Jiayu Kamessi Zhao

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EDUCATION

Massachusetts Institute of Technology, Cambridge, MA
Candidate for PhD in Operations Research; expected completion, May 2025
GPA: 5.0/5.0
Advisor: Daniel Freund

Columbia University, New York, NY
BA in Operations Research: Financial Engineering, May 2020
Summa Cum Laude

RESEARCH EXPERIENCE

Massachusetts Institute of Technology, Cambridge, MA 2020-Present
Research Assistant
My primary research interests lie at the intersection of online algorithms, stochastic decision-making, and game theory, with applications in pricing and revenue management. My past works include

- solving the quantity-based single-resource overbooking problem and proposing the first online algorithm that achieves uniform loss guarantee in such setting;
- developing algorithms that leverage opaque selling for online merchants to save inventory costs with provably minimal discounts given by opaque selling;
- offering pricing suggestions to a start-up with nation-wide parking infrastructure and conducting A/B testing to examine the results.

Currently, I am working on the supply chain problem where autonomous vehicles (AV) and human-operated vehicles (HV) coexist, applying optimization tools to understand the strategic behaviors of market participants and when AV/HV is prioritized.

Columbia University, New York, NY 2019-2020
Research Assistant
Supervisor: Jay Sethuraman
Conducted research on dynamic search and rescue games and solved cases where locations have unequal success probabilities, unequal fixed costs and varying cost functions.

Columbia University, New York, NY 2017-2020
Research Assistant
Supervisor: Soulaymane Kachani
Aggregated product and inter-product export data to visualize product space of countries and analyzed countries' structural optimality using a complexity-based framework.

WORK EXPERIENCE

AllianceBernstein L.P., New York, NY Summer 2019
Quantitative Research Intern
Formulated a market timing strategy that adopts stock-bond relative return before month end as trading signal by verifying the existence of month-end re-balancing flows between equity and bond market; quantified the impact of Commodity Trading Advisor (CTA) participation rates in commodities market and examined the impact of the degree of CTA participation on trend-following strategy returns

Columbia Business School, New York, NY Summer 2018
Summer Research Intern
Validated the tendency for active funds to trade against passive flows by applying econometric and statistical tools to historical data on mutual fund portfolio disclosures

TEACHING EXPERIENCE

Massachusetts Institute of Technology, Cambridge, MA — Spring 2022
Teaching Assistant for 15.761 Introduction to Operations Management
Held weekly recitation sessions and office hours, drafted homework solutions and graded courses materials.

Columbia University, New York, NY — Fall 2018
Course Assistant for IEOR 3658 Probability for Engineers
Graded courses materials and administered course logistics.

Columbia University, New York, NY — Fall 2018
Teaching Assistant for MATH 2030 Ordinary Differential Equations
Graded problem sets, drafted homework solutions and held office hours.

PUBLICATIONS

"Balls, Bins, and Just a Few Opaque Promotions", with D. Freund and C. Hssaine. 2022. Submitted to Management Science.

"Overbooking with Bounded Loss", with D. Freund. 2021. Submitted to Mathematics of Operations Research.

- Accepted at the Twenty-Second ACM Conference on Economics and Computation (EC'21).

SELECTED TALKS

"Overbooking with Bounded Loss". Presented at EC'21, July 2021; INFORMS, October 2021.

HONORS AND AWARDS

The Sebastian B. Littauer Award — 2020
Honor from the Department of Industrial Engineering and Operations Research at Columbia University for outstanding promise of scholarly achievement

Tau Beta Pi Honor Society — 2018-2020
Membership of the oldest engineering honor society for students with a history of academic achievement as well as a commitment to personal and professional integrity.

The Dean's List — 2016-2020
Recognition of academic excellence by the Dean of Columbia Engineering.

C.P. Davis Scholar — 2016
Recognition by Columbia University for intellectual pursuits, extracurricular achievements, and promise for future growth and exploration.

Medals in United States Academic Decathlon — 2015
Gold Medal in Mathematics, Gold Medal in Science and Silver Medal in Social Science at the International Final of United States Academic Decathlon 2015.

SKILLS AND ACTIVITIES

Programming Skills: Python, Julia, Gurobi, SQL, MATLAB, R, Java
Softwares: LaTeX, Word, Excel, PowerPoint
Languages: English (proficient), Mandarin (native)
Interests: Piano, Oil Painting, Swimming, Running