

Jackie Baek

- CONTACT INFORMATION baek@mit.edu <http://www.mit.edu/~baek/>
(415) 996-4275
- EDUCATION **Massachusetts Institute of Technology** 2016 - 2022 (expected)
PhD Candidate in Operations Research, GPA: 5.0/5.0
Advisor: Vivek Farias
- University of Waterloo** 2011 - 2016
Bachelor of Mathematics, GPA: 93.0/100.0
Joint Honours Computer Science & Combinatorics and Optimization
- INTERESTS Online decision-making, algorithmic fairness, machine learning, data-driven analytics
- PAPERS
- 1. Fair Exploration via Axiomatic Bargaining**
with Vivek Farias
Preliminary version: *NeurIPS 2021 (Spotlight, top 3% of submissions)*
 - ★ Finalist, *George Nicholson Student Paper Competition 2021*
 - ★ Finalist, *RMP Jeff McGill Student Paper Award 2021*
 - ★ Honorable Mention, *MIT ORC Best Student Paper Competition 2021*
 - ★ Oral presentation, *1st ACM Conference on Equity & Access in Algorithms, Mechanisms, & Optimization, 2021*
 - 2. The Limits to Learning a Diffusion Model**
with Vivek Farias, Andreea Georgescu, Retsef Levi, Tianyi Peng, Deeksha Sinha, Joshua Wilde, Andrew Zheng
Submitted to *Management Science*
Preliminary version: *22nd ACM conference on Economics and Computation, 2021*
 - ★ Finalist, *Post-Pandemic Supply Chain and Healthcare Management Best Paper Competition 2021*
 - 3. Evaluation of individual and ensemble probabilistic forecasts of COVID-19 mortality in the US**
with COVID-19 Forecast Hub
Proceedings of the National Academy of Sciences, 2022
 - This paper resulted from contributing COVID-19 forecasts (from the paper “The Limits to Learning a Diffusion Model”) to the COVID-19 Forecast Hub.
 - 4. TS-UCB: Improving on Thompson Sampling With Little to No Additional Computation**
with Vivek Farias
Submitted
 - 5. Bifurcating Constraints to Improve Approximation Ratios for Network Revenue Management with Reusable Resources**
with Will Ma
Operations Research, 2022 (Articles in Advance)
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) <i>Teaching Assistant</i> for Sloan Fellows MBA Students	Summer 2020
	The Analytics Edge (15.071) <i>Teaching Assistant</i> for MBA Students	Spring 2018
	Computing in Optimization and Statistics (15.S60) <i>Instructor</i> for a 3-hour lecture on computing tools for PhD students	2017, 2018
WORK EXPERIENCE	GRAIL <i>Machine Learning Engineer Intern</i> Investigated genomic features on its ability to improve detecting early-stage cancer	Palo Alto, CA Summer 2018
	Snap <i>Software Engineer Intern</i> Improved app startup performance by implementing incremental updates	Venice, CA Fall 2014, Summer 2016
	Bloomberg <i>Software Engineer Intern</i> Optimized a financial dashboard using a dependency graph to minimize redundant function calls	London, UK Fall 2015
	Dropbox <i>Software Engineer Intern</i> Optimized sync by implementing delta compression using finite-state machines	San Francisco, CA Fall 2013, Spring 2014
	LogicBlox <i>Software Engineer Intern</i>	Atlanta, GA Spring 2013
	Axentra <i>Software Engineer Intern</i>	Ottawa, Canada Summer 2012
SERVICE	Reviewer for <i>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</i> Session Chair, INFORMS Annual Meeting Student Coordinator, MIT ORC Seminar Series Student Coordinator, MIT OM Seminar Series	2021 Fall 2020 Spring 2020
HONORS AND AWARDS	Finalist, George Nicholson Student Paper Competition Finalist, RMP Jeff McGill Student Paper Award Honorable Mention, MIT ORC Best Student Paper Competition Finalist, Post-Pandemic Supply Chain and Healthcare Management Best Paper Competition Runner-up, MIT LIDS Student Conference Best Presentation NSERC Undergraduate Student Research Award Professional Education Foundation Scholarship, University of Waterloo Mathematics National Scholarship, University of Waterloo	2021 2021 2021 2021 2018 2015 2014 2011 - 2016

TALKS	<i>Fair Exploration via Axiomatic Bargaining</i>	
	Cornell Young Researchers Workshop	2021
	Data Science Lab Seminar, MIT	2021
	Marketplace Innovation Workshop	2021
	MSOM Conference	2021
	RMP Conference	2021
	<i>The Limits to Learning a Diffusion Model</i>	
	Healthcare Operations SIG Meeting	2021
	ACM conference on Economics and Computation	2021
	<i>TS-UCB: Improving on Thompson Sampling With Little to No Additional Computation</i>	
	INFORMS Annual Meeting	2020
	<i>Bifurcating Constraints to Improve Approximation Ratios for (Reusable) Network Revenue Management</i>	
	INFORMS Annual Meeting	2019
	Revenue Management and Pricing	2019
	POMS Annual Conference	2019
<i>Mechanism Design for Airport Landing Slot Exchange</i>		
LIDS Student Conference	2018	
★ Runner-up, <i>Best Presentation Award</i>		
INFORMS Annual Meeting	2018	
VOLUNTEER EXPERIENCE	COVID-19 Alliance Senior Support Team of New Hampshire	
	<i>Data Scientist</i>	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)	
	<i>Brunch Chair</i>	2016 - 2018
	Led a group of ~50 volunteers every month to cook brunch for 300+ residents	
OTHER	Citizenship: Canadian	
	Hobbies: squash, running, snowboarding, basketball	