Jackie Baek

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EMPLOYMENT

New York University, Stern School of Business 2023 -
Assistant Professor, Technology, Operations & Statistics

Simons Institute for the Theory of Computing, UC Berkeley Fall 2022
Research Fellow in the program *Data-Driven Decision Processes*

EDUCATION

Massachusetts Institute of Technology 2016 - 2022
Ph.D. in Operations Research
Thesis: Decision-Making Under Uncertainty: From Theory to Practice
Advisor: Vivek F. Farias

University of Waterloo 2011 - 2016
Bachelor of Mathematics
Joint Honours Computer Science & Combinatorics and Optimization

PUBLICATIONS

Policy Optimization for Personalized Interventions in Behavioral Health
with Justin J. Boutilier, Vivek F. Farias, Jónas Oddur Jónasson, Erez Yoeli
Manufacturing and Service Operations Management (Accepted)
⋆ Finalist, *Pierskalla Best Paper Award 2024*

The Limits to Learning a Diffusion Model
with Vivek F. Farias, Andreea Georgescu, Retsef Levi, Tianyi Peng, Deeksha Sinha, Joshua Wilde, Andrew Zheng
Management Science (Accepted)
Preliminary version: *22nd ACM conference on Economics and Computation, 2021*

Fair Exploration via Axiomatic Bargaining
with Vivek F. Farias
Management Science, 2024
Preliminary version: *NeurIPS 2021 (Spotlight, top 3% of submissions)*
⋆ 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*
⋆ Oral presentation, *1st ACM Conference on Equity & Access in Algorithms, Mechanisms, & Optimization, 2021*

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*

TS-UCB: Improving on Thompson Sampling With Little to No Additional Computation
with Vivek F. Farias
AISTATS 2023

Evaluation of individual and ensemble probabilistic forecasts of COVID-19 mortality in the United States
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.

A Game-Theoretic Analysis of Reallocation Mechanisms for Airport Landing Slots
with Hamsa Balakrishnan
IEEE Transactions on Intelligent Transportation Systems, 2020

Working Papers

Leveraging Reusability: Improved Competitive Ratio of Greedy for Reusable Resources
with Shixin Wang

When Collaborative Filtering is not Collaborative: Unfairness of PCA for Recommendations
with David Liu, Tina Eliassi-Rad

The Feedback Loop of Statistical Discrimination
with Ali Makhdoumi

Social Learning with Bounded Rationality: Negative Reviews Persist under Newest First
with Atanas Dinev, Thodoris Lykouris
Preliminary version: *25th ACM conference on Economics and Computation, 2024*

Teaching

Operations Management (Undergraduate Core) — NYU Stern
Instructor — Spring 2024

Operations Management (15.778) — MIT Sloan
Teaching Assistant — Summer 2020

The Analytics Edge (15.071) — MIT Sloan
Teaching Assistant — Spring 2018

Computing in Optimization and Statistics (15.S60) — MIT Sloan
Instructor for a 3-hour lecture on computing tools for PhD students — 2017, 2018

Invited Talks

2024: BIRS Workshop on Combinatorial Optimization for Online Platforms, NYU Langone HiBRID Cafe, TTIC Workshop on Data-Driven Decision Processes, NYU Theory CS Seminar

2023: CUHK Business School, IMSI Workshop on Analytics for Improved Healthcare, NYU Digital Health Research Workgroup, UMass Amherst CS Theory

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

2021: UPenn Wharton, UBC Sauder, UNC Kenan-Flagler, Cornell ORIE, MIT OM Seminar, MIT Data Science Lab Seminar, Cornell Young Researchers Workshop

Service

Reviewer for Journals: *Management Science, Operations Research, Manufacturing & Service Operations Management, Operations Research Letters, Mathematics of Operations Research, 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: *EC 2023/2024, FAccT 2022/2023/2024, WINE 2022, ALT 2023, The Web Conference 2023, AISTATS 2023, EAAMO 2023/2024, NeurIPS 2023, ICLR 2024, COLT 2024, MSOM SIG 2024, RMP Student Paper Competition 2024*

Co-organizer, TTIC Summer Workshop on *Data-Driven Decision Processes: From Theory to Practice* — August 2024

Session Chair, INFORMS Annual Meeting — 2021-2024

Student Coordinator, MIT ORC Seminar Series — Fall 2020

Student Coordinator, MIT OM Seminar Series — Spring 2020

Honors and Awards

Finalist, Pierskalla Best Paper Award — 2024

Management Science Distinguished Service Award — 2023

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 Competition — 2021

Runner-up, MIT LIDS Student Conference Best Presentation — 2018

NSERC Undergraduate Student Research Award — 2015

Mathematics National Scholarship, University of Waterloo — 2011 - 2016

Work Experience

GRAIL — Palo Alto, CA
Machine Learning Engineer Intern — Summer 2018
Investigated genomic features on its ability to improve detecting early-stage cancer

Snap — Venice, CA
Software Engineer Intern — Fall 2014, Summer 2016
Improved app startup performance by implementing incremental updates

Bloomberg — London, UK
Software Engineer Intern — Fall 2015
Optimized a financial dashboard using a dependency graph to minimize redundant function calls

Dropbox — San Francisco, CA
Software Engineer Intern — Fall 2013, Spring 2014
Optimized sync by implementing delta compression using finite-state machines

LogicBlox — Atlanta, GA
Software Engineer Intern — Spring 2013

Axentra — Ottawa, Canada
Software Engineer Intern — Summer 2012

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