

## 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

<b>TEACHING EXPERIENCE</b>	<b>Massachusetts Institute of Technology</b> , Cambridge, MA	Spring 2022
	<i>Teaching Assistant</i> for 15.761 Introduction to Operations Management	
	Held weekly recitation sessions and office hours, drafted homework solutions and graded courses materials.	
	<b>Columbia University</b> , New York, NY	Fall 2018
	<i>Course Assistant</i> for IEOR 3658 Probability for Engineers	
	Graded courses materials and administered course logistics.	
	<b>Columbia University</b> , New York, NY	Fall 2018
	<i>Teaching Assistant</i> for MATH 2030 Ordinary Differential Equations	
	Graded problem sets, drafted homework solutions and held office hours.	
<b>PUBLICATIONS</b>	<i>“Balls, Bins, and Just a Few Opaque Promotions”</i> , with D. Freund and C. Hssaine. 2022. Working Paper.	
	<i>“Overbooking with Bounded Loss”</i> , with D. Freund. 2021. Minor Revision at Mathematics of Operations Research. <ul style="list-style-type: none"> <li>Accepted at the Twenty-Second ACM Conference on Economics and Computation (EC’21).</li> </ul>	
<b>SELECTED TALKS</b>	<i>“Overbooking with Bounded Loss”</i> . Presented at EC’21, July 2021; INFORMS, October 2021.	
<b>HONORS AND AWARDS</b>	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.	
<b>SKILLS AND ACTIVITIES</b>	<i>Programming Skills:</i> Python, Julia, Gurobi, SQL, MATLAB, R, Java <i>Softwares:</i> L <sup>A</sup> T <sub>E</sub> X, Word, Excel, PowerPoint <i>Languages:</i> English (proficient), Mandarin (native) <i>Interests:</i> Piano, Oil Painting, Swimming, Running	