Sheng Xu

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Education

Yale University   2016 - 2022
Ph.D. in Statistics and Data Science   New Haven, Connecticut, USA

- Advisors: Zhou Fan and Sahand Negahban
- Thesis: "Efficient Estimation of Signals via Non-Convex Approaches"
- Francis J. Anscombe Award: "Given on an occasional basis for outstanding academic performance in the Department of Statistics."

Peking University
B.S. in Probability and Statistics   2010 - 2014
Advisor: Zhi Geng   Beijing, China
B.S. (dual) in Economics   2011 - 2014
Advisor: Miaojie Yu   Beijing, China

Research Experiences

Research Interests

   High Dimensional and Multivariate Statistics; Statistical Inference; Signal and Image Processing; Combinatorial Algorithms; Convex and Nonconvex Optimization; Cryo-EM; Deep Learning Theory; Network Analysis; Time Series Analysis; Econometrics.

Journal Publications

1. **Xu, S.**, & Fan, Z. (2021). Iterative Alpha Expansion for Estimating Gradient-Sparse Signals from Linear Measurements. *Journal of the Royal Statistical Society: Series B (JRSS-B)*.

2. Han, F., **Xu, S.**, & Zhou, W. (2018). On Gaussian Comparison Inequality and Its Application to Spectral Analysis of Large Random Matrices. *Bernoulli*, Volume 24, Number 3 (2018), 1787-1833.

Conference Publications

1. Chen, L., & **Xu, S.** (2021). Deep Neural Tangent Kernel and Laplace Kernel Have the Same RKHS. In *Proceedings of the 9th International Conference on Learning Representations (ICLR)*.

2. **Xu, S.**, Fan, Z., & Negahban, S. (2020). Tree-Projected Gradient Descent for Estimating Gradient-Sparse Parameters on Graphs. In *Proceedings of the 33rd Annual Conference on Learning Theory (COLT)*.

3. Qiu, H., **Xu, S.**, Han, F., Liu, H., & Caffo, B. (2015). Robust Estimation of Transition Matrices in High Dimensional Heavy-Tailed Vector Autoregressive Processes. In *Proceedings of the 32nd International Conference on Machine Learning (ICML)*.

Preprints

1. Fan, Z., Lederman, R., Sun, Y., Wang, T., & **Xu, S.** (2021). Maximum Likelihood for High-Noise Group Orbit Estimation and Single-Particle Cryo-EM. Submitted to *Annals of Statistics*.

2. Gao, W. Y., Li, M., & **Xu, S.** (2021). Logical Differencing in Dyadic Network Formation Models with Nontransferable Utilities. Under revision at *Journal of Econometrics*.

3. Gao, W. Y., & **Xu, S.** (2020). Two-Stage Maximum Score Estimator. *ArXiv e-prints, abs/2009.02854*.

Teaching Experiences

TA, S&DS 363/563, Multivariate Statistics, Spring 2020 (taught by Jonathan, Reuning-Scherer).

TA, S&DS 410/610, Statistical Inference, Fall 2019 (taught by Zhou, Fan).

TA, S&DS 351/551, Stochastic Processes, Spring 2019 (taught by Sahand, Negahban and Yihong, Wu).

TA, S&DS 410/610, Statistical Inference, Fall 2018 (taught by Zhou, Fan).

TA, S&DS 351/551, Stochastic Processes, Spring 2018 (taught by Sahand, Negahban).

Professional Services

Talks

Conference on Learning Theory (COLT), 2020.

International Conference on Machine Learning (ICML), 2015.

Reviewing

International Conference on Machine Learning (ICML), 2020

International Conference on Learning Representations (ICLR), 2021

Conference on Neural Information Processing Systems (NeurIPS), 2021