Su Jiaji

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EDUCATION

JAN 2024	**DOCTOR OF PHILOSOPHY IN STATISTICS**
	Department of Statistics & Data Science
	National University of Singapore, Singapore
	THESIS ADVISOR: Dr. YAO Zhigang
JUN 2018	**BACHELOR OF NATURAL SCIENCE IN STATISTICS**
	School of Mathematical Science
	Zhejiang University, Hangzhou, China

PROFESSIONAL EXPERIENCE

SINCE OCT 2023	**RESEARCH FELLOW**	Advisor: Dr. YAO Zhigang
	Department of Statistics & Data Science	
	National University of Singapore	
AUG 2022 – OCT 2023	**STUDENT RESEARCH ASSISTANT**	Advisor: Dr. YAO Zhigang
	Department of Statistics & Data Science	
	National University of Singapore	

SELECTED ONGOING PROJECTS

SINCE JAN 2024	**PRINCIPAL DECOMPOSITION WITH NESTED SUBMANIFOLDS**
	• Develops a nonlinear generalization of PCA by fitting nested submanifolds of decreasing dimension.
	• Aims to capture key variation in high-dimensional data with greater flexibility than linear methods.
	• Provides insights into hierarchical or nonlinear structure in complex datasets.
SINCE JAN 2024	**LOW-DIMENSION STRUCTURE ANALYSIS BASED ON UK BIOBANK**
	• Applies manifold-fitting methods to large-scale biomedical data, with a focus on the UK Biobank.
	• Aims to uncover low-dimensional structures within high-dimensional population health data.
	• Leverages these structures to improve population stratification and refine medical risk assessments.

PREPRINTS & PUBLICATIONS

*Equal Contribution; #Correspondence

ACCEPTED:

*Li, B., *Su, J., *Lin, R., #Yau, S.-T., & #Yao, Z. (2025). Manifold fitting reveals metabolomic heterogeneity and disease associations in UK biobank populations. *Proceedings of the National Academy of Sciences, In Press*.

#*Yao, Z., *Su, J., & #*Yau, S.-T. (2024). Manifold fitting with cycleGAN. *Proceedings of the National Academy of Sciences, 121*(5), e2311436121.

Su, J., #Yao, Z., Li, C., & Zhang, Y. (2023). A statistical approach to estimating adsorption-isotherm parameters in gradient-elution preparative liquid chromatography. *The Annals of Applied Statistics, 17*(4), 3476–3499.

Preprints:

Su, J. & #Yao, Z. (2025). Principal decomposition with nested submanifolds. *arXiv preprint arXiv:2502.10010.* (*Submitted to Biometrika*).

#Yao, Z., Su, J., Li, B., & Yau, S.-T. (2023). Manifold fitting. *arXiv preprint arXiv:2304.07680.*

Talks & Presentations

Jan 2025 Shanghai & Sanya	**The Second Symposium of Geometry and Statistics in China** *Shanghai Institute for Mathematics and Interdisciplinary Sciences & The Tsinghua Sanya International Mathematics Forum*
Oct 2024 Singapore	**Interactions of Statistics and Geometry (ISAG) II** *Institute for Mathematical Sciences, National University of Singapore*
Jun 2024 Shanghai	**Talk: 'The Principal Nested Submanifolds'** Shanghai Institute for Mathematics and Interdisciplinary Sciences
Jul 2023 Beijing	**Talk: 'Estimating Adsorption-isotherm Parameters'** School of Mathematics and Statistics, Beijing Institute of Technology

Visiting

Jun 2024 – Jul 2024	**Visiting Researcher** Shanghai Institute for Mathematics and Interdisciplinary Sciences, China
Dec 2024 – Jan 2025	**Visiting Researcher** Shanghai Institute for Mathematics and Interdisciplinary Sciences, China

Honors & Awards

Aug 2018	NUS Research Scholarships, NUS
Dec 2015	Second-class Scholarship for Outstanding Students, ZJU

Teaching

Teaching assistant at National University of Singapore:

Semester	Courses	
2021–22 Sem 2	ST2334	Probability and Statistics
	DSA1101	Introduction to Data Science
	ST2137	Statistical Computing and Programming
2021–22 Sem 1	ST5213	Advanced Categorical Data Analysis
	DSA1101	Introduction to Data Science
2020–21 Sem 2	ST2334	Probability and Statistics
	ST3232	Design and Analysis of Experiments
2020–21 Sem 1	ST2334	Probability and Statistics
	ST5225	Statistical Analysis of Networks
2019–20 Sem 2	ST2131	Probability
	ST3239	Survey Methodology
2019–20 Sem 1	ST4231	Computer Intensive Statistical Methods
2018–19 Sem 2	ST2131	Probability