Yeshwanth Cherapanamjeri

Postdoctoral Associate

CONTACT INFORMATION

Massachusetts Institute of Technology
6th Floor, Stata Center

https://yeshwanth94.github.io
yesh@mit.edu

INTERESTS

Algorithms, Statistical Learning Theory, Optimization

EDUCATION

UC Berkeley (August 2017 - August 2023)
Ph.D Student in Computer Science
Advisor: Prof. Peter L. Bartlett
CGPA: 4.0+

Indian Institute of Technology Bombay (July 2011 - May 2015)
B. Tech with Honors in Computer Science and Engineering
Minor in Applied Statistics and Informatics
CGPA: 9.31 (*Ranked among the top 10% of the department*)

EMPLOYMENT

Massachusetts Institute of Technology (September 2023 - Present)
Postdoctoral Associate Advisor: Prof. Constantinos Daskalakis

The Voleon Group (May 2021 - August 2021)
Research Scientist Intern Manager: Dr. Neal Master

Amazon Inc (June 2020 - August 2020)
Applied Scientist Intern Managers: Dr. Choon Hui Teo and Dr. Vishy Vishwanathan

Microsoft Research India (June 2015 - July 2017)
Research Fellow Advisors: Dr. Prateek Jain and Dr. Praneeth Netrapalli

TU Braunschweig (May 2013 - July 2013)
Research Intern Advisor: Prof. Marcus Magnor

SELECTED PUBLICATIONS

Are Pairwise Comparisons Enough for Preference Learning?
Y. Cherapanamjeri*, C. Daskalakis, G. Farina, S. Mohammadpour*
Under Preparation

How Much is a Noisy Image Worth? Data Scaling Laws for Ambient Diffusion
G. Daras*, Y. Cherapanamjeri*, C. Daskalakis
Under Submission
ArXiv Version: https://arxiv.org/abs/2411.02780

Statistical Barriers to Affine-equivariant Estimation
Z. Chen, Y. Cherapanamjeri
Under Major Revision at Annals of Statistics
ArXiv Version: https://arxiv.org/abs/2310.10758

Optimal PAC Bounds without Uniform Convergence
I. Aden-Ali, Y. Cherapanamjeri, A. Shetty, N. Zhivotovskiy
Sixty Fourth Symposium on Foundations of Computer Science (FOCS 2023)
Invited to SICOMP Special Issue for FOCS 2023
ArXiv Version: https://arxiv.org/abs/2304.09167

What Makes A Good Fisherman? Linear Regression under Self-Selection Bias
Y. Cherapanamjeri, C. Daskalakis, A. Ilyas, E. Zampetakis
Fifty Fifth Symposium on Theory of Computing (STOC 2023)
ArXiv Version: https://arxiv.org/abs/2205.03246

Estimation of Standard Auction Models
Y. Cherapanamjeri, C. Daskalakis, A. Ilyas, E. Zampetakis
Extended Abstract: Twenty Third Conference on Economics and Computation (EC 2022)
ArXiv Version: https://arxiv.org/abs/2205.02060

Algorithms for Heavy-Tailed Statistics: Regression, Covariance Estimation, and Beyond
Y. Cherapanamjeri, S. B. Hopkins, T. Kathuria, P. Raghavendra, N. Tripuraneni
Fifty Second Symposium on Theory of Computing (STOC 2020)
ArXiv Version: https://arxiv.org/abs/1912.11071

Fast Mean Estimation with Sub-Gaussian Rates
Y. Cherapanamjeri, N. Flammarion, P. L. Bartlett
Thirty Second Conference on Learning Theory (COLT 2019)
ArXiv Version: https://arxiv.org/abs/1902.01998

Publications

Are Pairwise Comparisons Enough for Preference Learning?
Y. Cherapanamjeri*, C. Daskalakis, G. Farina, S. Mohammadpour*
Under Preparation

How Much is a Noisy Image Worth? Data Scaling Laws for Ambient Diffusion
G. Daras*, Y. Cherapanamjeri*, C. Daskalakis
Under Submission

Heavy-tailed Contamination is Easier than Adversarial Contamination
Y. Cherapanamjeri, D. Lee
Under Submission

Computing Approximate Centerpoints in Polynomial Time
Y. Cherapanamjeri
Sixty Fifth Symposium on Foundations of Computer Science (FOCS 2024)

Statistical Barriers to Affine-equivariant Estimation
Z. Chen, Y. Cherapanamjeri
Under Major Revision at Annals of Statistics
ArXiv Version: https://arxiv.org/abs/2310.10758

The Space Complexity of Learning-Unlearning Algorithms
Y. Cherapanamjeri, S. Garg, N. Rajaraman, A. Sekhari, A. Shetty
Under Submission

Efficient Automated Circuit Discovery in Transformers using Contextual Decomposition
A. Hsu, G. Zhou, Y. Cherapanamjeri, Y. Huang, A. Odisho, P. Carroll, B. Yu
Under Submission

Diagnosing Transformers: Illuminating Feature Spaces for Clinical Decision-Making
A. R. Hsu, Y. Cherapanamjeri, B. Park, T. Naumann, A. Y. Odisho, B. Yu
Twelfth International Conference on Learning Representations (ICLR 2024)
ArXiv Version: https://arxiv.org/abs/2305.17588

Optimal PAC Bounds without Uniform Convergence
I. Aden-Ali, Y. Cherapanamjeri, A. Shetty, N. Zhivotovskiy
Sixty Fourth Symposium on Foundations of Computer Science (FOCS 2023)
Invited to SICOMP Special Issue for FOCS 2023
ArXiv Version: https://arxiv.org/abs/2304.09167

The One-Inclusion-Graph Algorithm is not Always Optimal
I. Aden-Ali, Y. Cherapanamjeri, A. Shetty, N. Zhivotovskiy
Thirty Sixth Conference on Learning Theory (COLT 2023)
ArXiv Version: https://arxiv.org/abs/2212.09270

Optimal Algorithms for Linear Algebra in the Current Matrix Multiplication Time
Y. Cherapanamjeri, S. Silwal, D. P. Woodruff, S. Zhou
ACM-SIAM Symposium on Discrete Algorithms (SODA 2023)
ArXiv Version: https://arxiv.org/abs/2211.09964

Robust Algorithms on Adaptive Inputs from Bounded Adversaries
Y. Cherapanamjeri, S. Silwal, D. P. Woodruff, F. Zhang, Q. Zhang, S. Zhou
Eleventh International Conference on Learning Representations (ICLR 2023)

ArXiv Version: https://arxiv.org/abs/2304.07413

What Makes A Good Fisherman? Linear Regression under Self-Selection Bias
Y. Cherapanamjeri, C. Daskalakis, A. Ilyas, E. Zampetakis
Fifty Fifth Symposium on Theory of Computing (STOC 2023)
ArXiv Version: https://arxiv.org/abs/2205.03246

Estimation of Standard Auction Models
Y. Cherapanamjeri, C. Daskalakis, A. Ilyas, E. Zampetakis
Extended Abstract: Twenty Third Conference on Economics and Computation (EC 2022)
ArXiv Version: https://arxiv.org/abs/2205.02060

Uniform Approximations for Randomized Hadamard Transforms with Applications
Y. Cherapanamjeri, J. Nelson
Fifty Fourth Symposium on Theory of Computing (STOC 2022)
ArXiv Version: https://arxiv.org/abs/2203.01599

Adversarial Examples in Multi-Layer Random ReLU Networks
P. L. Bartlett, S. Bubeck, Y. Cherapanamjeri
Thirty Fifth Conference on Neural Information Processing Systems (NeurIPS 2021)
ArXiv Version: https://arxiv.org/abs/2106.12611

A single gradient step finds adversarial examples on random two-layers neural networks
S. Bubeck, Y. Cherapanamjeri, G. Gidel, R. Tachet des Combes
Thirty Fifth Conference on Neural Information Processing Systems (NeurIPS 2021)
Spotlight Presentation
ArXiv Version: https://arxiv.org/abs/2104.03863

Terminal Embeddings in Sublinear Time
Y. Cherapanamjeri, J. Nelson
Sixty Second Symposium on Foundations of Computer Science (FOCS 2021)

On Adaptive Distance Estimation
Y. Cherapanamjeri, J. Nelson
Thirty Fourth Conference on Neural Information Processing Systems (NeurIPS 2020)
Spotlight Presentation
ArXiv Version: https://arxiv.org/abs/2010.11252

Optimal Robust Linear Regression in Nearly Linear Time
Y. Cherapanamjeri, E. Aras, N. Tripuraneni, M. I. Jordan, N. Flammarion, P. L. Bartlett
In Submission
ArXiv Version: https://arxiv.org/abs/2007.08137

List Decodable Mean Estimation in Nearly Linear Time
Y. Cherapanamjeri, S. Mohanty, M. Yau
Sixty First Symposium on Foundations of Computer Science (FOCS 2020)
ArXiv Version: https://arxiv.org/abs/2005.09796

Optimal Mean Estimation without a Variance
Y. Cherapanamjeri, N. Tripuraneni, P. L. Bartlett, M. I. Jordan
Thirty Fifth Conference on Learning Theory (COLT 2022)
ArXiv Version: https://arxiv.org/abs/2011.12433

Algorithms for Heavy-Tailed Statistics: Regression, Covariance Estimation, and Beyond
Y. Cherapanamjeri, S. B. Hopkins, T. Kathuria, P. Raghavendra, N. Tripuraneni
Fifty Second Symposium on Theory of Computing (STOC 2020)
ArXiv Version: https://arxiv.org/abs/1912.11071

Fast Mean Estimation with Sub-Gaussian Rates
Y. Cherapanamjeri, N. Flammarion, P. L. Bartlett
Thirty Second Conference on Learning Theory (COLT 2019)
ArXiv Version: https://arxiv.org/abs/1902.01998

Testing Markov Chains without Hitting

Y. Cherapanamjeri, P. L. Bartlett
Thirty Second Conference on Learning Theory (COLT 2019)
ArXiv Version: https://arxiv.org/abs/1902.01999

Thresholding based Efficient Outlier Robust PCA
Y. Cherapanamjeri, P. Jain, P. Netrapalli
Thirtieth Conference on Learning Theory (COLT 2017)
ArXiv Version: https://arxiv.org/abs/1702.05571

Nearly Optimal Robust Matrix Completion
Y. Cherapanamjeri, K. Gupta, P. Jain
Thirty-Fourth International Conference on Machine Learning (ICML 2017)
ArXiv Version: https://arxiv.org/abs/1606.07315

Selected Talks

Affine Equivariant Robust Mean Estimation — WALE 2024

Optimal PAC Bounds without Uniform Convergence — A&C Seminar MIT 2023

Recovering from Structured and Unstructured Noise — Harvard 2023

Uniform Approximations for RHTs — Stanford Theory Lunch 2022

Towards Adaptive Metric Embeddings — Metric Embeddings Workshop FOCS 2022

Optimal Mean Estimation without a Variance — Virtual Workshop 2022
Workshop on Privacy and Robustness

Optimal Mean Estimation without a Variance — Virtual CS4Math Seminar Harvard 2021

A General Framework for Adaptive Data Structures — STOC 2021
Workshop on Robust Streaming, Sketching, and Sampling

A General Framework for Adaptive Data Structures — Google Research 2021

Selected Awards

Invitation to SICOMP Special Issue for FOCS 2023 — 2023

Finalist: Two Sigma Graduate Fellowship — 2021

Outstanding Graduate Student Instructor — 2018

Teaching

EECS 127/227A: Optimization Models in Engineering, UC Berkeley — Spring 2020
Instructor: Prof. Gireeja Ranade
Graduate Student Instructor

CS 170: Efficient Algorithms and Intractable Problems, UC Berkeley — Spring 2019
Instructors: Prof. Prasad Raghavendra and Prof. Luca Trevisan
Graduate Student Instructor

CS 70: Discrete Mathematics and Probability Theory, UC Berkeley — Fall 2018
Instructors: Prof. Alistair Sinclair and Prof. Yun Song
Graduate Student Instructor
Outstanding GSI Award

MA 214: Introduction to Numerical Analysis, IIT Bombay — Summer 2014
Instructor: Prof. Sivaji Ganesh
Undergraduate Student Instructor

Professional Service

Conference Reviewing: STOC 2025, ALT 2025, NeurIPS 2024, STOC 2024, NeurIPS 2023, FOCS 2023, ICML 2023, STOC 2023, ICLR 2023, NeurIPS 2022, STOC 2022, FOCS 2021, NeurIPS 2021, ICML 2021, STOC 2021, FOCS 2020, ICML 2019, COLT 2019, SODA 2019

Journal Reviewing: Annals of Statistics, Bernoulli, Journal of the ACM (JACM), Transactions on Information Theory, Mathematical Statistics and Learning, Journal of Machine Learning Research (JMLR)