Chen Cheng

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Education

Stanford University, CA, USA

- **Ph.D. in Statistics**, Department of Statistics.
  Jointly advised by: John Duchi and Andrea Montanari — 9/2019 – present
- GPA: $4.20/4.30$.

Peking University, Beijing, China

- **B.S. in Computational Mathematics**, School of Mathematical Sciences. — 9/2015 – 7/2019
- GPA: $3.90/4.00$, Rank: $1/18$. (with distinction)

Work and Intern Experience

LinkedIn Corporation, WA, USA

- **Research Intern**.
  Supervised by: Ryan Rogers and Saikrishna Badrinarayanan — 6/2023 – 9/2023

CIMS, New York University, NY, USA

- **Research Intern**.
  Supervised by: Miranda Holmes-Cerfon — 9/2018 – 12/2018

Princeton University, NJ, USA

- **Research Intern**.
  Supervised by: Yuxin Chen — 7/2018 – 9/2018

Research Interests

Machine learning theory, High dimensional statistics, Random matrix theory, Differential Privacy, Reinforcement learning.

Publications

P8 **C. Cheng**, G. Cheng, J. Duchi. "Collaboratively Learning Linear Models with Structured Missing Data", arXiv preprint.

P7 **C. Cheng**, A. Montanari. "Dimension Free Ridge Regression", arXiv preprint.

P6 **C. Cheng**, H. Asi, J. Duchi. "How Many Labelers Do You Have? A Closer Look at Gold-Standard Labels", arXiv preprint.

P5 **C. Cheng**, J. Duchi, R. Kuditipudi. "Memorize to Generalize: on the Necessity of Interpolation in High Dimensional Linear Regression", Conference on Learning Theory (COLT), 2022. arXiv version.

P4 M. Celentano, **C. Cheng**, A. Montanari. "The High-dimensional Asymptotics of First Order Methods with Random Data", arXiv preprint.

P3 S. Cen, **C. Cheng**, Y. Chen, Y. Wei, Y. Chi, "Fast Global Convergence of Natural Policy Gradient Methods with Entropy Regularization", Operations Research, 2021. arXiv version.

P2 **C. Cheng**, Y. Wei, Y. Chen, "Tackling Small Eigen-gaps: Fine-Grained Eigenvector Estimation and Inference under Heteroscedastic Noise", IEEE Transactions on Information Theory, 2021. arXiv version.

P1 Y. Chen, **C. Cheng**, J. Fan, "Asymmetry Helps: Eigenvalue and Eigenvector Analyses of Asymmetrically Perturbed Low-Rank Matrices", Annals of Statistics, vol. 49, no. 1, pp. 435-458, 2021. arXiv version.

Working projects

P5' **C. Cheng**, R. Rogers. "Laplace noise reduction mechanism".

P4' F. Areces, **C. Cheng**, J. Duchi. "Uniform conformal inference with weighted functions".

P3' **C. Cheng**, J. Duchi. "Revisiting Risk and Prediction Consistency for Modern Data Collection".

P2' **C. Cheng**, J. Duchi, S. Haque, D. Drusvyatskiy. "Optimization with many distributions".

P1' **C. Cheng**, J. Duchi, R. Kuditipudi, D. Drusvyatskiy. "Tilting Stability of Optimization Problems".

Academic Honors & Awards

Fellowship & Scholarship

- William R. Hewlett Stanford Graduate Fellowship. 9/2019
- Yizheng Special Scholarship and Merit Student. 9/2018
- Leo-KoGuan Scholarship and Merit Student. 9/2017
- National Scholarship and Merit Student Pacesetter (Highest Honor) . 9/2016

Awards

- George E. Nicholson Student Paper Competition, Finalist. 10/2021
- Excellent Graduate of Beijing. 6/2019
- Excellent Graduate of Elite Training Program of Applied Mathematics. 6/2019
- Silver Prize, S.T. Yau College Student Mathematics Contests – Group (Probability) 8/2017
- Elite Training Program of Applied Mathematics. 2017-2019
- Elite Training Program of Pure Mathematics. 2016-2019
- Chinese Mathematical Olympiad (CMO). Gold Medalist. 2014
- National Olympiad in Informatics (NOI), China. Silver Medalist. 2012

Talks and Presentations

T5 "How many labelers do you have? Some theory on label aggregation", *Stanford Stats Department IAC 2022*, 11/2022

T4 "Memorize to Generalize: on the Necessity of Interpolation in High Dimensional Linear Regression", *COLT 2022*, 07/2022

T3 "How many labelers do you have? Some theory on label aggregation", *Stanford DAWN retreat workshop*, 05/2022

T2 "Asymmetry Helps: Eigenvalue and Eigenvector Analyses Under Asymmetric Random Matrix Perturbation", *Seminar for Modeling & Simulation*, New York University, CIMS. 10/2018

T1 "Combinatorial Algorithms for MAX-CUT Problem: Review on State-of-art Algorithms and a Concurrent Evolutionary Framework", *Seminar for Elite Ph.D Training Program of Applied Mathematics*, Peking University. 11/2017

Teaching Experiences

As Teaching Assistant

- STATS 141. Biostatistics. Autumn 2019
- STATS 214/CS 229M. Machine Learning Theory. (Head TA) Winter 2021
- STATS 205. Introduction to Nonparametric Statistics. Spring 2021
- STATS 369. Methods from Statistical Physics. Autumn 2021
- MATH 230A/STATS 310A. Theory of Probability. Autumn 2022
- STATS 208. Bootstrap, Cross-Validation, and Sample Re-use. Winter 2023
- STATS 311/EE 377. Information Theory and Statistics. Autumn 2023

Professional Services

Reviewing

Journal

Annals of Statistics (AOS), Journal of Machine Learning Research (JMLR), IEEE Transactions on Information Theory (TIT), Foundations of Computational Mathematics (FOCM)

Conference

Conference on Neural Information Processing Systems (NeurIPS), International Conference on Learning Representations (ICLR), International Conference on Machine Learning (ICML), IEEE International Symposium on Information Theory (ISIT)