Sébastien Martin, Assistant Professor

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Google Scholar: https://scholar.google.com/citations?user=ffqbs_0AAAAJ | **LinkedIn:** https://www.linkedin.com/in/sebmart/ | **Github:** https://github.com/sebmart

SUMMARY

I am an assistant professor of Operations at the Kellogg School of Management, Northwestern University. My research focuses on the interface of large-scale optimization and operations management, with applications to transportation, the gig economy, public sector operations and AI.

EDUCATION

Massachusetts Institute of Technology 2014 - 2019
Ph.D. - Operations Research

Ecole Polytechnique 2011 - 2015
B.Sc. & M.Sc. - Applied Mathematics

EXPERIENCE

Northwestern University - Kellogg | Assistant Professor of Operations 2020 - Current

I taught the Operations Management core course in the MBA program.

ESAB Corporation | AI advisor to the CEO 2025 - Current

ESAB is a global leader in welding and cutting products. I advise the CEO on the use of AI to improve the company's operations.

Lyft, Inc. | Postdoctoral Fellow 2019 - 2020

I worked with the Marketplace Innovation Lab to improve dispatch algorithms.

Google | Software Engineering Intern May 2016 - Jul 2016

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 Mar 2014 - Jul 2014

PUBLICATIONS

Algorithmic Precision and Human Decision: A Study of Interactive Optimization for School Schedules 2025
Accepted at Management Science
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4324076

Accepted in EC 2024, semi-finalist if the 2024 Wagner Prize.

The Trap of Complexity in Experimentation 2025
Submitted to Management Science
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5126086

Labor Cost Free-Riding in the Gig Economy 2025
Major revision, Management Science
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3775888

INFORMS RMP (Revenue Management and Pricing) Student Paper Award Finalist, 2021

Trading Flexibility for adoption: Dynamic versus static walking in ridesharing 2025
Management Science
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3984476

Detours in Shared Rides 2025
Management Science
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3711072

Two-Sided Flexibility in Platforms 2024
Submitted to Operations Research
https://arxiv.org/abs/2404.04709

MIT ORC Best Student Paper Award, 2024

Human-AI Interactions and Societal Pitfalls 2024
Working Paper (to be submitted to Operations Research)
https://arxiv.org/abs/2309.10448

Accepted in EC 2024. Featured in the Wall Street Journal & MIT Technology Review.

Dual-sourcing of capacity 2024
Submitted to MSOM
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4322824

Relative Monte Carlo for Reinforcement Learning 2024
Working Paper
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4857358

Value of Sharing in Robots-as-a-Service Operations 2024
To be resubmitted to Management Science
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4723289

Employees versus Contractors: An Operational Perspective. 2024
Manufacturing & Service Operations Management (Frontiers in Operations)
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3878215

Autonomous Vehicles in Ride-Hailing and the Threat of Spatial Inequalities 2024
Working Paper

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4332493

A Better Match for Everyone: Reinforcement Learning at Lyft 2024
INFORMS Journal on Applied Analytics
https://pubsonline.informs.org/doi/full/10.1287/inte.2023.0083

2023 Franz Edelman Award Laureate

Supply Prioritization in Hybrid Marketplaces 2022
Working Paper
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4119096

Real-Time Rideshare Driver Supply Values using Online Reinforcement Learning 2022
KDD 2022 (Machine Learning Conference)
https://dl.acm.org/doi/10.1145/3534678.3539141

Solving the ride-sharing productivity paradox: Priority dispatch and optimal priority sets 2022
INFORMS Journal on Applied Analytics
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4018653

Daniel H. Wagner Prize Finalist, 2022

Bus Routing Optimization Helps Boston Public Schools Design Better Policies 2020
INFORMS Journal on Applied Analytics
https://pubsonline.informs.org/doi/abs/10.1287/inte.2019.1015?journalCode=ijaa

2019 Franz Edelman Award Laureate

Optimizing schools' start time and bus routes 2019
Proceedings of the National Academy of Science
https://www.pnas.org/doi/full/10.1073/pnas.1811462116

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 2019
arXiv
https://arxiv.org/abs/1907.03419

Travel Time Estimation in the Age of Big Data 2019
Operations Research
https://pubsonline.informs.org/doi/abs/10.1287/opre.2018.1784

Online Vehicle Routing: The Edge of Optimization in Large-Scale Applications 2019
Operations Research
https://pubsonline.informs.org/doi/abs/10.1287/opre.2018.1763

Best Presentation (2018 LIDS conference)

Creating complex congestion patterns via multi-objective optimal freeway traffic control with application to cyber-security 2016
Transportation Research Part B
https://www.sciencedirect.com/science/article/abs/pii/S0191261516303307

AWARDS

INFORMS Journal on Computing Meritorious Reviewer Award 2025
INFORMS

For my service as a reviewer for INFORMS Journal on Computing.

Chair Core Course Teaching Award 2024
Kellogg School of Management, Northwestern University

For "teaching excellence" in Kellogg's core course Operations Management

Transportation Science Meritorious Service Award 2024
INFORMS TSL Society

For my service as a reviewer for the journal Transportation Science.

Best Student Paper Award 2024
MIT ORC

For my paper "Two-Sided Flexibility in Platforms", the student is my co-author Kamessi Zhao.

Franz Edelman Award Laureate (with Lyft) 2023
INFORMS

Most important award for applied operations research, for my work on reinforcement learning with Lyft.

Daniel H. Wagner Prize Finalist 2022
INFORMS

Award for "strong mathematics applied to practical problems", for my work on platform equilibrium optimization with Lyft.

RMP Student Paper Award Finalist 2021
INFORMS

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.

George B. Dantzig Dissertation Award 2019
INFORMS

For my PhD dissertation. The George B. Dantzig Award is given for the best dissertation in any area of operations research and the management sciences that is innovative and relevant to practice.

TSL dissertation prize 2019
INFORMS Transportation Science and Logistics Society

For my PhD dissertation. Oldest dissertation INFORMS prize, in the general area of transportation science and logistics.

Franz Edelman Award Laureate (with Boston Public Schools) 2019
INFORMS

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 2019
INFORMS

For my paper "optimizing schools' start time and bus routes".

Best Student Paper Award 2018
MIT ORC

For my paper "optimizing schools' start time and bus routes".

Best Presentation 2018
LIDS

For my paper "Online Vehicle Routing: The Edge of Optimization in Large-Scale Applications".

Boston Public Schools Transportation Challenge Winner 2017
Boston Public Schools

Winner of a $30,000 contest to optimize school bus routes and school schedules.

Zodiac Aerospace – Gerondeau Innovation Prize 2013
Zodiac Aerospace & Ecole Polytechnique

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 2012
France

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)*