Science (HUST)

Wuhan, China

- Master in Management Science and Engineering; GPA: 3.80/4 (85.62/100)

Sep 2017 - Jun 2020

Advisor: Kunpeng Li

Thesis: Intelligent AGV dispatching and routing scheduling with applications in semiconductor manufacturing

- Visiting Scholar at Center for Maritime Studies, NUS

Jun-Dec 2019

- Bachelor in Logistics Management; GPA: 3.86/4 (87.6/100); Outstanding Graduate Sep 2013 - Jun 2017

RESEARCH INTEREST

Methodologies: Optimization Theory & Algorithm, Machine Learning, Discrete Choice Modeling

Applications: Data-driven Decision Making, Decision Making under Uncertainty, Revenue Management and Pricing, Transportation

PUBLICATIONS AND PREPRINTS

[1] **A Nonparametric Approach with Marginals for Modeling Consumer Choice** (with Xiaobo Li, Karthyek Murthy, and Karthik Natarajan). *Minor Revision in Management Science*. [[arXiv](#)]

- An [extended abstract](#) of this paper appears in the Proceedings of the 24th ACM Conference on Economics and Computation.

[2] **Going from a Representative Agent to Counterfactuals in Combinatorial Choice** (with Karthyek Murthy and Karthik Natarajan). Under Review at **NeurIPS**, 2025. [[arXiv](#)]

[3] **A Unified Analysis for Assortment Planning with Multi-Purchase Using Marginal Distribution Models** (with Zeyu Sun, Xiaobo Li, and Selin Damla Ahipasaoglu). *Major Revision in Operations Research*, 2023. [[SSRN](#)]

[4] **A Nonparametric Approach with Marginals for Modeling Consumer Choice** (with Xiaobo Li, Karthyek Murthy, and Karthik Natarajan). Proceedings of the **24th ACM Conference on Economics and Computation (EC'23)**, Page 1078, 2023. (accepted as a full paper; appeared as an extended abstract) [[link](#)]

[5] **Intelligent AGV Routing Scheduling with Applications in Semiconductor Production** (with Kunpeng Li and Tengbo Liu). Computer Integrated Manufacturing Systems, 28(9), 2022. [[link](#)] (A Chinese Journal Paper)

WORK IN PROGRESS

Beyond Classical FTPL: Ambiguity-Optimistic Best-of-Both-Worlds Algorithms for m-Set Semi-Bandits (with Bahar Takesen).

INDUSTRIAL PROJECTS

Scoot Add-on Smart Recommendation	Sep 2025 - , SIA-NUS Digital Aviation Corp Lab, Singapore
Scoot Seat and Ancillary Bundle Optimization	Sep 2025 - , SIA-NUS Digital Aviation Corp Lab, Singapore
Core Project Member in Supply Chain Management	Dec 2017 - Sep 2018, HUST, Wuhan, China

Mainly worked on supply chain strategy design and the implementation of the green supply chain in the supply chain management construction scheme for China Communications Construction Co. LTD

TALKS

Title: **Going from a Representative Agent to Counterfactuals in Combinatorial Choice**

- 2025 INFORMS Annual Meeting, Atlanta, US, Oct 2025 (forthcoming)

Title: **A Nonparametric Approach with Marginals for Modeling Consumer Choice**

- 2025 INFORMS International Meeting, Singapore, Jul 2025
- 2024 INFORMS Annual Meeting, Seattle, US, Oct 2024
- Singapore Analytics and Operations Day, NUS, Singapore, Sep 2024
- Next-Gen Scholars Symposium & Analytics for X 2024, NUS, Singapore, Aug 2024
- 2023 INFORMS Annual Meeting, Phoenix, US, Oct 2023
- 15th CSAMSE Annual Conference, Shenzhen, China, Jul 2023
- 24th ACM Conference on Economics and Computations (EC'23), London, UK, Jul 2023 (Virtually)
- 13th POMS - HK International Conference, Hong Kong, China, Jan 2023
- 2022 INFORMS Annual Meeting, Indianapolis, US, Oct 2022

TEACHING EXPERIENCE

Teaching Assistant At SUTD, Singapore

- 40.530 Statistics (Ph.D. Level), Summer 2023;
- 40.017 Probability and Statistics (Undergraduate Level), Spring 2022;
- 40.015 Simulation Modeling and Analysis (Undergraduate Level), Fall 2021.

Teaching Assistant At HUST, Wuhan, China

- Supply Chain Management (Undergraduate Level), 2018 Fall;
- Logistics Management Experiments (Undergraduate Level), 2017 Fall and 2018 Spring;
- Management Integrated Lab (Undergraduate Level), 2016 Fall ;
- Operations Management (Master of Business Administration), 2018 Fall.

HONORS AND AWARDS

- Bonder Scholar for the 2024 Doctoral Student Colloquium at INFORMS 2024 Annual Meeting
- SUTD Ph.D. Fellowship, Sep 2020 - Aug 2025
- Graduate Academic Scholarship, First Class in Sep 2017, Second Class in Sep 2018 and Sep 2019
- Outstanding Graduate of HUST, Jun 2017
- Cai Xixian Inspirational Scholarship, Sep 2016
- Advanced Individual Scholarship, 2013-2015

- HUST Cup Women's Basketball Final, 3rd place in 2018, 2nd place in 2017

COMPLETED PHD COURSES

- **Courses taken at SUTD:** Linear Optimization, Stochastic Modeling, Statistics, Convex Optimization, Machine Learning, Metaheuristic Optimization, Special Topics in Operations Research (Submodularity and Online Optimization)
- **Courses audited at NUS:** Optimization in Data Science and Machine Learning, Stochastic Foundations of Decision-Aware Learning, Revenue Management, Discrete Optimization and Algorithms

SERVICE

- **Reviewer:** European Journal of Operations Research
- **Conference Session Chair:** INFORMS 2023, POMS - HK 2023

SKILLS

Programming: Python, R, Optimization Solvers, LaTeX

Language: English (fluent), Cantonese(native), Mandarin(native)

REFEREES

Karthik Natarajan

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Karthyek Murthy

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Xiaobo Li

Assistant Professor

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