

Thodoris Lykouris

CONTACT INFORMATION MIT Sloan School of Management
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PRIMARY EMPLOYMENT **Assistant Professor** **Jul. 2021 - present**
MIT Sloan School of Management, *Operations Management Group*, Cambridge, MA, USA

Postdoctoral Researcher **Jul. 2019 - Jun. 2021**
Microsoft Research, *Machine Learning Group*, New York City, NY, USA

EDUCATION **Ph.D. in Computer Science** **Aug. 2013 - Aug. 2019**
Cornell University, Ithaca, NY, USA

- Ph.D. thesis: *Effective online decision-making in complex multi-agent systems*
- Advisor: Éva Tardos
- Committee: Éva Tardos, Jon Kleinberg, Karthik Sridharan, Siddhartha Banerjee

Diploma in Electrical and Computer Engineering **Oct. 2006 - Oct. 2012**
National Technical University of Athens, Athens, Greece

- Diploma thesis: *Competitive diffusion and pricing under externalities*
- Supervisor: Dimitris Fotakis

SELECTED AWARDS, HONORS & RESEARCH FUNDING MIT Buschbaum Research Fund, \$90k (2025)
Meta Platforms Sponsored Research Grant, \$80k (2024)
Junior Faculty Interest Group (JFIG) Paper Competition, Finalist (2024)
APS Student Paper Competition, Finalist for advisee *Wentao Weng* (2022)
MIT JFRAP Award, \$120k (2022-'25)
Google Faculty Research Award, \$75k (2021)
George B. Dantzig Dissertation Award, Finalist (2020)
George Nicholson Student Paper Competition, Finalist (2018)
Google PhD Fellowship in Algorithms, Optimization and Markets (2018)
Applied Probability Society (APS) Student Paper Competition, Finalist (2017)
Cornell University PhD Fellowship (2013-2014)
University Award for graduating ECE NTUA with 2nd highest GPA (2012).

JOURNAL ARTICLES (ALPHABETICAL AUTHOR ORDER)

1. *Efficient decentralized multi-agent learning in asymmetric bipartite queueing systems* with Daniel Freund and Wentao Weng
Operations Research; vol. 72, no. 3, pp. 1049-1070, 2024
<https://arxiv.org/pdf/2206.03324.pdf>
Extended abstract appeared at COLT'22 (conference publication 4)
Finalist in Applied Probability Society Student Paper Competition (2022)
2. *Learning in Stackelberg games with non-myopic agents* with Nika Haghtalab, Sloan Nietert, and Alexander Wei
Operations Research (forthcoming)
<https://arxiv.org/pdf/2208.09407.pdf>
Extended abstract appeared at EC'22 (conference publication 5)

3. *Static pricing for multi-unit prophet inequalities*
with Shuchi Chawla and Nikhil Devanur
Operations Research; vol. 72, no. 4, pp. 1388-1399, 2024
<https://arxiv.org/pdf/2007.07990.pdf>
Extended abstract appeared at WINE'21 (conference publication 6)
4. *Corruption-robust exploration in episodic reinforcement learning*
with Max Simchowitz, Aleksandrs Slivkins, and Wen Sun
Mathematics of Operations Research; vol. 50, no. 2, pp. 1277-1304, 2024
<https://arxiv.org/pdf/1911.08689.pdf>
Extended abstract appeared at COLT'21 (conference publication 8)
5. *Contextual search in the presence of adversarial corruptions*
with Akshay Krishnamurthy, Chara Podimata, and Robert Schapire
Operations Research; vol. 71, no. 4, pp. 1120-1135, 2023
<https://arxiv.org/pdf/2002.11650.pdf>
Extended abstract appeared at STOC'21 (conference publication 9)
6. *Competitive caching with machine learned advice*
with Sergei Vassilvitskii
Journal of the ACM; vol. 68, iss. 4, art. 24, pp. 1-25, 2021
<https://arxiv.org/pdf/1802.05399.pdf>
Extended abstract appeared at ICML'18 (conference publication 15)
7. *Small-loss bounds for online learning with partial information*
with Karthik Sridharan and Éva Tardos
Mathematics of Operations Research; vol. 47, no. 3, pp. 2186-2218, 2022
<https://arxiv.org/pdf/1711.03639.pdf>
Extended abstract appeared at COLT'18 (conference publication 17)
Finalist in George Nicholson Student Paper Competition (2018)
8. *Pricing and optimization in shared vehicle systems: An approximation framework*
with Siddhartha Banerjee and Daniel Freund
Operations Research; vol. 70, no. 3, pp. 1783-1805, 2022
<https://arxiv.org/pdf/1608.06819.pdf>
Extended abstract appeared at EC'17 (conference publication 18)
Finalist in Applied Probability Society Student Paper Competition (2017)

WORKING
PAPERS
(ALPHABETICAL
AUTHOR ORDER)

9. *Scheduling with uncertain holding costs and its application to content moderation*
with Caner Gocmen, Deeksha Sinha, and Wentao Weng
<https://arxiv.org/pdf/2505.21331.pdf>
Under review in Management Science
10. *Learning to defer in congested systems: The AI-human interplay*
with Wentao Weng
<https://arxiv.org/pdf/2402.12237.pdf>
Major revision in Operations Research
Finalist in Junior Faculty Interest Group Paper Competition (2024)
11. *Social learning with limited attention: Negative reviews persist under newest first*
with Jackie Baek and Atanas Dinev
<https://arxiv.org/pdf/2406.06929.pdf>
Major revision in Operations Research
Extended abstract to appear at EC'24 (conference publication 1)
Accepted for presentation to the MSOM Service Science SIG (2025)

12. *The transient cost of learning in queueing systems*
with Daniel Freund and Wentao Weng
<https://arxiv.org/pdf/2308.07817.pdf>
Under review after Reject-and-Resubmit in Operations Research
Extended abstract to appear at NeurIPS'23 (conference publication 2)
13. *Group fairness in dynamic refugee assignment*
with Daniel Freund, Elisabeth Paulson, Bradley Sturt, and Wentao Weng
Under review in Operations Research
<https://arxiv.org/pdf/2301.10642.pdf>
Extended abstract appeared at EC'23 (conference publication 3)
14. *Stochastic bandits robust to adversarial corruptions*
with Vahab Mirrokni and Renato Paes Leme
Under preparation
<https://arxiv.org/pdf/1803.09353.pdf>
Extended abstract appeared at STOC'18 (conference publication 16)
15. *Learning and efficiency in auctions with dynamic population*
with Vasilis Syrgkanis and Éva Tardos
Major revision in Mathematics of Operations Research
<https://arxiv.org/pdf/1505.00391.pdf>
Extended abstract appeared at SODA'16 (conference publication 20)

CONFERENCE
PUBLICATIONS
(ALPHABETICAL
AUTHOR ORDER
UNLESS WITH *)

1. *Social learning with bounded rationality: Negative reviews persist under newest first*
with Jackie Baek and Atanas Dinev
25th ACM Conference on Economics and Computation (**EC 2024**)
Journal version: Under review (working paper 11)
2. *Quantifying the cost of learning in queueing systems*
with Daniel Freund and Wentao Weng
37th Annual Conference on Neural Information Processing Systems (**NeurIPS 2023**)
Journal version: Under review (working paper 12)
3. *Group fairness in dynamic refugee assignment*
with Daniel Freund, Elisabeth Paulson, Bradley Sturt and Wentao Weng
24th ACM Conference on Economics and Computation (**EC 2023**)
Journal version: Under review (working paper 13)
4. *Efficient decentralized multi-agent learning in asymmetric queueing systems*
with Daniel Freund and Wentao Weng
35th Annual Conference on Learning Theory (**COLT 2022**)
Journal version: *Operations Research, 2024* (journal article 1)
5. *Learning in Stackelberg games with non-myopic agents*
with Nika Haghtalab, Sloan Nietert, and Alexander Wei
23rd ACM Conference on Economics and Computation (**EC 2022**)
Journal version: *Operations Research, 2025* (journal article 2)
6. *Static pricing for multi-unit prophet inequalities*
with Shuchi Chawla and Nikhil Devanur
17th Conference on Web and Internet Economics (**WINE 2021**)
Journal version: *Operations Research, 2024* (journal article 3)
7. *Bayesian decision-making under misspecified priors with applications to meta-learning*
Max Simchowitz, Christopher Tosh, Akshay Krishnamurthy, Daniel Hsu, **TL**, Miroslav Dudík, Robert Schapire* (*contributational author order*)

- 35th Annual Conference on Neural Information Processing Systems (**NeurIPS 2021**)
<https://arxiv.org/pdf/2107.01509.pdf>
8. *Corruption-robust exploration in episodic reinforcement learning*
 with Max Simchowitz, Aleksandrs Slivkins, and Wen Sun
 34th Annual Conference on Learning Theory (**COLT 2021**)
Journal version: *Mathematics of Operations Research*, 2024 (journal article 4)
 9. *Contextual search in the presence of irrational agents*
 with Akshay Krishnamurthy, Chara Podimata, and Robert Schapire
 53rd ACM Annual Symposium on Theory of Computing (**STOC 2021**)
Journal version: *Operations Research*, 2023 (journal article 5)
 10. *Constrained episodic reinforcement learning in concave-convex and knapsack settings*
 with Kianté Brantley, Miroslav Dudík, Sobhan Miryoosefi, Max Simchowitz, Aleksandrs Slivkins, and Wen Sun
 34th Annual Conference on Neural Information Processing Systems (**NeurIPS 2020**)
<https://arxiv.org/pdf/2006.05051.pdf>
 11. *Bandits with adversarial scaling*
 with Vahab Mirrokni and Renato Paes Leme
 37th International Conference on Machine Learning (**ICML 2020**)
<https://arxiv.org/pdf/2003.02287.pdf>
 12. *Advancing subgroup fairness via sleeping experts*
 with Avrim Blum
 11th Innovations in Theoretical Computer Science Conference (**ITCS 2020**)
<https://arxiv.org/pdf/1909.08375.pdf>
 13. *Feedback graph regret bounds for Thompson Sampling and UCB*
 with Éva Tardos and Drishti Wali
 31st International Conference on Algorithmic Learning Theory (**ALT 2020**)
<https://arxiv.org/pdf/1905.09898.pdf>
 14. *On preserving non-discrimination when combining expert advice*
 with Avrim Blum, Suriya Gunasekar, and Nathan Srebro
 32nd Annual Conference on Neural Information Processing Systems (**NeurIPS 2018**)
<https://arxiv.org/pdf/1810.11829.pdf>
 15. *Competitive caching with machine learned advice*
 with Sergei Vassilvitskii
 35th International Conference on Machine Learning (**ICML 2018**)
Journal version: *Journal of the ACM*, 2021 (journal article 6)
 16. *Stochastic bandits robust to adversarial corruptions*
 with Vahab Mirrokni and Renato Paes Leme
 50th ACM Annual Symposium on Theory of Computing (**STOC 2018**)
<https://arxiv.org/pdf/1803.09353.pdf>
Journal version: Under preparation (working paper 14)
 17. *Small-loss bounds for online learning with partial information*
 with Karthik Sridharan and Éva Tardos
 31st Annual Conference on Learning Theory (**COLT 2018**)
Journal version: *Mathematics of Operations Research*, 2022 (journal article 7)
 18. *Pricing and optimization in shared vehicle systems: An approximation framework*
 with Siddhartha Banerjee and Daniel Freund
 18th ACM Conference on Economics and Computation (**EC 2017**)
Journal version: *Operations Research*, 2022 (journal article 8)

19. *Learning in games: Robustness of fast convergence*
with Dylan Foster, Zhiyuan Li, Karthik Sridharan, and Éva Tardos
30th Annual Conference on Neural Information Processing Systems (**NeurIPS 2016**)
<https://arxiv.org/pdf/1606.06244.pdf>
20. *Learning and efficiency in games with dynamic population*
with Vasilis Syrgkanis and Éva Tardos
27th ACM-SIAM Symposium on Discrete Algorithms (**SODA 2016**)
Journal version: Under review (working paper 15)
21. *Influence maximization in switching-selection threshold models*
with Dimitris Fotakis, Evangelos Markakis and Svetlana Obraztsova
7th International Symposium on Algorithmic Game Theory (**SAGT 2014**)

TEACHING & MENTORING

Primary instructor

- Introduction to Operations Management (MIT Sloan course 15.761 & 15.7611)
Spring 2022, Spring 2023, Spring 2024
- Hands-On Deep Learning (MIT Sloan course 15.773)
Spring 2023, Spring 2026 (forthcoming)
- Theory of Operations Management (MIT Sloan PhD course 15.764)
Spring 2024
- Common Experience in Operations Research (MIT ORC PhD course 15.090)
Summer 2024, Summer 2025 (forthcoming)

Guest instructor

- Guest lecture on *Competitive caching with machine learned advice* for Fall 2022 UMass Amherst PhD course *Algorithms with Predictions* of Mohammad Hajiesmaili
- Guest lecture on *Competitive caching with machine learned advice* for Fall 2020 Columbia IEOR PhD course *Machine Learning for Algorithm Design* of Eric Balkanski
- Guest lecture on *Bridging stochastic and adversarial bandits* for Fall 2020 Cornell CS PhD course *Foundations of Reinforcement Learning* of Wen Sun and Sham Kakade

PhD Advisees

- Wentao Weng; MIT EECS, 2021-present (co-advised with Daniel Freund)
- Atanas Dinev; MIT ORC, 2022-present
- Huiying Zhong; MIT ORC, 2024-present (co-advised with Ali Aouad)
- Junxuan (Helen) Shen; MIT EECS, 2024-present

Other Student Exam Committees & Advising

- PhD Dissertation Committee for: Jason Liang (MIT ORC, 2023), Fransisca Susan (MIT ORC, 2023), Jessica Maghakian (Stony Brook, 2023) Sohil Shah (MIT ORC, 2024), Jiayu Kamessi Zhao (MIT ORC, 2025), and Jerry Zhou (MIT ORC, 2025)
- ORC General Exam Committee for: Junhui Zhang (MIT ORC, 2023), Jerry Zhou (MIT ORC, 2023), Benjamin Barrientos (MIT ORC, 2024), Maxime Bouscary (MIT ORC, 2024), Rigel Galgana (MIT ORC, 2024), Madeleine Pollack (MIT ORC, 2025), Diane Tchuindjo (MIT ORC, 2025), and Jack Zhang (MIT ORC, 2025)
- MBAn Capstone Project Advisor for: Peggy Wang & Ivy Zhang (Coca Cola, Capstone of the Year award), Rahul Kasar & Jay Li (Unilever), Gavin Findlay & Jan Reig Torra (Angelini Consumers), and Bibhabasu Das & Jaya Ren (CVS Health)

PROFESSIONAL SERVICE

Program organizer:

- **Interdisciplinary semester-long program: *Data-Driven Decision Processes***
with Shipra Agrawal, Siddhartha Banerjee, and Shuchi Chawla
August-December 2022, Simons Institute, Berkeley, CA, USA

Workshop organizer:

- **LeT-All Fall'24 mentoring workshop on *Diverse learning theory approaches***
with Vidya Muthukumar, Ciara Pike-Burke, and Tijana Zrnic
November 2024, virtual
- **Workshop on *Data-Driven Decision Processes: From Theory to Practice***
with Jackie Baek
August 2024, Toyota Technological Institute at Chicago (TTIC), Chicago, IL, USA
- **LeT-All Fall'23 mentoring workshop on *Communicating your research***
with Surbhi Goel, Vidya Muthukumar, Vatsal Sharan and Lydia Zakynthinou
October 2023, virtual
- **LeT-All Fall'22 mentoring workshop on *Expanding your research experience***
with Surbhi Goel, Nika Haghtalab, Vidya Muthukumar, and Ellen Vitercik
October 2022, virtual
- **Workshop on *Quantifying uncertainty: Stochastic, adversarial, and beyond***
with Laura Doval and Kevin Jamieson
September 2022, Simons Institute, Berkeley, CA, USA
- **Learning Theory Alliance (LeT-All) ALT 2022 mentoring workshop**
with Surbhi Goel, Vidya Muthukumar, and Ellen Vitercik
March 2022, virtual
- **ICML 2020 workshop: *Theoretical Foundations of Reinforcement Learning***
with Emma Brunskill, Max Simchowitz, Wen Sun, and Mengdi Wang
July 2020, virtual (scheduled for Vienna, Austria; moved due to COVID pandemic)

Journal Editorial Boards:

- Associate Editor for Operations Research (Stochastic Models area): 2024-present

Journal Refereeing:

Management Science (MS), Mathematics of Operations Research (MOR), Operations Research (OR), Journal of the ACM (JACM), Journal of Machine Learning Research (JMLR), Operations Research Letters (ORL), Transactions on Algorithms (TALG), Transactions on Economics and Computation (TEAC), Theory of Computing Systems (TOCS)

Conference Program Committee:

- Conference on Learning Theory (COLT): 2020, 2021, 2022, 2023, 2024
- Algorithmic Learning Theory (ALT): 2022, 2023, 2024, 2025
- Economics and Computation (EC): 2020, 2021, 2023, 2024
- Conference on Web and Internet Economics (WINE): 2022
- Symposium on Discrete Algorithms (SODA): 2022
- International Conference on Machine Learning (ICML): 2020
- Neural Information Processing Systems (NeurIPS): 2019, 2020
- The Web Conference (TheWebConf): 2019, 2020

INFORMS Award Judge:

- MSOM student paper competition: 2024
- George Nicholson Student Paper Competition: 2023, 2024
- Applied Probability Society Student Paper Competition: 2021, 2022
- Health Application Society Pierskalla Award Competition: 2021

Service at MIT

- Co-organizer of *MIT Operations Management Seminar*: 2021-'22, 2022-'23, 2023-'24
- Admission Committee for *MIT Masters of Business Analytics*: 2022, 2023, 2024, 2025
- Admission Committee for *MIT Operations Research Center PhD Program*: 2023, 2024
- Admission Committee for *MIT Summer Research Program (MSRP)*: 2024
- Admission Committee for *MIT Operations Research Center SM Program*: 2025

SELECTED

INVITED TALKS 2025:

- Summer Workshop on Innovations in Management Science (SWIMS 2025)
Scheduling with Uncertain Holding Costs and its Application to Content Moderation
July 2025 (forthcoming), Halkidiki, Greece
- Learning-augmented Algorithms: Theory & Applications workshop at SIGMETRICS'25
Scheduling with Uncertain Holding Costs and its Application to Content Moderation
June 2025, Stony Brook, NY, USA
- USC Marshall, Data Sciences & Operations (DSO) Seminar
Learning to Defer in Content Moderation: The Human-AI Interplay
February 2025, Los Angeles, CA, USA

2024:

- Harvard University, Statistics Seminar
Learning to Defer in Content Moderation: The Human-AI Interplay
November 2024, Cambridge, MA, USA
- Duke Fuqua, Decision Sciences Seminar
Learning to Defer in Content Moderation: The Human-AI Interplay
October 2024, Durham, NC, USA
- Cornell University, Operations Research & Information Engineering (ORIE) Seminar
Learning to Defer in Content Moderation: The Human-AI Interplay
September 2024, Ithaca, NY, USA
- INFORMS Workshop on Market Design at EC'24
Learning to Defer in Content Moderation: The Human-AI Interplay
July 2024, New Haven, CT, USA
- Stochastic Networks, Applied Probability, and Performance (SNAPP) Seminar
Learning to Defer in Content Moderation: The Human-AI Interplay
May 2024, virtual
Talk available at: <https://www.youtube.com/watch?v=Q0TJpNoG9SI>
- UMass Amherst, Computer Science Joint Theory & Machine Learning Seminar
Learning to Defer in Content Moderation: The Human-AI Interplay
March 2024, Amherst, MA, USA
- Meta Platforms, Central Applied Sciences (CAS) Seminar
Learning to Defer in Content Moderation: The Human-AI Interplay
January 2024, Menlo Park, CA, USA

2023:

- Caltech, Keller Colloquium in Computing and Mathematical Sciences (CMS)
Learning to Defer in Content Moderation: The Human-AI Interplay
December 2023, Pasadena, CA, USA
- Harvard University, Economics and Computation (EconCS) Seminar
Group Fairness in Dynamic Refugee Assignment
March 2023, Boston, MA, USA
- Georgia Tech ISyE, Algorithms and Randomness Center (ARC) Seminar
Efficient Decentralized Multi-Agent Learning in Queueing Systems
March 2023, Atlanta, GA, USA

2022:

- Stanford MS&E, Research on Algorithms and Incentives in Networks (RAIN) Seminar
Efficient Decentralized Multi-Agent Learning in Queueing Systems
December 2022, Palo Alto, CA, USA
- Bootcamp for “Data-Driven Decision Processes” Program at the Simons Institute
Bridging Stochastic and Adversarial Bandits
August 2022, Berkeley, CA, USA
Talk available at: <https://www.youtube.com/watch?v=1tuW8bFlmzg>
- Workshop on Algorithms, Learning, and Economics (WALE 2022)
Tutorial: “Sequential Decision Making Beyond the Worst Case” (with Nika Haghtalab)
June 2022, Naxos, Greece

2021:

- U of I Urbana-Champaign, Industrial & Enterprise Systems Engineering (ISE) Seminar
Contextual Search in the Presence of Adversarial Corruptions
October 2021, virtual
- University of Michigan, Industrial & Operations Engineering (IOE) Seminar
Robust Sequential Decision Making in Modern Data-Driven Systems
February 2021, virtual
- Caltech, Computing & Math. Sci.(CMS) & Humanities & Social Sci. (HSS) Seminar
Robust Sequential Decision Making in Modern Data-Driven Systems
February 2021, virtual
- MIT Sloan School of Management, Operations Management (OM) Seminar
Robust Sequential Decision Making in Modern Data-Driven Systems
January 2021, virtual

2020:

- Virtual Reinforcement Learning Theory Seminar Series
Corruption-Robust Exploration in Episodic Reinforcement Learning
November 2020, virtual
Talk available at: <https://www.youtube.com/watch?v=JFNf66lgjJY>
- Columbia University, IEOR/DRO Seminar
Contextual Search in the Presence of Adversarial Corruptions
September 2020, virtual
- Carnegie Mellon University, Computer Science Artificial Intelligence Seminar
Corruption-Robust Exploration in Episodic Reinforcement Learning
May 2020, virtual
- Cornell University, Computer Science Theory Seminar
Corruption-Robust Exploration in Episodic Reinforcement Learning
March 2020, Ithaca, NY, 2020

2019:

- École Polytechnique Fédérale de Lausanne (EPFL), Operations Research Seminar
Small-Loss Bounds for Online Learning with Partial Information
May 2019, Lausanne, Switzerland
- UC Berkeley, Industrial Engineering & Operations Research (IEOR) Seminar
Small-Loss Bounds for Online Learning with Partial Information
February 2019, Berkeley, CA, USA
- Stanford GSB, Operations Research, Information & Technology (OIT) Seminar
Small-Loss Bounds for Online Learning with Partial Information
January 2019, Palo Alto, CA, USA