

# Yating Zhang

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## RESEARCH INTERESTS

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At the intersection of data-driven retail operations, consumer choice modeling, and global optimization, with an emphasis on developing exact solution methods for assortment planning under consumer choice behavior

## EDUCATION

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**Shanghai Jiao Tong University** Shanghai, China  
Ph.D. in Management Science, Antai College of Economics and Management 2020 - 2026  
**Advisor:** Prof. Huan Zheng  
**Co-Advisor:** Prof. Taotao He

**University of Toronto** Toronto, Canada  
Visiting Ph.D. student, Rotman School of Management 2023 - 2024  
**Host:** Prof. Ningyuan Chen

**Tongji University** Shanghai, China  
B.Sc. in Information Systems and Management, School of Economics and Management 2016 - 2020

## RESEARCH PAPERS

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### Assortment Optimization Under History-Dependent Utility [Link]

with Taotao He and Huan Zheng

*Operations Research* (Minor revision)

- Incorporate history-dependent choice behavior into a multi-period assortment planning
- Obtain a globally optimal assortment plan using perspective formulation, the McCormick envelope, and the Lovász extension
- A case study using catering service data demonstrates 17.8% revenue improvement

### Strong Formulations for Logit-based Multi-Purchase Behavior

with Taotao He and Zhongqi Wu

Soon submitted to *Operations Research*

- Propose exact MIP formulations leveraging recursive McCormick/odd-cycle/running-intersection inequalities and convexification techniques from fractional programming
- Obtain globally optimal assortments under single, mixed, and robust Logit-MPB choice models

### Joint Ranking and Assortment Optimization under Order-Dependent Choice Model

with Taotao He and Huan Zheng

Work in progress, to be submitted to *Management Science*

- Integrate the order-dependent choice model into a multi-store assortment planning
- Obtain globally optimal product ranking and assortments via a compact, scalable MIP formulation based on facial-decomposition and bounds-free inequalities

### Network Revenue Management Under Regime Switching Demand

with Ningyuan Chen and Huan Zheng

Work in progress

## Revisiting Random Utility Model under a Multilinear Optimization Lens

with Taotao He and Huan Zheng

Work in progress

## Data-Driven and People-Centric Operations: Research Opportunities in Retail Operations [Link]

with Yuanzheng Ma and Huan Zheng

Published at *Fundamental Research*, 2025

## INDUSTRY PROJECTS

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### SmartCater: Intelligent Menu Planning (Sovell, with Prof. Ying Rong and Prof. Huan Zheng)

- Challenge: optimize multi-period menus to maximize revenue while accounting for consumers' satiation behavior, chefs' adoption, and operational constraints
- Approach: a randomized policy and a nonlinear model that finds the optimal menus
- Outcome: 17.8% revenue increase in real-data experiments; a manuscript under review at *OR*

### Decoding Demand: The Impact of Product Line Tiers (Jianzhijia Pharmacy, with Prof. Huan Zheng)

- Challenge: quantify the impact of product line tiers on demand under consumer choice behavior
- Approach: a two-stage estimation and a compact, scalable MIP model
- Outcome: a manuscript in progress, aiming to provide a general model for product line design

## TEACHING ASSISTANT

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### Modeling and Optimization

Fall 2020, 2021, 2022

- Topic: data analytics, modeling, and optimization tools for business decision-making
- Designed assignments, the final project, and a lecture on column generation
- Delivered a lecture on Python programming and Gurobi implementation

### Optimization Methods for Economics

Spring 2021

- Topic: fundamental optimization models and tools motivated by economic applications
- Evaluated assignments and provided support for Julia coding tasks

## HONORS & AWARDS

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Third Place, Best Paper Award, National Conference on Supply Chain and Operation Management (ISCOM), 2024

Outstanding Graduate Award, Tongji 2020

National Scholarship, Tongji 2019

First-Class Scholarship for Outstanding Students, Tongji 2017, 2018

## FUNDINGS

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### User Behavior and Algorithm Design in Online Transaction Platforms (Participant)

- Funded by the National Natural Science Foundation of China (No.72231003)

## CONFERENCE PRESENTATIONS

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### Assortment Optimization Under History-Dependent Utility

- The POMS International Conference in China Jul. 2025
- The 15th POMS-HK International Conference Jan. 2025
- INFORMS Revenue Management and Pricing (RMP) Section Conference Jul. 2024
- INFORMS Annual Meeting, Arizona Oct. 2023
- The 15th International Annual Conference of the Chinese Scholars Association for Management Science and Engineering (CSAMSE) Jul. 2023

### Strong Formulations for Logit-based Multi-Purchase Behavior

- INFORMS Annual Meeting, Atlanta (scheduled) Oct. 2025

## SERVICE

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Reviewer for Journal of Systems & Management

Coordinated one-to-one student-speaker meetings for Antai seminars Spring 2023

## REFERENCES

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### Ningyuan Chen

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