Curriculum Vitae

Daniel Freund

Sloan Department:
Operations Management

Place of Birth: Germany

Citizenship: German
Immigration Status: Permanent Resident

I. Education

PhD, Applied Mathematics	Cornell University	2018
MSc, Applied Mathematics	Cornell University	2016
BSc, Mathematics	University of Warwick	2013

II. Title of Doctoral Thesis and Name of Thesis Advisor

Models and Algorithms for Transportation in the Sharing Economy
Advisor: David B. Shmoys

III. Principal Field(s) of Interest

Operations, Applied Probability, Optimization, Analytics, Transportation, Platforms

IV. Name and Rank of Other Sloan Faculty in Same Field

Name	*Rank*
Ali Aouad	Assistant Professor
Steven Eppinger	Professor
Vivek F. Farias	Professor
Charles Fine	Professor
Negin Golrezaei	Associate Professor (with Tenure)
Retsef Levi	Professor
Thodoris Lykouris	Assistant Professor
Georgia Perakis	Professor
Nikos Trichakis	Professor
Y. Karen Zheng	Associate Professor (with Tenure)

V. Non-MIT Employment

Employer	*Position*	*Start*	*End*
Lyft	Research Fellow	2018	2019
Motivate International	Data Scientist	2015	2016

VI. History of MIT Appointments

Rank	*Start*	*End*
Associate Professor (without Tenure)	07/2025	Present
Assistant Professor	09/2019	06/2025
Class of 1947 Career Development Assistant Professor	07/2021	06/2024

VII. MIT Activities

	Start	*End*
MIT Operations Management Seminar co-organizer (except '22-'23)	2021	present
Committees		
Stansbury MIT Sloan Reappointment Committee	2026	2026
Operations Research Center (ORC) MSc Admissions Committee	2022	present
MIT Summer Research Program Application Review Committee	2024	2024
Master of Business Analytics (MBAn) Admissions Committee	2020	2026
Transportation PhD Admissions Committee ('21, '23)	2021	2023
ORC PhD Admissions Committee	2021	2021
Wilmers MIT Sloan Reappointment Committee	2020	2020
MBAn Capstone advisor		
Nikan Hassanipak, Bernardo Chalita, Mary Lobon		
Adele Blum, Laurel Ayuyao	2025	2025
Sasha Lioutikova, Sara Pasquino	2024	2024
Vassili Chesterkine, Alexandre Berkovic, Shreya Gupta, Sri Reddy	2023	2023
Ryan Trusler, Kyle Mana, Gabriel Afriat, Mariana Suarez	2022	2022
Rui Rae Tongyu, Aarushi Bagga, Shaun Gan, Stephanie Franklin	2021	2021

VIII. Governmental Committees and Service

IX. Consulting Activities

Technical Consultant, Lyft 8/2021-2/2022 & since 2/2025

X. Other Activities

XI. Awards

***** Refers to student paper prizes received by student coauthors for joint work

	Year
INFORMS Service Science Responsible Research Paper Award	2024
INFORMS Public Sector Operations Research (PSOR) Best Paper Award (2nd Place)	2024
* MIT Operations Research Center Best Student Paper Award	2024
INFORMS Best Operations Management Paper in Operations Research Award	2023
Transportation Science Meritorious Service Award	2023
Management Science Meritorious Service Award	2022, 2023
* INFORMS Applied Probability Society (APS) Student Paper Competition (Finalist)	2022
INFORMS Applied Probability Society Best Publication Award	2021
Management Science Distinguished Service Award	2021
INFORMS Wagner Prize for Excellence in OR and Analytics (Finalist)	2020
Best Paper Award, ACM SIGCAS Computing and Sustainable Societies	2018
INFORMS George B. Dantzig Dissertation Award	2018
Production and Operations Management Society Applied Research Challenge (Finalist)	2018
INFORMS Wagner Prize for Excellence in OR and Analytics	2018
INFORMS Applied Probability Society Student Paper Competition (Finalist)	2017
INFORMS George Nicholson Student Paper Competition (Finalist)	2017
Grants	
"The Fairness-Efficiency Frontier in Humanitarian Immigration," MIT Social and Ethical Responsibilities of Computing Seed Grant ($50,000)	2024
MIT Sloan Junior Faculty Research Assistance Program ($22,728)	2024
''Efficient, reliable and equitable deployment of urban charging infrastructure	

toward large-scale vehicle electrification," MIT Mobility Initiative ($150,000) (co-PI: Alex Jacquillat) 2023
MIT Buchsbaum Grant ($90,000) 2023
MIT Sloan Junior Faculty Research Assistance Program ($33,000) 2023
MIT Sloan Junior Faculty Research Assistance Program ($30,000) 2020

XII. Professional Membership and Activities

Memberships

The Institute for Operations Research and the Management Sciences (INFORMS)
Association for Computing Machinery (ACM)

Conference and Seminar Committees / Leadership
(Organizing Committee: OC, Program Committee: PC, Senior Program Committee: SPC)

OC, INFORMS Transportation Service & Logistics (TSL)		2026
OC, INFORMS Manufacturing & Service Operations Management (MSOM)		2026
Chair, OC, Stochastic Networks, Applied Probability, and Performance	2024	2025
SPC, ACM Conference on Economics and Computation (EC)	2024	2026
SPC, ACM The Web Conference (WebConf)		2024
OC, Stochastic Networks, Applied Probability, and Performance	2023	2024
PC, ACM EC	2019	2023
Cluster Chair, INFORMS Revenue Management and Pricing (RMP) Section		2023
PC, ACM Conference on Equity and Access in Algorithms, Mechanism and Optimization (EEAMO)		2023
PC, INFORMS MSOM Conference	2022	2023
PC, INFORMS RMP Conference		2022
PC, ACM EC Workshop on Design of Online Platforms		2021
PC, ACM EC Workshop on the Operation of People-Centric Operations		2021
SPC, Mechanism Design for Social Good Workshop		2020
PC, WebConf		2020

Award Committees

Judge, INFORMS PSOR Student Paper Competition	2025	2025
Judge, INFORMS APS Student Paper Competition	2024	2025
Judge, INFORMS RMP Student Paper Competition		2024
Judge, INFORMS George Nicholson Student Paper Competition	2023	2024
Judge, INFORMS MSOM Best Student Paper Prize	2021	present

Editorial Boards

Mathematics of Operations Research (Associate Editor, Stochastic Models)	2026	present
Operations Research (Associate Editor, Transportation area)	2024	present
Transportation Science (Associate Editor, Modes & Industries)	2024	present

Journal Reviewer

Management Science, Operations Research, Mathematics of Operations Research, Manufacturing and Service Operations Management, Transportation Science, Naval Research Logistics, Production and Operations Management, INFORMS Journal on Computing, INFORMS Journal on Optimization, OR Letters

XIII. Subjects Taught

15.761 Introduction to Operations Management (2 sections) Spring '20, '22, '24, '25

15.090	Common Experience in Operations Research	Summer 2022, 2023
15.066	System Optimization and Analysis for Operations	Summer 2020, 2021
15.764	Theory of Operations Management	Spring 2021

XIV. Thesis Supervision

Co-advised indicated by *

1. Doctoral Theses Supervised

Wentao Weng*	EECS (Electrical Engineering & Computer Science)	PhD	2026
Jiayu (Kamessi) Zhao	ORC	PhD	2025

2. Master's Theses Supervised

David	LGO (Leaders for Global Operations)	MBA/SM	2026
Julia Allen*	ORC	SM	2025
Thana Somsirivattana	EECS	MEng	2025
Rachael Auline Knapp	LGO	MBA/SM	2025
Regina Ceballos Mondragon	LGO	MBA/SM	2024
Brandon Meehan	LGO	MBA/SM	2024
Gustavo Castillo	LGO	MBA/SM	2022
Michael J. Lunny	LGO	MBA/SM	2022
Wren Jiang	LGO	MBA/SM	2022
Katherine Suzanne Rawden	LGO	MBA/SM	2021
Gulsagar Singh Jassar	SDM (System Design & Management)	MSc	2021

3. Bachelor's Theses Supervised

4. Theses in Progress

Benjamin Barrientos	ORC	PhD	2027
Rowan Hess	ORC	PhD	2030

XV. Publications *(including order of co-authors, if any)*

Authors in alphabetical order as per convention of the field unless otherwise indicated by *

1. Theses

Models and Algorithms for Transportation in the Sharing Economy

2. Refereed Journal Articles

Freund, Daniel and Garrett J. van Ryzin. "Pricing Fast and Slow: Limitations of Dynamic Pricing Mechanisms in Ride-Hailing." Forthcoming in Transportation Research Part C (2025). Available at SSRN 3931844 (2021).

Freund, Daniel, Ilan Lobel, and Jiayu (Kamessi) Zhao. "On the Supply of Autonomous Vehicles in Open Platforms." Forthcoming in *Manufacturing & Service Operations Management* (2025). Available at SSRN 4178508 (2024).

Banerjee, Siddhartha, and Daniel Freund. "Good prophets know when the end is near." *Management Science*. Available at SSRN 3479189 (2024)

Freund, Daniel, and Chamsi Hssaine. “Fair Incentives for Repeated Engagement.” *Production and Operations Management*. Available at Arxiv: 2111.00002 (2024)

Freund, Daniel, Thodoris Lykouris, and Wentao Weng. “Efficient Fully Decentralized Multi-agent Learning in Asymmetric Bipartite Queuing Systems.” *Operations Research*. Available at Arxiv: 2206.03324 (2022)

Freund, Daniel, and Jiayu (Kamessi) Zhao. "Overbooking with bounded loss." Forthcoming in *Mathematics of Operations* Research. (2022). Available at ArXiv 2204.11148.

Freund, Daniel, Shane G. Henderson, and David B. Shmoys. “Minimizing Multimodular Functions and Allocating Capacity in Bike-sharing Systems.” *Operations* Research 70(5):2715-2731 (2022). Available at ArXiv 1611.09304.

Banerjee, Siddhartha, Daniel Freund, and Thodoris Lykouris. “Pricing and Optimization in Shared Vehicle Systems: An Approximation Framework.” *Operations Research* 70(3):1783-1805 (2021). Available at ArXiv 1608.06819.

* Ong, HaoYi, Daniel Freund, and Davide Crapis. “Driver Positioning and Incentive Budgeting with an Escrow Mechanism for Ridesharing Platforms.” *INFORMS Journal on Applied Analytics* 51, no. 5 (2021): 373-390. Available at ArXiv 2104.14740.

* Paul, Alice, Daniel Freund, Aaron Ferber, David B. Shmoys, and David P. Williamson. "Budgeted Prize-Collecting Traveling Salesman and Minimum Spanning Tree Problems." *Mathematics of Operations Research* 45, no. 2 (2020): 576-590.

Freund, Daniel, Shane G. Henderson, Eoin O’Mahony, and David B. Shmoys. "Analytics and Bikes: Riding Tandem with Motivate to Improve Mobility." *INFORMS Journal on Applied Analytics* 49, no. 5 (2019): 310-323.

* Carla Gomes et al. "Computational sustainability: Computing for a better world and a sustainable future." *Communications of the ACM* 62, no. 9 (2019): 56-65.

Freund, Daniel, and David P. Williamson. "Rank aggregation: New bounds for MCx." *Discrete Applied Mathematics* 252 (2019): 28-36.

Freund, Daniel, Matthias Poloczek, and Daniel Reichman. "Contagious sets in dense graphs." *European Journal of Combinatorics* 68 (2018): 66-78.

3. Articles in Refereed Conference Proceedings

Freund, Daniel, David Hausman, and Wentao Weng. “Regulating Wait-Driven Requests in Queues.” In Proceedings of the ACM Conference on Computation and Economics (EC). 2025. *Acceptance rate in Applied Modelling: 18%.*

Freund, Daniel, Ilan Lobel, and Jiayu (Kamessi) Zhao. “On the Supply of Autonomous Vehicles in Open Platforms.” In Proceedings of the ACM Conference on Computation and Economics (EC). 2024. *Acceptance rate in Applied Modelling: 21%.*

Freund, Daniel and Wentao Weng. “The Dedicated Docket in U.S. Immigration Courts: An Analysis of Fairness and Efficiency Properties.” In Proceedings of the ACM Conference on Computation and Economics (EC). 2024. *Acceptance rate in Applied Modelling: 21%.*

Freund, Daniel, and Chamsi Hssaine. “Fair Incentives for Repeated Engagement.” In Proceedings of the 19th Conference on Web and InterNet Economics (WINE), 2023. *Acceptance rate: 34%.*

Freund, Daniel, Thodoris Lykouris, and Wentao Weng. “Quantifying the Cost of Learning in Queueing Systems.” In Proceedings of the 36th Annual Conference on Proceedings in Neural Information Processing Systems (NeurIPS), 2023. *Acceptance rate: 26%.*

Freund, Daniel, Thodoris Lykouris, Bradley Sturt, Elisabeth Paulson, and Wentao Weng. “Group fairness in dynamic refugee assignment.” In Proceedings of the ACM Conference on Computation and Economics (EC). 2023. *Acceptance rate (Applied Modeling track): 20%.*

Freund, Daniel, Thodoris Lykouris, and Wentao Weng. “Efficient Fully Decentralized Multi-agent Learning in Asymmetric Queuing Systems.” 35th Annual Conference on Learning Theory (COLT). 2022. *Acceptance rate: 33%.*

Freund, Daniel, and Jiayu (Kamessi) Zhao. "Overbooking with bounded loss." In Proceedings of the ACM Conference on Computation and Economics (EC). 2021. *Acceptance rate: 26%.*

Banerjee, Siddhartha, and Daniel Freund. "Uniform Loss Algorithms for Online Stochastic Decision-Making with Applications to Bin Packing." In Proceedings of the ACM SIGMETRICS Conference. 2020. *Acceptance rate: 18%.*

Chung, Hangil, Daniel Freund, and David B. Shmoys. "Bike Angels: An Analysis of Citi Bike's Incentive Program." In Proceedings of the 1st ACM SIGCAS Conference on Computing and Sustainable Societies. 2018. *Best paper out of 25 accepted submissions*

* Paul, Alice, Daniel Freund, Aaron Feber, David B. Shmoys, David P. Williamson. "Prize-collecting TSP with a budget constraint." In Proceedings of the 25th Annual European Symposium on Algorithms (ESA). 2017. *Acceptance rate: 25%.*

Banerjee, Siddhartha, Daniel Freund, and Thodoris Lykouris. " Pricing and Optimization in Shared Vehicle Systems: An Approximation Framework." In Proceedings of the ACM Conference on Computation and Economics (EC). 2017. *Acceptance rate: 29%.*

Freund, Daniel, Shane G. Henderson, David B. Shmoys. " Minimizing Multimodular Functions and Allocating Capacity in Bike-sharing Systems." In Proceedings of the International Conference on Integer Programming and Combinatorial Optimization (IPCO). *Acceptance rate: 29%.*

* Jian, Nanjing, Daniel Freund, Holly M. Wiberg, and Shane G. Henderson. "Simulation Optimization for a Large-scale Bike-Sharing System." In Proceedings of the 2016 Winter Simulation Conference (WSC), pp. 602-613. 2016. *Acceptance rate: 67%.*

Fisch, Ben A., Daniel Freund, and Moni Naor. "Secure physical computation using disposable circuits." In Theory of Cryptography Conference, pp. 182-198. Springer, Berlin, Heidelberg, 2015. *Acceptance rate: 26%.*

Fisch, Ben, Daniel Freund, and Moni Naor. "Physical zero-knowledge proofs of physical properties." In Annual Cryptology Conference, pp. 313-336. Springer, Berlin, Heidelberg, 2014. *Acceptance rate: 33%.*

4. Articles in Non-Refereed Conference Proceedings

5. Papers/Articles in Progress or Under Review

Freund, Daniel, Thodoris Lykouris, and Wentao Weng. “The Transient Cost of Learning in Queueing Systems.” Minor Revision in *Operations Research*. Available at Arxiv:2308.07817 (2023).

Freund, Daniel and Wentao Weng. “The Dedicated Docket in US Immigration Courts: An Analysis of Fairness and Efficiency Properties.” Minor Revision in *Manufacturing & Service Operations Management*. Available at SSRN 4785713 (2024).

Freund, Daniel, Sebastien Martin, and Jiayu (Kamessi) Zhao. “Two-Sided Flexibility.” Under second round of review in *Operations Research*. Available at SSRN 4785920 (2024).

Amanihamedani, Alireza, Ali Aouad, and Daniel Freund. “Spatial Matching under Multihoming.” Under second round of review in *Operations Research*. Available at SSRN 4488342 (2023).

Freund, Daniel, Thodoris Lykouris, Bradley Sturt, Elisabeth Paulson, and Wentao Weng. “Group fairness in dynamic refugee assignment.” Under second round of review in *Operations Research*. Available at Arxiv: 2301.10642 (2025)

Freund, Daniel, David Hausman and Wentao Weng. “Regulating Wait-Driven Requests in Queues.” Major Revision in *Management Science*. Available at SSRN 5284321 (2025).

Freund, Daniel, Chamsi Hssaine, and Jiayu (Kamessi) Zhao. “On the Power of Delayed Flexibility: Balls, Bins, and a Few Opaque Promotions.” Major Revision in *Operations Research*. Available at Arxiv:2306.01968 (2025).

Barrientos, Benjamin, Daniel Freund, and Daniela Saban. “Online matching and market imbalance.” Available at Arxiv 2502.07731 (2025).

Freund, Daniel, and Samuel B. Hopkins. “Towards Practical Robustness Auditing for Linear Regression.” Available at Arxiv: 2307.16315 (2023).

6. Other Publications

* Freund, Daniel, Ashkan Norouzi-Fard, Alice Paul, Carter Wang, Shane G. Henderson, and David B. Shmoys. "Data-driven rebalancing methods for bike-share systems." In Analytics for the Sharing Economy: Mathematics, Engineering and Business Perspectives, pp. 255-278. Springer, Cham, 2020.

Freund, Daniel, Shane G. Henderson, and David B. Shmoys. "Bike sharing." In Sharing Economy, pp. 435-459. Springer, Cham, 2019.

7. Technical Reports

XVI. Invited Oral Presentations

2026:

“Regulating Wait-Driven Requests in Queues,” UBC Operations Seminar

2025:

"Regulating Wait-Driven Requests in Queues," Wharton Workshop OM in the Wild

"Regulating Wait-Driven Requests in Queues," University of Michigan (IOE Department)

"Regulating Wait-Driven Requests in Queues," Chinese University of Hong Kong

"Regulating Wait-Driven Requests in Queues," BU Questrom (OM Seminar)

"The Dedicated Docket in U.S. Immigration Courts: An Analysis of Fairness and Efficiency Properties," Information and Decision Sciences Seminar at University of Illinois in Chicago.

"Online matching and market imbalance," Banff Workshop on Dynamic Allocation and Matching.

2024:

"The Dedicated Docket in U.S. Immigration Courts: An Analysis of Fairness and Efficiency Properties," RAIN (Research on Algorithms and Incentives in Networks) Seminar at Stanford University.

"Two-sided Platform Flexibility," Stern School of Business at NYU.

"Group fairness in dynamic refugee assignment," UC Berkeley, Simons Institute for the Theory of Computing.

2023:

"Group fairness in dynamic refugee assignment," Rutgers Business School, Supply Chain Management Seminar.

"On the Supply of Autonomous Vehicles for Open Platforms," Zicklin School of Business at Baruch College.

"On the Supply of Autonomous Vehicles for Open Platforms," Kellogg School of Management at Northwestern University.

"On the Supply of Autonomous Vehicles for Open Platforms," Rotman Young Scholar Seminar at Toronto University.

"Two-sided Platform Flexibility," Tepper School of Management at CMU.

"Quantifying the Cost of Learning in Queueing Systems," Annual Allerton Conference on Communication, Control, and Computing.

"Efficient Fully Decentralized Multi-agent Learning in Asymmetric Queuing Systems," Stochastic Networks, Applied Probability, and Performance Seminar Series.

"Efficient Fully Decentralized Multi-agent Learning in Asymmetric Queuing Systems," Dagstuhl Seminar on Scheduling.

2022:

"On the Supply of Autonomous Vehicles for Open Platforms," MIT Mobility Forum.

"Constant Regret in Exchangeable Action Models: Overbooking, Bin Packing, and Beyond," UC Berkeley, Simons Institute for the Theory of Computing.

"On the Supply of Autonomous Vehicles for Open Platforms," Anderson School of Management at UCLA.

"On the Supply of Autonomous Vehicles for Open Platforms," Rideshare Seminar Series, Lyft.

"The Inefficiency of Dynamic Pricing in Ridehailing," USC Marshall School of Business.

2021:

"AI and Social Justice," Panel at Tsinghua University with the United Nations Development Programme.

"The Inefficiency of Dynamic Pricing in Ridehailing," Bilkent University.

"The Inefficiency of Dynamic Pricing in Ridehailing," Cornell University, ORIE.

2020:

"From 2 Wheels to 4: Design and Optimization of Shared Transportation Platforms," MIT ILP Webinar.

"The Inefficiency of Dynamic Pricing in Ride-hailing Systems," MIT Mobility Forum.

"The Inefficiency of Dynamic Pricing in Ride-hailing Systems," MIT IDE Seminar.

"The Inefficiency of Dynamic Pricing in Ride-hailing Systems," Wharton School of the University of Pennsylvania, Operations Management.

"The Inefficiency of Dynamic Pricing in Ride-hailing Systems," Networks, Matching, and Platforms Workshop, Ontario.

2019:

"Uniform Loss Algorithms for Online Stochastic Decision-Making With Applications to Bin Packing," UMass Amherst, Discrete Mathematics Seminar.

"Uniform Loss Algorithms for Online Stochastic Decision-Making With Applications to Bin Packing," UC Berkeley, Simons Institute for the Theory of Computing.

"Uniform Loss Algorithms for Online Stochastic Decision-Making With Applications to Bin Packing," Carnegie Mellon University, Plenary at YinzOR Student Conference.

"Models and Algorithms for Transportation in the Sharing Economy," Tel Aviv University, Industrial Engineering.

"A demand-agnostic Mechanism to Smooth Driver Pay in a Ride Hailing System," Brownbag Seminar at IBM Research.

2018:

"Models and Algorithms for Transportation in the Sharing Economy," Yale School of Management, Operations Management.

"Pricing and Optimization in Shared Vehicle Systems," Booth School of Business at Chicago University.

"Models and Algorithms for Transportation in the Sharing Economy," Columbia University, IEOR/DRO Seminar.

“Models and Algorithms for Transportation in the Sharing Economy,” Stanford University, Management Science & Engineering.

“Models and Algorithms for Transportation in the Sharing Economy,” Anderson School of Management at UCLA.

“Models and Algorithms for Transportation in the Sharing Economy,” Massachusetts Institute of Technology, Operations Research and Statistics.

“Models and Algorithms for Transportation in the Sharing Economy,” Stanford University, Graduate School of Business.

“Models and Algorithms for Transportation in the Sharing Economy,” Northwestern University, Industrial Engineering and Management Sciences.

“Models and Algorithms for Transportation in the Sharing Economy,” Microsoft Research, Seattle.

“Models and Algorithms for Transportation in the Sharing Economy,” Fuqua Business School at Duke University.

2017:

“Models and Algorithms for Transportation in the Sharing Economy,” Georgia Institute of Technology, Industrial and Systems Engineering.

“Models and Algorithms for Transportation in the Sharing Economy,” Massachusetts Institute of Technology, Operations Management.

“Pricing and Optimization in Shared Vehicle Systems,” DIMAP Seminar at the University of Warwick.

“Pricing and Optimization in Shared Vehicle Systems,” CS Theory Seminar at Cornell University.