

SILIANG ZHANG: CURRICULUM VITAE

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Education

2016.8-2018.9 Columbia University, New York, NY, USA Visiting Scholar in Statistics

2014.9-2019.6 Fudan University, Shanghai, China Ph.D. in Statistics

Advisor: Zhiliang Ying

Employment History

2019.7 - Present: Research Officer, Department of Statistics,
London School of Economics and Political Science, London, UK
PI: Fiona Steele

Research Interests

Statistical analysis and computational algorithms for large-scale item response data

Statistical analysis in social science

Statistical computation

Awards/Honors

Outstanding Graduates of Fudan University, 2019

Scholarship sponsored by China Pacific Life Insurance Co, Fudan University 2016

Academic Scholarships, Fudan University 2015

Published Articles

1. **Zhang, S.**, Chen, Y., & Liu, Y. (2020). An improved stochastic EM algorithm for large-scale full-information item factor analysis. *British Journal of Mathematical and Statistical Psychology*, 73, 44–71.
2. Chen, Y., Li, X., & **Zhang, S.** (2019). Structured Latent Factor Analysis for Large-scale Data: Identifiability, Estimability, and Their Implications. *Journal of the American Statistical Association*, 1–15.
3. Chen, Y., & **Zhang, S.** (2020). A Latent Gaussian process model for analysing intensive longitudinal data. *British Journal of Mathematical and Statistical Psychology*, 73, 237–260.
4. Chen, Y., Li, X., & **Zhang, S.** (2019). Joint Maximum Likelihood Estimation for High-Dimensional Exploratory Item Factor Analysis. *Psychometrika*, 84, 124–146.
5. Chen, Y., & **Zhang, S.** (2020). Estimation Methods for Item Factor Analysis: An Overview. Book chapter of *New Frontiers of Biostatistics and Bioinformatics*.

Papers Submitted

1. **Zhang, S.**, & Chen, Y. (2020). Computation for Latent Variable Model Estimation: A Unified Stochastic Proximal Framework. Submitted to *Psychometrika*. Under review.

Papers in Preparation

1. A Joint Latent Variable Model for Multivariate Dyadic Data with Zero Inflation. Work in progress. Co-authors: Fiona Steele, Jouni Kuha.
2. Joint analysis of cross-sectional data with multi-type responses. Work in progress. Co-authors: Fiona Steele, Jouni Kuha.
3. A three generation analysis of the UK Household Longitudinal Study Data. Work in progress. Co-author: Fiona Steele.
4. A Hidden Markov Model for Multivariate Dyadic Data with cross-lag effect. Work in progress. Co-authors: Irimi Moustaki, Haziq Jamil.

Software and packages developed

1. Joint maximum likelihood estimation for high-dimensional exploratory item factor analysis - the **mirtjml** R package. Published on CRAN. (Source code: <https://github.com/slzhang-fd/mirtjml>)

2. A R package for analyzing large scale latent variable models with efficient parallel algorithms - the **lvmcomp** R package. Published on CRAN. (Source code: <https://github.com/slzhang-fd/lvmcomp>)
3. Estimation of hierarchical models using the stochastic EM algorithm - the **hmstem** R package. (Source code: <https://github.com/slzhang-fd/hmstem>)

Editorial Work

Reviewer of Psychometrika

Reviewer of Statistics and Computing

Talks and Conference Presentations

02/2020 Contributed talk, Social statistics meeting, LSE, London, UK

05/2020 Invited talk, The Annual Meeting of the International Society for Data Science and Analytics (online), Notre Dame, IN, USA

Teaching Experience

2020 Fall Teaching Assistant for ‘Managing and Visualising Data (ST445)’ LSE

2020 Spring Teaching Assistant for ‘Multilevel Models (ST416)’ LSE

2016 Spring Teaching Assistant for ‘Statistics for Finance’ Fudan University

2015 Spring Teaching Assistant for ‘Statistical Inference’ Fudan University

Professional Memberships

Member of American Statistical Association

Member of Institute of Mathematical Statistics

Member of International Chinese Statistical Association

Professional Activities

2018.7 Volunteer of International Meeting of Psychometric Society conference, Columbia University, New York, NY, USA