Thodoris Lykouris

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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

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

SELECTED AWARDS, HONORS & RESEARCH FUNDING

Lead PI for NSF SaTC Collaborative Research Grant, $500k, co-PI: Hajiesmaili (2025-'28)
Junior Faculty Interest Group (JFIG) Paper Competition, Finalist (2025)
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)
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
   Conference version: 35th Annual Conference on Learning Theory (COLT 2022)
   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
   Conference version: 23rd ACM Conference on Economics and Computation (EC 2022)

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
   Conference version: 17th Conference on Web and Internet Economics (WINE 2021)

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
   Conference version: 34th Annual Conference on Learning Theory (COLT 2021)

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
   Conference version: 53rd ACM Symposium on Theory of Computing (STOC 2021)

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
   Conference version: 35th International Conference on Machine Learning (ICML 2018)

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
   Conference version: 31st Annual Conference on Learning Theory (COLT 2018)
   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
   Conference version: 18th ACM Conference on Economics and Computation (EC 2017)
   Finalist in Applied Probability Society Student Paper Competition (2017)

WORKING
PAPERS
(ALPHABETICAL
AUTHOR ORDER)

9. *Optimal exploration of new products under assortment decisions*
   with Jackie Baek and Atanas Dinev

10. *Scheduling with uncertain holding costs and its application to content moderation*
    with Caner Gocmen, Deeksha Sinha, and Wentao Weng
    Major Revision at Management Science
    https://arxiv.org/pdf/2505.21331.pdf

11. *Learning to defer in congested systems: The AI-human interplay*
    with Wentao Weng
    Under second-round review at Operations Research (after Major Revision)
    https://arxiv.org/pdf/2402.12237.pdf
    Finalist in Junior Faculty Interest Group Paper Competition (2024)

12. *Social learning with limited attention: Negative reviews persist under newest first*
    with Jackie Baek and Atanas Dinev
    Under second-round review at Operations Research (after Major Revision)
    https://arxiv.org/pdf/2406.06929.pdf
    Conference version: 25th ACM Conference on Economics and Computation (EC 2024)
    Accepted for presentation to the MSOM Service Science SIG (2025)
    Finalist in Junior Faculty Interest Group Paper Competition (2025)

13. *The transient cost of learning in queueing systems*
    with Daniel Freund and Wentao Weng
    Under second-round review at Operations Research (after Reject-and-Resubmit)
    https://arxiv.org/pdf/2308.07817.pdf
    Conference version: 37th Conference on Neural Information Processing Systems (NeurIPS'23)

14. *Group fairness in dynamic refugee assignment*
    with Daniel Freund, Elisabeth Paulson, Bradley Sturt, and Wentao Weng
    Major Revision at Operations Research
    https://arxiv.org/pdf/2301.10642.pdf
    Conference version: 24th ACM Conference on Economics and Computation (EC 2023)

15. *Stochastic bandits robust to adversarial corruptions*
    with Vahab Mirrokni and Renato Paes Leme
    https://arxiv.org/pdf/1803.09353.pdf
    Conference version: 50th ACM Symposium on Theory of Computing (STOC 2018)

16. *Learning and efficiency in auctions with dynamic population*
    with Vasilis Syrgkanis and Éva Tardos
    Major Revision at Mathematics of Operations Research
    https://arxiv.org/pdf/1505.00391.pdf
    Conference version: 27th ACM-SIAM Symposium on Discrete Algorithms (SODA 2016)

CONFERENCE
PUBLICATIONS
NOT LISTED
ABOVE
(ALPHABETICAL
AUTHOR ORDER
UNLESS WITH *)

17. *Contextual dynamic pricing with heterogeneous buyers*
    with Sloan Nietert, Chara Podimata, Princewill Okoroafor, and Julian Zimmert
    39th Annual Conference on Neural Information Processing Systems (**NeurIPS 2025**)

18. *Bayesian decision-making under misspecified priors with applications to meta-learning*
    Max Simchowitz, Christopher Tosh, Akshay Krishnamurthy, Daniel Hsu, ***TL***, Miroslav
    Dudík, Robert Schapire*
    35th Annual Conference on Neural Information Processing Systems (**NeurIPS 2021**)
    https://arxiv.org/pdf/2107.01509.pdf

19. *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

20. *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

21. *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

22. *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

23. *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

24. *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

25. *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 (scheduled)
- 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

Guest instructor
- Guest lecture on *Learning to defer in congested systems: The AI-human interplay* for Fall 2025 NYU Stern PhD course *Operations for Societal Impact* of Jackie Baek
- 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
- 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 Advisor for: Peggy Wang & Ivy Zhang (Coca Cola), Rahul Kasar & Jay Li (Unilever), Gavin Findlay & Jan Reig Torra (Angelini Consumers), Bibhabasu Das & Jaya Ren (CVS Health), and Sierra Gong & Ellie Yang (Thermo Fisher)

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 Technologcial 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

Other Service:
- Cluster chair for *Auctions and Market Design (AMD)* at INFORMS 2024
- 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

2026:
- Imperial Business School, Analytics & Operations Seminar *(forthcoming)*

2025:
- NYU Stern School of Business, Operations Management Seminar *(forthcoming)*
- Summer Workshop on Innovations in Management Science (SWIMS 2025)
- Learning-augmented Algorithms: Theory & Applications workshop at SIGMETRICS'25
- USC Marshall, Data Sciences & Operations (DSO) Seminar

2024:
- Harvard University, Statistics Seminar
- Duke's Fuqua School of Business, Decision Sciences Seminar
- Cornell University, Operations Research & Information Engineering (ORIE) Seminar
- INFORMS Workshop on Market Design at EC'24
- Stochastic Networks, Applied Probability, and Performance (SNAPP) Seminar
  Talk available at: https://www.youtube.com/watch?v=Q0TJpNoG9SI
- UMass Amherst, Computer Science Joint Theory & Machine Learning Seminar
- Meta Platforms, Central Applied Sciences (CAS) Seminar

2023:
- Caltech, Keller Colloquium in Computing and Mathematical Sciences (CMS)
- Harvard University, Economics and Computation (EconCS) Seminar
- Georgia Tech ISyE, Algorithms and Randomness Center (ARC) Seminar

2022:
- Stanford MS&E, Research on Algorithms and Incentives in Networks (RAIN) Seminar
- Bootcamp for "Data-Driven Decision Processes" Program at the Simons Institute
  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)

2021:
- U of I Urbana-Champaign, Industrial & Enterprise Systems Engineering (ISE) Seminar
- University of Michigan, Industrial & Operations Engineering (IOE) Semina
- Caltech, Computing & Math. Sci.(CMS) & Humanities & Social Sci. (HSS) Seminar
- MIT Sloan School of Management, Operations Management (OM) Seminar

2020:
- Virtual Reinforcement Learning Theory Seminar Series
  Talk available at: https://www.youtube.com/watch?v=JFNf66lgjJY
- Columbia University, IEOR/DRO Seminar
- Carnegie Mellon University, Computer Science Artificial Intelligence Seminar
- Cornell University, Computer Science Theory Seminar

2019:
- École Polytechnique Fédérale de Lausanne (EPFL), Operations Research Seminar
- UC Berkeley, Industrial Engineering & Operations Research (IEOR) Seminar
- Stanford GSB, Operations, Information & Technology (OIT) Seminar