

Sheng Xu

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Education

Yale University

Ph.D. in Statistics and Data Science

2016 - 2022

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 and Data Science.”

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. Gao, W. Y., Li, M., & **Xu, S.** (2022). Logical Differencing in Dyadic Network Formation Models with Nontransferable Utilities. *Journal of Econometrics*.
2. **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)*.
3. 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., & **Xu, S.** (2020). Two-Stage Maximum Score Estimator. *ArXiv e-prints, abs/2009.02854*.

Teaching Experiences

- TA, S&DS 351/551, Stochastic Processes, Spring 2022 (taught by Andrew, Barron).
- 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

- Conference on Neural Information Processing Systems (NeurIPS), 2022
- Conference on Neural Information Processing Systems (NeurIPS), 2021
- International Conference on Learning Representations (ICLR), 2021
- International Conference on Machine Learning (ICML), 2020