GUANXUN LI

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Academic Positions

Be	eijing	g No	ormal	Uni	iversity	\mathbf{at}	Zhuhai	
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Assistant Professor, Department of Statistics

Texas A&M University Postdoctoral Research Associate, Department of Statistics

Education

Texas A&M University

 Ph.D., Department of Statistics
 Advisor: Quan Zhou
 Dissertation: New Variational and Sampling Algorithms for Large-scale Bayesian Model Selection Problems.

Texas A&M University

M.S., Department of Mathematics

Beihang University

B.S., Department of Mathematics

Research Interests

Large-scale inference

Markov chain Monte Carlo sampling

Bayesian variable selection

Watermarking in large language models

Single-cell RNA sequencing data analysis

Microbiome sequencing data analysis

Publications

Notations: * - Co-first author, \sharp - Alphabetical ordering of authors.

Preprints

Li, G. and Zhang, X., 2023. On E-values, Multiple Testing and Beyond. (arXiv)

Li, G., Smith, A., and Zhou, Q., 2023. Importance is Important: Generalized Markov Chain Importance Sampling Methods. (arXiv)

Li, G.[‡], Lin, G., Zhang, Z. and Zhou, Q., 2023. Fast Replica Exchange Stochastic Gradient Langevin Dynamics. (arXiv)

Sep. 2024 - Present

Sep. 2022 – Aug. 2024 Advisor: Xianyang Zhang

Sep. 2018 – Aug. 2022

Sep. 2017 – May. 2018

Sep. 2013 - Jun. 2017

Journal Publications

Li, G. and Zhang, X., 2024. A Note on E-values and Multiple Testing, *Biometrika*, 112(1).

Li, G. and Zhou, Q., 2024. Bayesian Multi-Task Variable Selection with an Application to Differential DAG Analysis. *Journal of Computational and Graphical Statistics*, 33(1), pp.35-46.

Li, G., Lu, Y., Chen, J. and Zhang, X., 2023. Robust Differential Abundance Analysis of Microbiome Sequencing Data. *Genes*, 14(11), p.2000.

Yang, Y., Lin, Y.T., **Li, G.**, Zhong, Y., Xu, Q. and Cai, J.J., 2023. Interpretable modeling of time-resolved single-cell gene-protein expression with CrossmodalNet. *Briefings in Bioinformatics*, 24(6), p.bbad342.

Yang, Y., Li, G., Zhong, Y., Xu, Q., Chen, B.J., Lin, Y.T., Chapkin, R.S. and Cai, J.J., 2023. Gene knockout inference with variational graph autoencoder learning single-cell gene regulatory networks. *Nucleic Acids Research*, p.gkad450.

Yang, Y., Li, G., Zhong, Y., Xu, Q., Lin, Y.T., Roman-Vicharra, C., Chapkin, R.S. and Cai, J.J., 2023. scTenifoldXct: A semi-supervised method for predicting cell-cell interactions and mapping cellular communication graphs. *Cell Systems*, 14(4), pp.302-311.

Osorio, D., Zhong, Y., Li, G., Xu, Q., Yang, Y., Tian, Y., Chapkin, R.S., Huang, J.Z. and Cai, J.J., 2022. scTenifoldKnk: An efficient virtual knockout tool for gene function predictions via single-cell gene regulatory network perturbation. *Patterns*, 3(3), p.100434.

Xu, Q., Li, G., Osorio, D., Zhong, Y., Yang, Y., Lin, Y.T., Zhang, X. and Cai, J.J., 2022. scInTime: A Computational Method Leveraging Single-Cell Trajectory and Gene Regulatory Networks to Identify Master Regulators of Cellular Differentiation. *Genes*, 13(2), p.371.

Osorio, D., Zhong, Y., **Li**, **G.**, Huang, J.Z. and Cai, J.J., 2020. scTenifoldNet: a machine learning workflow for constructing and comparing transcriptome-wide gene regulatory networks from single-cell data. *Patterns*, 1(9), p.100139.

Osorio, D., Yu, X., Zhong, Y., Li, G., Serpedin, E., Huang, J.Z. and Cai, J.J., 2019. Single-cell expression variability implies cell function. *Cells*, 9(1), p.14.

Conference Publications

Li, X., Li, G^{*}. and Zhang, X., 2025. A Likelihood Based Approach for Watermark Detection. International Conference on Artificial Intelligence and Statistics(AISTATS) 2025.

Li, X., Li, G.* and Zhang, X., 2024. Segmenting Watermarked Texts From Language Models. Conference on Neural Information Processing Systems (NeurIPS) 2024.

Academic Service

Journal Editorial Board

Biomedical Informatics, Youth Editorial Board, 2025-2026.

Journal Reviews

Statistics and Computing, 2023.

BMC Bioinformatics, 2024.

ETRI Journal, 2024.

Conference Reviews

AISTATS, 2021, 2022, 2023, 2024.

Teaching Experience

Instructor

Non-parametric Analysis, Beijing Normal University at Zhuhai, Spring 2025.
Bayesian Analysis, Beijing Normal University at Zhuhai, Spring 2025.
Introduction to Statistical Methods B, Beijing Normal University at Zhuhai, Fall 2024.

Introduction to Statistical Methods, Texas A&M University, Summer 2020.

Teaching Assistant

Statistical Methodology II – Bayesian Modeling and Inference, Spring 2022. Design and Analysis of Experiments, Fall 2019, 2020, 2021.

Applied Multivariate Analysis and Statistical Learning, Fall 2018, 2019.

Oral Presentations

Conference Presentations

National Industrial Statistics Annual Conference, 2024.

EAC ISBA Conference, August 2023.

Joint Statistical Meetings (JSM), August 2024.

Invited Presentations

International Seminar on Selective Inference, March 2024.