

## Jackie Baek

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CONTACT INFORMATION	baek@stern.nyu.edu (415) 996-4275	<a href="https://jwbaek.github.io">https://jwbaek.github.io</a>
EMPLOYMENT	<b>New York University, Stern School of Business</b> Assistant Professor, Technology, Operations & Statistics	2023 -
	<b>Simons Institute for the Theory of Computing, UC Berkeley</b> Research Fellow in the program <i>Data-Driven Decision Processes</i>	Fall 2022
EDUCATION	<b>Massachusetts Institute of Technology</b> Ph.D. in Operations Research, GPA: 5.0/5.0 Thesis: Decision-Making Under Uncertainty: From Theory to Practice Advisor: Vivek Farias	2016 - 2022
	<b>University of Waterloo</b> Bachelor of Mathematics, GPA: 93.0/100.0 Joint Honours Computer Science & Combinatorics and Optimization	2011 - 2016
INTERESTS	Online decision-making, algorithmic fairness, machine learning, data-driven analytics	
PAPERS	<ol style="list-style-type: none"><li><b>1. Fair Exploration via Axiomatic Bargaining</b> with Vivek Farias Under review in <i>Management Science</i> Preliminary version: <i>NeurIPS 2021 (Spotlight, top 3% of submissions)</i><ul style="list-style-type: none"><li>★ Second Place, <i>MSOM Student Paper Competition 2022</i></li><li>★ Finalist, <i>George Nicholson Student Paper Competition 2021</i></li><li>★ Finalist, <i>RMP Jeff McGill Student Paper Award 2021</i></li><li>★ Honorable Mention, <i>MIT ORC Best Student Paper Competition 2021</i></li><li>★ Oral presentation, <i>1st ACM Conference on Equity &amp; Access in Algorithms, Mechanisms, &amp; Optimization, 2021</i></li></ul></li><li><b>2. The Limits to Learning a Diffusion Model</b> with Vivek Farias, Andreea Georgescu, Retsef Levi, Tianyi Peng, Deeksha Sinha, Joshua Wilde, Andrew Zheng Under review in <i>Management Science</i> Preliminary version: <i>22nd ACM conference on Economics and Computation, 2021</i><ul style="list-style-type: none"><li>★ Finalist, <i>Post-Pandemic Supply Chain and Healthcare Management Best Paper Competition 2021</i></li></ul></li><li><b>3. Evaluation of individual and ensemble probabilistic forecasts of COVID-19 mortality in the United States</b> with COVID-19 Forecast Hub <i>Proceedings of the National Academy of Sciences, 2022</i><ul style="list-style-type: none"><li>- This paper resulted from contributing COVID-19 forecasts (from the paper “The Limits to Learning a Diffusion Model”) to the COVID-19 Forecast Hub.</li></ul></li><li><b>4. TS-UCB: Improving on Thompson Sampling With Little to No Additional Computation</b> with Vivek Farias <i>AISTATS 2023</i></li></ol>	

**5. Bifurcating Constraints to Improve Approximation Ratios for Network Revenue Management with Reusable Resources**

with Will Ma

*Operations Research*, 2022

Preliminary version: *12th International Symposium on Algorithmic Game Theory*, 2019

**6. A Game-Theoretic Analysis of Reallocation Mechanisms for Airport Landing Slots**

with Hamsa Balakrishnan

*IEEE Transactions on Intelligent Transportation Systems*, 2020

TEACHING  
EXPERIENCE

**Operations Management (15.778)**

*Teaching Assistant* for Sloan Fellows MBA Students

Summer 2020

**The Analytics Edge (15.071)**

*Teaching Assistant* for MBA Students

Spring 2018

**Computing in Optimization and Statistics (15.S60)**

*Instructor* for a 3-hour lecture on computing tools for PhD students

2017, 2018

WORK  
EXPERIENCE

**GRAIL**

*Machine Learning Engineer Intern*

Palo Alto, CA

Summer 2018

Investigated genomic features on its ability to improve detecting early-stage cancer

**Snap**

*Software Engineer Intern*

Venice, CA

Fall 2014, Summer 2016

Improved app startup performance by implementing incremental updates

**Bloomberg**

*Software Engineer Intern*

London, UK

Fall 2015

Optimized a financial dashboard using a dependency graph to minimize redundant function calls

**Dropbox**

*Software Engineer Intern*

San Francisco, CA

Fall 2013, Spring 2014

Optimized sync by implementing delta compression using finite-state machines

**LogicBlox**

*Software Engineer Intern*

Atlanta, GA

Spring 2013

**Axentra**

*Software Engineer Intern*

Ottawa, Canada

Summer 2012

SERVICE

Reviewer for Journals: *Operations Research*, *Management Science*, *Manufacturing & Service Operations Management*, *Operations Research Letters*, *European Journal of Operational Research*, *Journal of Machine Learning Research*, *IEEE Control Systems Letters*, *IEEE Transactions on Intelligent Transportation Systems*, *INFORMS Journal on Computing*

Program Committee/Reviewer for Conferences: *FACCT 2022/2023*, *WINE 2022*, *ALT 2023*, *The Web Conference 2023*, *AISTATS 2023*, *EC 2023*

Session Chair, INFORMS Annual Meeting

2021, 2022

Student Coordinator, MIT ORC Seminar Series

Fall 2020

## TALKS

*Fair Exploration via Axiomatic Bargaining*

Northwestern Kellogg, Columbia IEOR, USC Marshall, Johns Hopkins Carey, 2022  
 NYU Stern, Stanford GSB, Duke Fuqua, Yale SOM, Michigan Ross, Chicago Booth,  
 Rotman Young Scholar Seminar, Caltech RSRG

UPenn Wharton, UBC Sauder, UNC Kenan-Flagler, Cornell ORIE, 2021  
 MIT OM Seminar, MIT Data Science Lab Seminar, Cornell Young Researchers Work-  
 shop, Marketplace Innovation Workshop, MSOM Conference, RMP Conference

*The Limits to Learning a Diffusion Model*

Healthcare Operations SIG Meeting 2021

ACM conference on Economics and Computation 2021

*TS-UCB: Improving on Thompson Sampling With Little to No Additional Computation*

INFORMS Annual Meeting 2020

*Bifurcating Constraints to Improve Approximation Ratios for (Reusable) Network Revenue Management*

INFORMS Annual Meeting 2019

Revenue Management and Pricing 2019

POMS Annual Conference 2019

*Mechanism Design for Airport Landing Slot Exchange*

LIDS Student Conference 2018

★ Runner-up, *Best Presentation Award*

INFORMS Annual Meeting 2018

HONORS AND  
AWARDS

Second Place, MSOM Student Paper Competition 2022

Finalist, George Nicholson Student Paper Competition 2021

Finalist, RMP Jeff McGill Student Paper Award 2021

Honorable Mention, MIT ORC Best Student Paper Competition 2021

Finalist, Post-Pandemic Supply Chain and Healthcare Management Best Paper Com-  
 petition 2021

Runner-up, MIT LIDS Student Conference Best Presentation 2018

NSERC Undergraduate Student Research Award 2015

Professional Education Foundation Scholarship, University of Waterloo 2014

Mathematics National Scholarship, University of Waterloo 2011 - 2016

VOLUNTEER  
EXPERIENCE**COVID-19 Alliance Senior Support Team of New Hampshire**

*Data Scientist* 2020 - 2021

Built and deployed an automated communication system (SMS and email) with all  
 senior residential facilities in NH, used daily from April 2020 to June 2021

**Sidney-Pacific Graduate Student Residence (MIT)**

*Brunch Chair* 2016 - 2018

Led a group of ~50 volunteers every month to cook brunch for 300+ residents

## OTHER

Citizenship: Canadian

Hobbies: squash, running, snowboarding, basketball