

Sheng Xu

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Education

Ph.D. Statistics, Yale University.
Advisors: Zhou Fan and Sahand Negahban.

Sep. 2016 - Jul. 2022 (Expected)

B.S. Probability and Statistics, Peking University.
Advisor: Zhi Geng.

Sep. 2010 - Jul. 2014

B.S. (dual) Economics, Peking University.
Advisor: Miaojie Yu.

Sep. 2011 - Jul. 2014

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