Meena Jagadeesan

mjagadeesan@berkeley.edu | mjagadeesan.github.io/ | meena-jagadeesan | Meena Jagadeesan

Summary

I'm a Computer Science PhD student at UC Berkeley, where I'm a member of the Berkeley Artificial Intelligence Research Lab (BAIR) and the Berkeley Theory Group. My research centers around machine learning theory and economics, with a focus on digital marketplaces (e.g., of content recommender systems). My recent work examines how the interactions between machine learning algorithms and a broader marketplace can lead to unintended societal consequences.

Education

UC Berkeley — *Berkeley, CA, USA*
PhD in Computer Science — *Aug. 2020 - Present*
- Advised by Michael I. Jordan and Jacob Steinhardt
- Selected Honors: EECS Excellence Award

Harvard University — *Cambridge, MA, USA*
S.M. in Computer Science — *Sept. 2019- May 2020*

Harvard University — *Cambridge, MA, USA*
A.B. in Computer Science and Math, *summa cum laude* — *Sept. 2016- May 2020*
- Secondary Field: Statistics
- Selected Honors: Phi Beta Kappa, Hoopes Prize, Detur Book Prize, Certificate of Distinction in Teaching

Phillips Exeter Academy — *Exeter, NH, USA*
High School Diploma — *Sept. 2012- June 2016*

Fellowships

Open Philanthropy AI Fellowship (2021-2025)
Paul and Daisy Soros Fellowship for New Americans (2020-2022)
Berkeley Fellowship (2020-2023)
Siebel Scholarship (2019-2020)

Honors & Awards

CRA Outstanding Undergraduate Researcher Award (2020)
Barry Goldwater Scholar (2018)
Intel Science Talent Search, 2nd Place in Basic Research (2016)
Davidson Fellow Laureate (2016)

Publications)

(* denotes equal contribution; α-β denotes alphabetical ordering)

Preprints

1. **Incentivizing High-Quality Content in Online Recommender Systems**. *Manuscript under submission*.
   Xinyan Hu*, Meena Jagadeesan*, Michael I. Jordan, and Jacob Steinhardt.

Journal Articles: Extended Versions of Conference Papers

1. **Learning Equilibria in Matching Markets from Bandit Feedback**. *Journal of the ACM, 2023, Volume 70, Issue 3, Article no. 19, pp 1-46. Extended version of NeurIPS 2021 publication*.
   Meena Jagadeesan*, Alexander Wei*, Yixin Wang, Michael I. Jordan, and Jacob Steinhardt.

Conference Proceedings

15. **Supply-Side Equilibria in Recommender Systems**. *Proceedings of the 37th Conference on Neural Information Processing Systems (NeurIPS), 2023, to appear*.
    Meena Jagadeesan, Nikhil Garg, and Jacob Steinhardt.
14. **Improved Bayes Risk Can Yield Reduced Social Welfare Under Competition**. *Proceedings of the 37th Conference on Neural Information Processing Systems (NeurIPS), 2023, to appear*.
    Meena Jagadeesan, Michael I. Jordan, Jacob Steinhardt*, and Nika Haghtalab*.

13. **Competition, Alignment, and Equilibria in Digital Marketplaces**. *Proceedings of the 37th AAAI Conference on Artificial Intelligence (AAAI), 2023*.
Meena Jagadeesan, Michael I. Jordan, and Nika Haghtalab.
12. **Performative Power**. *Proceedings of the 36th Conference on Neural Information Processing Systems (NeurIPS), 2022*.
(α-β) Moritz Hardt, Meena Jagadeesan, and Celestine Mendler-Dünner.
11. **Regret Minimization with Performative Feedback**. *Proceedings of the 39th International Conference on Machine Learning (ICML), 9760-9785, 2022* .
Meena Jagadeesan, Tijana Zrnic, and Celestine Mendler-Dünner.
10. **Inductive Bias of Multi-Channel Linear Convolutional Networks with Bounded Weight Norm**. *Proceedings of the 35th Annual Conference on Learning Theory (COLT), 2276-2325, 2022*.
Meena Jagadeesan, Ilya Razenshteyn, and Suriya Gunasekar.
9. **Individual Fairness in Advertising Auctions through Inverse Proportionality**. *Proceedings of the 13th Innovations in Theoretical Computer Science Conference (ITCS), 42:1-42:21, 2022*.
(α-β) Shuchi Chawla and Meena Jagadeesan.
8. **Learning Equilibria in Matching Markets from Bandit Feedback**. *Proceedings of the 35th Conference on Neural Information Processing Systems (NeurIPS), 2021*. NeurIPS 2021 Spotlight presentation (given to 10% of accepted papers).
Meena Jagadeesan*, Alexander Wei*, Yixin Wang, Michael I. Jordan, and Jacob Steinhardt.
7. **Alternative Microfoundations for Strategic Classification**. *Proceedings of the 38th International Conference on Machine Learning (ICML), pg. 4687-4697, 2021*.
Meena Jagadeesan, Celestine Mendler-Dünner, and Moritz Hardt.
6. **Cosine: A Cloud-Cost Optimized Self-Designing Key-Value Storage Engine**. *Proceedings of Very Large Data Base Endowment (VLDB), pg. 112-126, 2021*.
Subarna Chatterjee, Meena Jagadeesan, Wilson Qin, and Stratos Idreos.
5. **Multi-Category Fairness in Sponsored Search Auctions**. *Proceedings of the 3rd ACM Conference on Fairness, Accountability and Transparency (FAT*), pp. 348–358, 2020*.
Christina Ilvento*, Meena Jagadeesan*, and Shuchi Chawla.
4. **Individual Fairness in Pipelines**. *Proceedings of the 1st Conference on Foundations of Responsible Computation (FORC), pp. 7:1–7:22, 2020*.
(α-β) Cynthia Dwork, Christina Ilvento, and Meena Jagadeesan.
3. **Understanding Sparse JL for Feature Hashing**. *Proceedings of the 33rd Annual Conference on Neural Information Processing Systems (NeurIPS), pp. 15177-15187, 2019*. NeurIPS 2019 Oral presentation (given to 3% of accepted papers).
Meena Jagadeesan.
2. **Simple Analysis of Sparse, Sign-Consistent JL**. *Proceedings of the 23rd International Conference on Randomization and Computation (RANDOM), pp. 61:1–61:20, 2019*.
Meena Jagadeesan.
1. **Varying the Number of Signals in Matching Markets**. *Proceedings of the 14th International Conference on Web and Internet Economics (WINE), pp. 232-245, 2018*.
Meena Jagadeesan* and Alexander Wei*.

Short Conference Papers

1. **From Worst-Case to Average-Case Analysis: Accurate Latency Predictions for Key-Value Storage Engines**. *Proceedings of the ACM International Conference on Management of Data (SIGMOD), pp. 2853-2855, 2020*. 1st Place at SIGMOD SRC.
Meena Jagadeesan* and Garrett Tanzer*.

Other Journal Articles

2. **Dyson's Partition Ranks and their Multiplicative Extensions**. *The Ramanujan Journal, Vol. 45, Issue 3, pp. 817–839, 2018*.
(α-β) Elaine Hou and Meena Jagadeesan.
1. **Mobius Polynomials of Face Posets of Convex Polytopes**. *Communications in Algebra, Vol. 44, Issue 11, pp. 4945-4972, 2016*.
Meena Jagadeesan and Susan Durst.

Theses

1. **The Performance of Johnson-Lindenstrauss Transforms: Beyond the Classical Setting**. *Undergraduate Thesis*. Awarded Hoopes Prize.
   Advised by Prof. Jelani Nelson.

Talks

- *Upcoming: INFORMS Optimization Society Conference* (3/23/24): "Supply-Side Equilibria in Recommender Systems".
- *Upcoming: Cornell University Theory Seminar* (1/22/24): "Content Creator Incentives in Recommender Systems".
- *INFORMS Annual Meeting, Learning and Mechanism Design Session* (10/17/23): "Competition, Alignment, and Equilibria in Digital Marketplaces".
- *Microsoft Research New England ML Ideas Seminar* (8/14/23): "Competition between Model-Providers can Distort Social Welfare".
- *Brookings Center on Regulation and Markets Seminar on AI, Economics, and Public Policy.* (6/29/23): "Examining Policy Implications of Machine Learning in Digital Marketplaces".
- *MIT Reading Group on Human and Machine Decisions* (6/26/23): "Improved Bayes Risk Can Yield Reduced Social Welfare Under Competition".
- *Stanford University Rising Stars Workshop in Management Science and Engineering* (5/2/23): "Supply-Side Equilibria in Recommender Systems".
- *INFORMS Annual Meeting, Responsible, Ethical, and Socially Aware Operations Session* (10/16/22): "Performative Power".
- *Northwestern CS Seminar & Institute for Data, Econometrics, Algorithms, and Learning (IDEAL) Seminar* (9/7/22): "Learning Equilibria in Matching Markets with Bandit Feedback".
- *Northwestern CS Seminar & Institute for Data, Econometrics, Algorithms, and Learning (IDEAL) Seminar* (9/6/22): "Machine Learning in Digital Marketplaces: Interactions between Learners, Consumers, and Producers".
- *ICML* (7/21/22): "Regret Minimization with Performative Feedback".
- *COLT* (7/3/22): "Inductive Bias of Multi-Channel Linear Convolutional Networks with Bounded Weight Norm".
- *INFORMS Revenue Management and Pricing (RMP) Workshop* (6/22/22): "Supply-Side Equilibria in Recommender Systems".
- *Workshop on Algorithms for Learning and Economics (WALE)* (6/16/22): "Regret Minimization with Performative Feedback".
- *Workshop on Algorithms for Learning and Economics (WALE)* (6/15/22): "Competition, Alignment, and Equilibria in Digital Marketplaces".
- *ITCS* (2/1/22): "Individual Fairness in Advertising Auctions through Inverse Proportionality".
- *ICML* (7/21/21): "Alternative Microfoundations for Strategic Classification".
- *FORC* (6/10/21): "Individual Fairness in Advertising Auctions through Inverse Proportionality".
- *Google Research Algorithms Seminar* (5/20/21): "Alternative Microfoundations for Strategic Classification".
- *MIT Algorithms & Complexity Seminar* (4/7/21): "Inductive Bias of Multi-Channel Linear Convolutional Networks with Bounded Weight Norm".
- *INFORMS Annual Meeting, Market Algorithms Session* (11/11/20): "Fairness in Advertising Auctions".
- *Microsoft Research MLO Group Seminar* (6/24/20): "Understanding Sparse Johnson-Lindenstrauss Transforms for Feature Hashing".
- *Algorithmic Game Theory Mentoring Workshop at ACM EC* (6/15/20): "Fairness in Advertising Auctions".
- *ACM FAT** (1/29/20): "Multi-Category Fairness in Sponsored Search Auctions".
- *NeurIPS* (12/12/19): "Understanding Sparse JL for Feature Hashing".
- *RANDOM* (9/21/19): "Simple Analysis of Sparse, Sign-Consistent JL".
- *University of Wisconsin-Madison Theory Seminar* (5/17/19): "Analyzing Johnson-Lindenstrauss Transforms".
- *WINE* (12/17/18): "Varying the Number of Signals in Matching Markets".
- *Workshop on Frontiers of Market Design at ACM EC* (6/22/18): "Varying the Number of Signals in Matching Markets".

Industry Experience

Microsoft Research *Cambridge*
Research Intern *May 2023 - Aug. 2023*
- Mentors: Nicole Immorlica and Brendan Lucier

Microsoft Research *Redmond, WA*
Research Intern *May 2020 - Aug. 2020*
- Mentors: Suriya Gunasekar and Ilya Razenshteyn (Machine Learning and Optimization Group in MSR AI)

Microsoft *San Francisco, CA*
Software Engineer/Program Manager Intern *May 2018 - Aug. 2018*

Teaching and Service

Reviewer/Sub-Reviewer *2019-*
- Reviewed submissions for WWW 2024, SODA 2024, NeurIPS 2023, ICALP 2023, ICML 2023, ICLR 2023, AISTATS 2023, MATCHUP 2022, ICML 2022, ACM FAccT 2022, ICLR 2022, NeurIPS 2021, ICML 2021, ACM FAccT 2021, STACS 2021, ITCS 2021, SOSA 2021, Management Science, and Journal of AI Research.

Mentor at Learning Theory Alliance Mentorship Workshop *Nov 2023*
- Served as a volunteer mentor at roundtable discussions at a virtual mentorship workshop focused on learning theory for undergraduate and graduate students.

Co-President of Women in CS and EE (WICSE) *2022-2023*
- WICSE is a community between womxn graduate students and creating a welcoming and supportive environment for them throughout their graduate studies. I was one of the two co-presidents of this organization. We organized an in-person conference for Stanford and Berkeley students with a faculty keynote speaker, panels with faculty and industry researchers, and student spotlight talks. We also organized weekly community lunches, social events, and managed internal and external funding.

Co-organizer of Recommender Systems Lunch Meeting *2022-2023*
- The weekly lunch meeting brought together researchers across the Berkeley AI Research Lab who study the societal implications of recommender systems. Each week, a different speaker presented on a topic in this domain and led a discussion. I was one of two co-organizers for these lunch meetings.

Panelist at NeurIPS 2022 Workshop on Incentive-Aware Machine Learning *Dec 2022*
- One of five panelists in a 30 minute panel discussion on incentive-aware ML and the direction of the field.

Graduate Student Instructor for UC Berkeley Stat 157 *Jan. 2023 - May 2023*
- Teaching assistant for undergraduate-level course on Forecasting at UC Berkeley, taught by Prof. Jacob Steinhardt.

Mentor for BAIR Undergraduate Mentorship Program *2022-2023*
- Mentored two promising undergraduates from underrepresented groups to help them get started in pursuing a career in AI. Mentors provide general career and academic advice.

Graduate Student Instructor for UC Berkeley CS 281A *Aug. 2021 - Dec. 2021*
- Teaching assistant for graduate-level introductory course on Statistical Learning Theory at UC Berkeley, taught by Prof. Moritz Hardt and Prof. Ben Recht.

Teaching Fellow for Harvard CS 61 *Sept. 2018 - Dec. 2018*
- Teaching assistant for Harvard's introductory systems programming class for computer science undergraduates, taught by Prof. Eddie Kohler. Awarded a Certification of Distinction in Teaching.