

CHRISTINA LEE YU

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ACADEMIC POSITIONS **Cornell University** *Ithaca, NY*
Assistant Professor *July 2018 - current*
School of Operations Research and Information Engineering, Graduate Field Member in Operations Research, Computer Science, Statistics, and Applied Mathematics

Microsoft Research New England *Cambridge, MA*
Postdoctoral Researcher *Sept 2017 - June 2018*

EDUCATION **Massachusetts Institute of Technology** *Cambridge, MA*
Ph.D. in Electrical Engineering and Computer Science *Sept 2017*
Thesis: Latent Variable Model Estimation via Collaborative Filtering
GPA 4.9/5.0

Massachusetts Institute of Technology *Cambridge, MA*
M.S. in Electrical Engineering and Computer Science *May 2013*
Thesis: Computing Stationary Distribution Locally
GPA 4.9/5.0

California Institute of Technology *Pasadena, CA*
B.S. in Computer Science *June 2011*
GPA 4.0/4.0, Graduated with Honors - ranked 10th out of 235

PUBLICATION *(If entry prefaced by * then authors are ordered alphabetically.)*

Journal Publications

*Devavrat Shah and Christina Lee Yu. “Robust Max Entrywise Error Bounds for Sparse Tensor Estimation via Similarity Based Collaborative Filtering.” *IEEE Transactions of Information Theory*, 2023.

Christina Lee Yu, Edo Airoidi, Christian Borgs, and Jennifer Chayes. “Estimating Total Treatment Effect in Randomized Experiments with Unknown Network Structure.” *Proceedings of the National Academy of Sciences*, 2022.

Sean R. Sinclair, Siddhartha Banerjee, and Christina Lee Yu. “Adaptive Discretization for Online Reinforcement Learning.” *Operations Research*, 2022.

Sean R. Sinclair, Siddhartha Banerjee, and Christina Lee Yu. “Sequential Fair Allocation: Achieving the Optimal Envy-Efficiency Tradeoff Curve.” *Operations Research*, 2022. Finalist for 2022 INFORMS Diversity, Equity, and Inclusion Student Paper Competition.

Christina Lee Yu and Xumei Xi. “Tensor Estimation with Nearly Linear Samples

Given Weak Side Information.” *Proceedings of the ACM on Measurement and Analysis of Computing Systems*, 2022. Accepted for presentation at *ACM SIGMETRICS Conference*, 2022.

*Christian Borgs, Jennifer Chayes, Devavrat Shah, and Christina Lee Yu. “Iterative Collaborative Filtering for Sparse Matrix Estimation.” *Operations Research*, 2021.

Sean R. Sinclair, Siddhartha Banerjee, and Christina Lee Yu. “Adaptive Discretization for Episodic Reinforcement Learning in Metric Spaces.” *Proceedings of the ACM on Measurement and Analysis of Computing Systems*, 2019. Poster in Neurips Workshop on the Optimization Foundations of Reinforcement Learning, 2019. Accepted for presentation at *ACM SIGMETRICS Conference*, 2020.

*Yihua Li, Devavrat Shah, Dogyoon Song, and Christina Lee Yu. “Nearest Neighbors for Matrix Estimation Interpreted as Blind Regression for Latent Variable Model.” *IEEE Transactions on Information Theory*, 2019.

*Asuman Ozdaglar, Devavrat Shah, and Christina Lee Yu. “Asynchronous Approximation of a Single Component of the Solution to a Linear System.” *IEEE Transactions on Network Science and Engineering*, 2019.

Conference Publications

Mayleen Cortez, Matthew Eichhorn, and Christina Lee Yu. “Staggered Rollout Designs Enable Causal Inference Under Interference Without Network Knowledge.” *Advances in Neural Information Processing Systems*, 2022.

Christina Lee Yu. “Nonparametric Matrix Estimation with with One-Sided Covariates.” *International Symposium on Information Theory*, 2022.

Sean R. Sinclair, Siddhartha Banerjee, and Christina Lee Yu. “Sequential Fair Allocation: Achieving the Optimal Envy-Efficiency Tradeoff Curve.” *ACM SIGMETRICS*, 2022.

*Christopher Archer, Siddhartha Banerjee, Mayleen Cortez, Carrie Rucker, Sean R. Sinclair, Max Solberg, Qiaomin Xie, and Christina Lee Yu. “ORSuite: Benchmarking Suite for Sequential Operations Models.” *RLNQ SIGMETRICS workshop*, 2021.

Sean R. Sinclair, Gauri Jain, Siddhartha Banerjee, and Christina Lee Yu. “Sequential Fair Allocation of Limited Resources under Stochastic Demands.” *Harvard CRCS AI for Social Good Workshop and Mechanism Design for Social Good Workshop*, 2020.

Sean R. Sinclair, Tianyu Wang, Gauri Jain, Siddhartha Banerjee, and Christina Lee Yu. “Adaptive Discretization for Model-Based Reinforcement Learning.” *Advances in Neural Information Processing Systems*, 2020.

*Nirandika Wanigasekara and Christina Lee Yu. “Nonparametric Contextual Bandits in an Unknown Metric Space.” *Advances in Neural Information Processing Systems*, 2019.

*Devavrat Shah and Christina Lee Yu. “Iterative Collaborative Filtering for Sparse Noisy Tensor Estimation.” *Proceedings of Allerton Conference on Communication, Control, and Computing*, 2019.

*Devavrat Shah and Christina Lee Yu. “Reducing Crowdsourcing to Graphon Estimation, Statistically.” *International Conference on Artificial Intelligence and Statistics*, 2018.

*Christian Borgs, Jennifer Chayes, Christina E. Lee and Devavrat Shah. “Thy Friend is My Friend: Iterative Collaborative Filtering for Sparse Matrix Estimation.” *Advances in Neural Information Processing Systems*, 2017.

*Christina E. Lee, Yihua Li, Devavrat Shah and Dogyoon Song. “Blind Regression via Nearest Neighbor under Latent Variable Models: Nonparametric Regression for Latent Variable Models via Collaborative Filtering.” *Advances in Neural Information Processing Systems*, 2016.

*Christina E. Lee, Asuman Ozdaglar and Devavrat Shah. “Computing the Stationary Distribution Locally.” *Advances in Neural Information Processing Systems*, 2013.

Elizabeth Bodine-Baron, Christina Lee, Anthony Chong, Babak Hassibi and Adam Wierman. “Peer effects and stability in matching markets.” *Proceedings of Symposium on Algorithmic Game Theory*, 2011.

Preprints

Siddhartha Banerjee, Sean R. Sinclair, Milind Tambe, Lily Xu, Christina Lee Yu. “Artificial Replay: A Meta-Algorithm for Harnessing Historical Data in Bandits.” *Arxiv:2210.00025*, 2022.

Anish Agarwal, Sarah Cen, Devavrat Shah, and Christina Lee Yu. “Network Synthetic Interventions: A Framework for Panel Data with Network Interference.” *Arxiv:2210.11355*, 2022.

Mayleen Cortez, Matthew Eichhorn, and Christina Lee Yu. “Exploiting Neighborhood Interference with Low Order Interactions under Unit Randomized Design.” *Arxiv:2208.05553*, 2022. Accepted for oral presentation at Neurips workshop on Causal Machine Learning for Impact, 2022.

Tyler Sam, Yudong Chen, and Christina Lee Yu. “Overcoming the Long Horizon Barrier for Sample-Efficient Reinforcement Learning with Latent Low-Rank Structure.” *Arxiv:2206.03569*, 2022. Received Best Poster Award in *SIGMETRICS 2022*.

Chunyin (Alex) Siu, Gennady Samorodnitsky, Christina Lee Yu, Andrey Yao. “Detection of Small Holes by the Scale-Invariant Robust Density-Aware Distance (RDAD) Filtration.” *Arxiv:2204.07821*, 2022.

GRANTS

JPMorgan Faculty Research Award, “Exploiting Low Rank Structure for Provably Efficient Reinforcement Learning”, \$100K, 2021-2022.

National Science Foundation CNS Core: Resource Constrained Reinforcement Learning for Computing Systems, \$1,200K, July 2020 - July 2024.
 National Science Foundation (CISE) Research Initiation Initiative (CRII): Generalizations for Matrix and Tensor Estimation, \$175K, July 2020 - July 2022.

HONORS AND AWARDS	Ralph S. Watts '72 Excellence in Teaching Award	2022
	Intel Rising Stars Award	2021
	Simons Institute Research Fellow	2021
	INFORMS Dantzig Dissertation Award Honorable Mention	2018
	EECS Rising Star	2016
	Claude E. Shannon Research Assistantship	2016-17
	NSF Graduate Research Fellowship	2013-16

INVITED TALKS “*Adaptive Discretization in Online Reinforcement Learning*
 Young European Queueing Theorists, Nov 2022.
 Stanford GSB OIT Seminar, Nov 2022.
 Northwestern Kellogg Operations Seminar, Oct 2022.

“*Efficiently Exploiting Model Structure in Network Causal Inference with and without Knowledge of the Network*
 Stanford Statistics Department Seminar, Nov 2022.
 CMU Tepper Operations Research Seminar, Nov 2022.
 Simons Institute Data Driven Decision Processes Seminar, Nov 2022.
 MIT Operations Research Center Seminar, Oct 2022. Simons Institute workshop on Graph Limits, Nonparametric Models, and Estimation, Sept 2022.

“*Causal Inference in the Presence of Network Interference*
 Tutorial at CORS/INFORMS International Conference, June 2022.

“*Graph Agnostic Randomized Experimental Design under Heterogeneous Linear Network Interference and Beyond*
 Stochastic Networks conference, June 2022.
 Cornell Econometrics workshop, Apr 2022.

“*Simple yet Efficient Graph Agnostic Estimators for Network Causal Inference - from Linear to Low Degree Polynomial Models*
 Stanford Research on Algorithms and Incentives in Networks (RAIN) seminar, Mar 2022.

“*Overcoming the Long Horizon Barrier for Sample-Efficient Reinforcement Learning with Latent Low-Rank Structure*”
 SIAM Conference on Mathematics of Data Science, Sept 2022.
 Stochastic Networks, Applied Probability, and Performance (SNAPP) seminar, Feb 2022.
 Cornell Foundations of Information, Networks, and Decision Systems (FIND) seminar, Feb 2022.
 Conference on Information Sciences and Systems, Mar 2022.
 Information Theory and its Applications, May 2022.

“Graph Agnostic Randomized Experimental Design under Heterogeneous Linear Network Interference”

Simons Institute Workshop on Algorithmic Aspects of Causal Inference Mar 2022.

“Sequential Fair Allocation: Achieving the Optimal Envy-Efficiency Tradeoff Curve”
Arizona State University Learning, Information, Optimization, Networks, and Statistics (LIONS) seminar, Sept 2022.

Symposium on Foundations of Responsible Computing, June 2022.

Simons TOC4Fairness Seminar, Nov 2021.

IFDS Ethics & Algorithms Special Interest Group, Nov 2021.

Sharif University of Technology, Industrial Engineering Department Seminar, Aug 2021.

Harvard Probabilitas seminar, July 2021.

“Adaptive Discretization for Reinforcement Learning in Large Continuous Spaces”

University of Michigan Communications and Signal Processing seminar, Nov 2020.

UC Berkeley Simons Institute Fellows seminar, Nov 2020.

“Tensor Estimation with Nearly Linear Samples”

Information Theory and its Applications Conference in San Diego, Feb 2020.

“Adaptive Discretization for Sequential Decision Making in Large Continuous Spaces”

University of Washington Machine Learning Seminar, Oct 2019.

Cornell CS Theory Seminar, Nov 2019.

Lightning Talk at IAS workshop on New Directions in RL and Control, Nov 2019.

Cornell AI Seminar, Dec 2019.

“Predictions for Sparse Datasets”

Operations Research and Information Engineering field session for CURIE Academy, July 2019.

“Iterative Collaborative Filtering for Sparse Noisy Tensor Estimation.”

Cornell CS SCAN Seminar, Nov 2019.

Stanford ISL Seminar, Oct 2019.

Netflix Research, Oct 2019.

Cornell Probability Seminar, Oct 2019.

UW Madison SILO colloquium, Sept 2019.

Allerton Conference, Sept 2019.

MIT MIFODS workshop, Aug 2019.

INFORMS Applied Probability Society Conference, July 2019.

Machine Learning in Science and Engineering Workshop, June 2019.

Conference on Information Sciences and Systems, Mar 2019.

Cornell Statistics Seminar, Mar 2019.

Information Theory and its Applications Conference in San Diego, Feb 2019.

Tutorial on Matrix Estimation at International Symposium on Information Theory, June 2018.

“Thy Friend is My Friend: Iterative Collaborative Filtering for Sparse Matrix Estimation.”

Dantzig Award Finalist presentation at INFORMS Annual Meeting, Nov 2018.

Reviewer for

- Management Science , 2019, 2020, 2021, 2022
- Operations Research , 2018, 2020, 2022
- Journal of Machine Learning Research (JMLR) , 2018, 2019, 2020, 2021, 2022
- SIAM Journal on Mathematics of Data Science (SIMODS) , 2019, 2021
- Springer Machine Learning Journal , 2021
- IEEE Transactions on Information Theory , 2015, 2019, 2021
- IEEE/ACM Transactions on Networking , 2021
- International Conference on Artificial Intelligence and Statistics (AISTATS) , 2018, 2019, 2021
- IEEE International Symposium on Information Theory , 2017, 2020, 2021
- Reviewer for Neural Information Processing Systems Conference , 2016, 2018, 2019, 2020
- National Science Foundation , 2019, 2020
- Stochastic Systems , 2020
- International Conference on Machine Learning , 2018, 2020
- Journal of Computational and Graphical Statistics (JCGS) , 2019
- ACM Symposium on Theory of Computing (STOC) , 2019
- Reviewer for AAAI Conference on Artificial Intelligence , 2019
- Asian Conference on Machine Learning (ACML) , 2019
- International Symposium on Theoretical Aspects of Computer Science , 2017
- IEEE Transactions on Network Science and Engineering , 2016
- Women in Machine Learning Workshop , 2016

Award Committee member for

- SIGMETRICS Doctoral Dissertation Award 2022
- INFORMS APS Student Paper Award 2022
- Nicholson Award 2022
- IFIP Performance Best Paper Award 2021