

# SU Jiaji

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## EDUCATION

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

## PROFESSIONAL EXPERIENCE

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

## SELECTED ONGOING PROJECTS

SINCE JAN 2024	<b>PRINCIPAL DECOMPOSITION WITH NESTED SUBMANIFOLDS</b> <ul style="list-style-type: none"><li>Develops a nonlinear generalization of PCA by fitting nested submanifolds of decreasing dimension.</li><li>Aims to capture key variation in high-dimensional data with greater flexibility than linear methods.</li><li>Provides insights into hierarchical or nonlinear structure in complex datasets.</li></ul>
SINCE JAN 2024	<b>LOW-DIMENSION STRUCTURE ANALYSIS BASED ON UK BIOBANK</b> <ul style="list-style-type: none"><li>Applies manifold-fitting methods to large-scale biomedical data, with a focus on the UK Biobank.</li><li>Aims to uncover low-dimensional structures within high-dimensional population health data.</li><li>Leverages these structures to improve population stratification and refine medical risk assessments.</li></ul>

## 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*, 122(22), e2500001122.
- #\*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

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MAY 2025 Beijing	YMSC STATISTICAL SEMINAR <i>Yau Mathematical Sciences Center, Tsinghua University</i>
JAN 2025 Shanghai & Sanya	THE SECOND SYMPOSIUM OF GEOMETRY AND STATISTICS IN CHINA <i>Shanghai Institute for Mathematics and Interdisciplinary Sciences &amp; The Tsinghua Sanya International Mathematics Forum</i>
OCT 2024 Singapore	INTERACTIONS OF STATISTICS AND GEOMETRY (ISAG) II <i>Institute for Mathematical Sciences, National University of Singapore</i>
JUN 2024 Shanghai	TALK: ‘THE PRINCIPAL NESTED SUBMANIFOLDS’ <i>Shanghai Institute for Mathematics and Interdisciplinary Sciences</i>
JUL 2023 Beijing	TALK: ‘ESTIMATING ADSORPTION-ISOTHERM PARAMETERS’ <i>School of Mathematics and Statistics, Beijing Institute of Technology</i>

## VISITING

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JUN 2024 – JUL 2024	VISITING RESEARCHER <i>Shanghai Institute for Mathematics and Interdisciplinary Sciences, China</i>
DEC 2024 – JAN 2025	VISITING RESEARCHER <i>Shanghai Institute for Mathematics and Interdisciplinary Sciences, China</i>

## TEACHING

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*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

## HONORS & AWARDS

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AUG 2018 NUS Research Scholarships, NUS

DEC 2015 Second-class Scholarship for Outstanding Students, ZJU

## SERVICING

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Reviewer: Harvard Data Science Review