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	

HONORS AND AWARDS	SIGMETRICS Rising Stars Award	2024
	NSF CAREER Award	2024
	SIGMETRICS Best Student Paper Award	2023
	Ralph S. Watts '72 Excellence in Teaching Award	2022
	Intel Rising Stars Award	2021
	JPMorgan Faculty Research 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

GRANTS

National Science Foundation (NSF) CAREER: Randomized Experimentation for Systems with Time-varying Dynamics and Network Interference, $595K, July 2024 - June 2029.

Air Force Office of Scientific Research (AFOSR) Complex Networks program: "Efficiently Exploiting Structure for Causal Inference in the Presence of Network Interference", $450K, July 2023 - June 2026.

JPMorgan Faculty Research Award, "Exploiting Low Rank Structure for Provably Efficient Reinforcement Learning", $100K, August 2021 - July 2023.

Intel Rising Stars Faculty Award, $50K, awarded August 2021.

National Science Foundation (NSF) CNS Core: Resource Constrained Reinforcement Learning for Computing Systems, joint with co-PIs Siddhartha Banerjee, Christoph Studer, and Qiaomin Xie, $1,200K, July 2020 - June 2024.

National Science Foundation (NSF) CISE Research Initiation Initiative (CRII): Generalizations for Matrix and Tensor Estimation, $175K, July 2020 - June 2023.

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

Journal Publications

Chunyin Siu, Gennady Samorodnitsky, Christina Lee Yu, Andrey Yao. "Detection of Small Holes by the Scale-Invariant Robust Density-Aware Distance (RDAD) Filtration." *Journal of Applied and Computational Topology*, 2024.

Mayleen Cortez, Matthew Eichhorn, and Christina Lee Yu. "Exploiting Neighborhood Interference with Low Order Interactions under Unit Randomized Design." *Journal of Causal Inference*, 2023. 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." *Proceedings of the ACM on Measurement and Analysis of Computing Systems*, 2023. Received Best Student Paper Award in *SIGMETRICS* 2023.

*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 Airoldi, 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.

*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.

*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

Tyler Sam, Yudong Chen, and Christina Yu. "The Limits of Transfer Reinforcement Learning with Latent Low-rank Structure." *Advances in Neural Information Processing Systems*, 2024.

Siddhartha Banerjee, Alankrita Bhatt, and Christina Lee Yu. "The SMART Approach to Instance-Optimal Online Learning." *Conference on Learning Theory*, 2024.

Haiyun He, Christina Lee Yu, Ziv Goldfeld. "Hierarchical Generalization Bounds for Deep Neural Networks." *International Symposium on Information Theory*, 2024.

Xumei Xi, Christina Lee Yu, and Yudong Chen. "Entry-Specific Bounds for Low-Rank Matrix Completion under Highly Non-Uniform Sampling." *International Symposium on Information Theory*, 2023.

Tyler Sam, Yudong Chen, and Christina Lee Yu. "Overcoming the Long Horizon Barrier for Sample-Efficient Reinforcement Learning with Latent Low-Rank Structure." *ACM SIGMETRICS*, 2023. Received *ACM SIGMETRICS* Best Student Paper Award.

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.

Christina Lee Yu and Xumei Xi. "Tensor Estimation with Nearly Linear Samples Given Weak Side Information." *ACM SIGMETRICS Conference,* 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.

Sean R. Sinclair, Siddhartha Banerjee, and Christina Lee Yu. "Adaptive Discretization for Episodic Reinforcement Learning in Metric Spaces." *ACM SIGMETRICS Conference*, 2020. Poster in Neurips Workshop on the Optimization Foundations of Reinforcement Learning, 2019.

*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

*Yudong Chen, Xumei Xi, and Christina Lee Yu. "Entry-Specific Matrix Estimation under Arbitrary Sampling Patterns through the Lens of Network Flows."

Arxiv:2409.03980.

*Mayleen Cortez-Rodriguez, Matthew Eichhorn, and Christina Lee Yu. "Combining Rollout Designs and Clustering for Causal Inference under Low-order Interference." *Arxiv:2405.05119*, 2024.

*Matthew Eichhorn, Samir Khan, Johan Ugander, and Christina Lee Yu. "Low-order outcomes and clustered designs: combining design and analysis for causal inference under interference." *Arxiv:2405.07979*, 2024.

Su Jia, Nathan Kallus, Christina Lee Yu. "Clustered Switchback Experiments: Near-Optimal Rates Under Spatiotemporal Interference." *Arxiv:2312.15574*, 2024.

Xumei Xi, Christina Lee Yu, Yudong Chen. "Matrix Estimation for Offline Evaluation in Reinforcement Learning with Low-Rank Structure." *Arxiv:2305.15621*, 2023.

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.

Chunyin (Alex) Siu, Gennady Samorodnitsky, Christina Lee Yu, Rongyi He. "The Asymptotics of the Expected Betti Numbers of Preferential Attachment Clique Complexes." *Arxiv:2305.11259*, 2023.

DOCTORAL STUDENTS	Sean Sinclair, co-advised with Siddhartha Banerjee, graduated May 2023, assistant professor at Northwestern IEMS Thesis: *Adaptivity, Structure, and Objectives in Sequential Decision Making* Xumei Xi, co-advised with Yudong Chen, graduated Aug 2024, Data Scientist at Pinterest Thesis: *Fine-Grained Analysis of Select Statistical Problems* Tyler Sam, co-advised with Yudong Chen, 4th year ORIE PhD student. Mayleen Cortez, 4th year CAM PhD student.
INVITED TALKS	"*Causal Inference in Complex Systems with Network Interference and Temporal Dynamics*" ACM SIGMETRICS tutorial, June 2024. "*Exploiting Structure In Reinforcement Learning*" Theory of Reinforcement Learning Reunion Workshop at Simons Institute, Nov 2021. RL4SN, June 2024.

"*Minimax Optimal Estimates of Individual Causal Effects in Panel Data under General Intervention Patterns*"
New York City Operations Day, May 2024.

"*The SMART Approach to Instance-Optimal Online Learning*"
Simons Institute Data Driven Decision Processes Reunion Workshop, Jan 2024.
Caltech RSRG/FALCON Seminar, Jan 2024.
ACM SIGMETRICS Rising Stars Award talk, June 2024.
ESIF-AIML, August 2024.

"*Exploiting Low Order Interactions for Causal Inference in the Presence of Network Interference*"
USC Statistics Empowering Data Science (SEEDS) Conference, Jan 2024.
MIT AsuFest, June 2023.
Amazon SCOT, August 2024.

"*Exploiting Neighborhood Interference with Low Order Interactions under Unit Randomized Design*"
Harvard CMSA GRAMSIA workshop on Graphical Models, Statistical Inference, and Algorithms, May 2023.
Oxford Nuffield Econometrics Seminar, Mar 2023.
Online Causal Inference Seminar, Feb 2023.

"*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 North American School of Information Theory, June 2023.
Tutorial at SIGMETRICS workshop on Causal Inference for Engineers, June 2023.
Tutorial at CORS/INFORMS International Conference, June 2022.

"*Graph Agnostic Randomized Experimental Design under Heterogeneous Linear Network Interference and Beyond*"
INFORMS Annual meeting, Oct 2022.
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.
Intel's Rising Star Tech talk May 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.
INFORMS Annual Meeting, Oct 2021.

"*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.
INFORMS Annual Meeting, 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.

"*Nonparametric Contextual Bandits in an Unknown Metric Space*"
INFORMS Annual Meeting, Oct 2019.

"*Adaptive Discretization for Sequential Decision Making in Large Continuous Spaces*"
Microsoft Research New York Machine Learning Seminar, Nov 2019.
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.

"*Matrix and Tensor Estimation in Action*"
Workshop at Open Data Science Conference, Nov 2019.

"*Predictions for Sparse Datasets*"
Operations Research and Information Engineering field session for CURIE Academy,

July 2019.

"Predictions in Excel through Estimating Missing Values."
Workshop at Open Data Science Conference, May 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.
International Symposium on Information Theory, July 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.

"Matrix Estimation."
Tutorial 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.
Open Data Science Conference, May 2018.
California Institute of Technology RSRG/DOLCIT Seminar Series, Jan 2018.
Allerton Conference, Oct 2017.

"Latent Variable Model Estimation via Collaborative Filtering."
Summer School for Statistical Physics and Machine Learning in Scientific Institute of Cargese, Aug 2018.
Northwestern University EECS Seminar, Oct 2017.

"Social Data Processing with Exchangeable Models: Recommendation Systems, Crowdsourcing, and Graphons."
Microsoft Research New England, Mar 2017.
Carnegie Mellon University Machine Learning Department, Mar 2017.
Cornell Operations Research and Information Engineering Colloquium, Feb 2017.

TEACHING
EXPERIENCE

Systems Analysis, Behavior, and Optimization (SYSEN 5200)	Spring 2020, 2021, 2022, 2023
Information Systems and Analysis (ORIE 3800)	Spring 2019
Statistical Principles (ORIE 6700)	Fall 2018, 2019, 2021, 2022, 2023
Algorithms for Inference (6.438), Teaching Assistant	Fall 2015
MIT Teaching Certificate Program	Summer 2015
Design and Analysis of Algorithms (6.046)	Teaching Assistant, Fall 2013
Intro to Computer Science (CS1) and Python and C (CS11)	Dean's Tutor, 2009-10
Introduction to Computer Science (CS1), Teaching Assistant	Fall 2008

Professional	Associate Editor for Stochastic Systems	spring 2024-current
Services	INFORMS Applied Probability Society (APS) Council member	2022-2025
	Cornell CAM PhD Admissions Committee Member	2020, 2023
	Cornell ORIE Diversity Committee Member	2021-2023
	Co-organizer for ORIE colloquium	2018-2020, 2022-2023
	Co-chair for Women in Information Theory Society (WITHITS)	2019-2022
	Stochastic Networks, Applied Probability, and Performance (SNAPP) seminar organizing committee	2020-2021
	Cornell freshman adviser	2019-2020
	Session organizer for INFORMS Annual Meeting	2019
	Co-organizer for NIPS Workshop on Nearest Neighbor Methods	2017
	Co-coordinator for LIDS student conference	2014-2015
	Lab for Information and Decision Systems Student Committee	2011-2015
	Coordinator for *Facing Challenges, Overcoming Obstacles* Event as part of GWAMIT Spring Empowerment conference.	March 2012

Guest editor for IEEE Journal on Selected Areas in Information Theory special issue on estimation and inference, 2020

Technical Program committee member for
- ACM SIGMETRICS 2025
- ACM SIGMETRICS / IFIP Performance 2024
- ACM SIGMETRICS / IFIP Performance 2022
- IFIP Performance 2021
- ACM Conference on Equity and Access in Algorithms, Mechanisms, and Optimization 2021
- International Joint Conferences on Artificial Intelligence (IJCAI), 2019
- International Conference on Machine Learning Workshops, 2020

Reviewer for
- INFORMS Mathematics of Operations Research 2024
- Applied Probability Journals 2024
- Management Science, 2019, 2020, 2021, 2022, 2023
- Operations Research, 2018, 2020, 2022, 2024
- 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, 2024
- 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, 2023
- Nicholson Award 2022, 2023
- IFIP Performance Best Paper Award 2021