Lili Zheng

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Working Experience

Postdoctoral researcher 2021 – Now
Department of Electrical and Computer Engineering, Rice University
Advisor: Genevera I. Allen

Education

University of Wisconsin - Madison 2016 – 2021
Ph.D., Statistics
Advisor: Garvesh Raskutti

University of Science and Technology of China 2012 – 2016
B.S., Statistics

Research Interest

Graphical models, missing data, distribution-free inference, tensor data analysis, network Granger causality, dependent data, high-dimensional statistics, stochastic algorithms, non-convex optimization

Honors

Gold Medal Young Researcher Poster Competition Award,
Conference on Recent Advances in Statistics and Data Science at Rutgers. 2023
IMS Hannan Graduate Student Travel Award. 2021
Travel grant from Institute for Foundations of Data Science (IFDS), UW-Madison. 2019
Travel grant from IMA workshop on Forecasting from Complexity. 2018
Honorable Mention in Mathematical Contest of Modeling, COMAP (Top 20%) 2015
National scholarship, USTC. (Top 2%) 2015
Outstanding freshman scholarship, USTC(Top 20%) 2012

Publications

Preprints

13. G. I. Allen, L. Gan, **L. Zheng**, "Interpretable Machine Learning for Discovery: Statistical Challenges & Opportunities", *under revision at Annual Review of Statistics and Its Application*, https://arxiv.org/abs/2308.01475

12. A. Chang*, **L. Zheng***, G. Dasarathy, G. I. Allen,"Nonparanormal Graph Quilting with Applications to Calcium Imaging", *under revision at STAT*, https://arxiv.org/abs/2305.13491

11. **L. Zheng**, G. Raskutti, "High-dimensional Multi-class Classification with Presence-only Data", *under revision at Electronic Journal of Statistics*, https://arxiv.org/abs/2304.09305

10. L. Gan*, **L. Zheng***, G. I. Allen (∗: equal contribution), "Inference for Interpretable Machine Learning: Fast, Model-Agnostic Confidence Intervals for Feature Importance", *Submitted*, https://arxiv.org/abs/2206.02088.

9. A. Chang, **L. Zheng**, G. I. Allen, "Low-Rank Covariance Completion for Graph Quilting with Applications to Functional Connectivity". *under revision at Journal of the American Statistical Association, Applications and Case Studies*, https://arxiv.org/abs/2209.08273.

8. **L. Zheng**, G. I. Allen, "Graphical Model Inference with Erosely Measured Data", *under minor revision at Journal of the American Statistical Association, Theory and Methods*, https://arxiv.org/abs/2210.11625

Peer-reviewed Journal Publications

7. H. Chen*, **L. Zheng***, R. A. Kontar, G. Raskutti (∗: equal contribution), "Gaussian Process Parameter Estimation Using Mini-batch Stochastic Gradient Descent: Convergence Guarantees and Empirical Benefits", *Journal of Machine Learning Research*, 2022.

6. Y. Zhou, A. R. Zhang, **L. Zheng**, Y. Wang, "Optimal High-order Tensor SVD via Tensor-train Orthogonal Iteration", *IEEE Transactions on Information Theory*, 2022.

5. **L. Zheng**, G. Raskutti, R. Willett, B. Mark, "Context-dependent Networks in Multivariate Time Series: Models, Methods, and Risk Bounds in High Dimensions", *Journal of Machine Learning Research*, 2021.

4. **L. Zheng**, G. Raskutti, "Testing for High-dimensional Network Parameters in Auto-regressive Models", *Electronic Journal of Statistics*, 2019.

Peer-reviewed Conference Publications

3. **L. Zheng**, Z. T. Rewolinski, G. I. Allen, "A Low-Rank Tensor Completion Approach for Imputing Functional Neuronal Data from Multiple Recordings", *IEEE Data Science and Learning Workshop (DSLW)*, 2022.

2. **L. Zheng**, G. I. Allen, "Learning Gaussian Graphical Models with Differing Pairwise Sample Sizes", *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2022.

1. H. Chen*, **L. Zheng***, R. A. Kontar, G. Raskutti (∗: equal contribution), "Stochastic gradient descent in correlated settings: A study on gaussian processes", *Neural Information Processing Systems (NeurIPS)*, 2020.

Teaching and Mentoring Experience

Teaching

The Summer Institute for Statistics in Big Data, Teaching Assistant — Summer 2023
Stat 301 (Introduction to Statistical Methods), Teaching Assistant — Fall 2016/ Spring 2017

Mentoring

1. Jiaming Liu, PhD candidate, Statistics, Rice University

2. Quan Le, undergraduate student, Computer Science and Mathematics, Rice University

3. Zach Rewolinski, undergraduate student, Statistics and Computer Science, 2023

Presentations

- Contributed talk at Joint Statistical Meetings, 2023
- Poster presentation at "Conference on Recent Advances in Statistics and Data Science", Rutgers University, 2023
- Poster presentation at the conference "Statistical Foundations of Data Science and their Applications", Princeton University, 2023
- Talk in a topic-contributed session at Joint Statistical Meetings, 2022
- Poster presentation at Workshop on Distribution-Free Uncertainty Quantification, ICML, 2022
- Talk at IEEE Data Science and Learning Workshop, 2022
- Poster presentation at ICASSP, 2022

- Poster presentation at the Conference on Advances in Bayesian and Frequentist Statistics, Rutgers University, 2022
- Poster presentation at the workshop "Perspectives in Statistical Modeling and Inference", University of Pennsylvania, 2021
- Poster presentation at Joint Statistical Meetings, 2020
- Poster presentation at NeurIPS, 2020
- Poster presentation at Joint Statistical Meetings, 2019

Professional Service

Organizer for a topic-contributed session in Joint Statistical Meetings, 2022
Session chair for ICASSP, 2022
Reviewer for *Journal of the Royal Statistical Society: Series B*, *Journal of the American Statistical Association*, *Biometrika*, *Journal of Machine Learning Research*, *Annals of Applied Statistics*, *IEEE Transactions on Information Theory*, *Computational Statistics and Data Analysis*, *International Conference on Artificial Intelligence and Statistics (AISTATS)*, *International Conference on Machine Learning (ICML)*.

Programming Skills

R language, MATLAB, Python