Sébastien Martin, Assistant Professor

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Links: Personal Website | Google Scholar | LinkedIn | Github
Last Updated: 2024-06

SUMMARY

I am an assistant professor of Operations at the Kellogg School of Management, Northwestern University. My research is at the interface optimization, machine learning and AI, with applications to transportation and the gig economy.

EDUCATION

Massachusetts Institute of Technology, Cambridge, MA, USA 2014 — 2019
Ph.D. - Operations Research

Ecole Polytechnique, Palaiseau, France 2011 — 2015
B.Sc. & M.Sc. - Applied Mathematics

WORK

Northwestern University - Kellogg | Assistant Professor of Operations 2020 — Present
I teach the Operations Management core course in the MBA program.

Lyft, Inc. | Postdoctoral Fellow, NYC office 2019 — 2020
I worked with the Marketplace Innovation Lab to improve dispatch algorithms.

Google | Software Engineering Intern, Mountain View office 2016-06 — 2016-08
Successfully passed the Google Software Engineer coding interviews. Worked for Google Maps. Researched, experimented and implemented novel algorithms to improve maps and navigation data using large geolocation datasets (> 100Gb).

UC Berkeley | Visiting Researcher 2014-04 — 2014-08

PUBLICATIONS

In decreasing order of latest update. Links to papers are available on my website.

Trading Flexibility for adoption: Dynamic versus static walking in ridesharing | J. Yan, S. Martin, S. Taylor,
Accepted in Management Science 2024

Two-Sided Flexibility in Platforms | D. Freund, S. Martin, J. (K.) Zhao
Submitted 2024
MIT ORC Best Student Paper Award, 2024

Algorithmic Precision and Human Decision: A Study of Interactive Optimization for School Schedules | A. Delarue, Z. Lian, S. Martin
R&R at Management Science 2024
Accepted in EC 2024.

Value of Sharing in Robots-as-a-Service Operations | A. Jacquillat, S. Martin, K. Zhang
Submitted 2024

Employees versus Contractors: An Operational Perspective. | I. Lobel, S. Martin, H. Song
Manufacturing & Sercice Operations Management (Frontiers in Operations) 2024

Detours in Shared Rides | I. Lobel, S. Martin
Management Science 2024

Human-AI Interactions and Societal Pitfalls | F. Castro, J. Gao, S. Martin
Submitted 2024
Accepted in EC 2024. Featured in the Wall Street Journal.

Autonomous Vehicles in Ride-Hailing and the Threat of Spatial Inequalities | F. Castro, J. Gao, S. Martin
To be submitted 2024

A Better Match for Everyone: Reinforcement Learning at Lyft | S. Martin and 10+ Lyft collaborators
INFORMS Journal on Applied Analytics 2024
2023 Franz Edelman Award Laureate

Value of Sharing in Robots-as-a-Service Operations | A. Jacquillat, K. Wang
Working Paper 2024

Labor Cost Free-Riding in the Gig Economy | Z. Lian, S. Martin, G. van Ryzin
Major revision, Management Science 2023
INFORMS RMP (Revenue Management and Pricing) Student Paper Award Finalist, 2021

Mobility-on-Demand Meets Shuttles on the Same Mile | S. Chopra, P. Mishra, K. Smilowitz
Working Paper 2023

Supply Prioritization in Hybrid Marketplaces | F. Castro, J. Gao, S. Martin
Working Paper 2022

Real-Time Rideshare Driver Supply Values using Online Reinforcement Learning | B.Han, H. Lee, S. Martin
KDD 2022 (Machine Learning Conference) 2022

Solving the ride-sharing productivity paradox: Priority dispatch and optimal priority sets | V. Krishnan, R. Iglesias, S. Martin, V. Pattabhiraman, S. Wang, G. van Ryzin
INFORMS Journal on Applied Analytics 2022
Daniel H. Wagner Prize Finalist, 2022

Bus Routing Optimization Helps Boston Public Schools Design Better Policies | D. Bertsimas, A. Delarue, W. Eger, J. Hanlon, S. Martin
INFORMS Journal on Applied Analytics 2020
2019 Franz Edelman Award Laureate

Optimizing schools' start time and bus routes | D. Bertsimas, A. Delarue, S. Martin
Proceedings of the National Academy of Science 2019
Featured in the Wall Street Journal and the Boston Globe. MIT ORC Best Student Paper Award, 2018. Doing Good with Good OR INFORMS award, Second Place, 2019.

The Price of Interpretability | D. Bertsimas, A. Delarue, P. Jaillet, S. Martin
arXiv 2019

Travel Time Estimation in the Age of Big Data | D. Bertsimas, A. Delarue, P. Jaillet, S. Martin
Operations Research 2019

Online Vehicle Routing: The Edge of Optimization in Large-Scale Applications | D. Bertsimas, P. Jaillet, S. Martin
Operations Research 2019
Best Presentation (2018 LIDS conference)

Creating complex congestion patterns via multi-objective optimal freeway traffic control with application to cyber-security | J. Reilly, M. Payer, A. Bayen
Transportation Research Part B 2016

RECOGNITIONS

Best Student Paper Award | MIT ORC 2024
For my paper "Two-Sided Flexibility in Platforms", the student is my co-author Kamessi Zhao.

Franz Edelman Award Laureate (with Lyft) | INFORMS 2023
Most important award for applied operations research, for my work on reinforcement learning with Lyft.

Daniel H. Wagner Prize Finalist | INFORMS 2022
Award for "strong mathematics applied to practical problems", for my work on platform equilibrium optimization with Lyft.

RMP Student Paper Award Finalist | INFORMS 2021
Award for the best student paper in revenue management and pricing for my paper on labor cost free-riding in the gig economy. The student was Zhen Lian.

Franz Edelman Award Laureate (with Boston Public Schools) | INFORMS 2019
Most important award for applied operations research, for my work on bus routing optimization with Boston Public Schools.

Doing Good with Good OR award, Second Place | INFORMS 2019
For my paper "optimizing schools' start time and bus routes".

Best Student Paper Award | MIT ORC 2018
For my paper "optimizing schools' start time and bus routes".

Best Presentation | LIDS 2018
For my paper "Online Vehicle Routing: The Edge of Optimization in Large-Scale Applications".

Boston Public Schools Transportation Challenge Winner | Boston Public Schools 2017
Winner of a $30,000 contest to optimize school bus routes and school schedules.

Zodiac Aerospace – Gerondeau Innovation Prize | Zodiac Aerospace & Ecole Polytechnique 2013
Won a €10,000 prize for most innovative start-up, using machine learning to build a smart bicycle that automatically shifts gears.

French Medal of National Defense, Bronze level | France 2012
I received this French military honor for my cumulated time in external operations during my year of service as a military firefighter.

LANGUAGES

English *(Fluent)* , French *(Native speaker)* , Spanish *(Intermediate)*