Lijin Zhang

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Psychometrics, Bayesian Analysis, Structural Equation Models, Child Development

EDUCATION

Stanford University
· Ph.D. student in Development and Psychological Science   2022 - present
(Advisors: Prof. Ben Domingue & Prof. Jason Yeatman)

Sun Yat-sen University
· M.S. in Psychology   2019 - 2022
· B.S. in Psychology   2015 - 2019

RESEARCH EXPERIENCES

Note. [x] refers to the journal articles, working papers, and software packages in the publication list.

Domingue Lab, Stanford University   09/2022 - present
Advisor: Prof. Ben Domingue
Research Topics: Model Fitting [19], Item Response Theory [16]

Brain Development & Education Lab, Stanford University   04/2023 - present
Website: https://www.brainandeducation.com
Advisor: Prof. Jason Yeatman
Research Topics: Application of Psychometrics

Psychological Statistics and Modeling Lab, Sun Yat-sen University   09/2017 - 06/2022
Advisor: Prof. Junhao Pan
Research Topics: Bayesian Lasso Confirmatory Factor Analysis [5,6,8,17,40]
                      Mediation and Moderation Analysis. [9]
                      Longitudinal Data Analysis [11]

Lab for Big Data Methodology, University of Notre Dame   Summer, 2021
Website: https://bigdatalab.nd.edu
Advisor: Prof. Zhiyong Johnny Zhang
Research Topics: Text Mining & Network Analysis [2]

Prof. Xinya Liang's Lab, University of Arkansas   Summer, 2020
Advisor: Prof. Xinya Liang
Research Topics: Bayesian Regularization, Structural Equation Modeling [1]

PUBLICATIONS [iD]

Journal Articles (+ indicates co-first author, * indicates correspondent author)

1. **Zhang, L.**, & Liang, X.* (accepted). Bayesian Regularization in Multiple-Indicators Multiple-Causes Models. *Psychological Methods*.

2. **Zhang, L.**, Li, X., & Zhang, Z. (accepted). Variety and Mainstays of the R Developer Community. *R Journal*.

3. Zheng, S., **Zhang, L.**, Jiang, Z., & Pan, J. (2022). The Influence of Using Inaccurate Priors on Bayesian Multilevel Estimation. *Structural Eqaution Modeling*. Advance Online Publication. [pdf]

4. Wei, X.[+], Huang, J.[+], **Zhang, L.**, Pan, D.*, & Pan, J.* (2022). Evaluation and Comparison among SEM, ESEM and BSEM in Estimating Structural Models with Potentially Unknown Cross-loadings. *Structural Equation Modeling, 29* (3), 327-338. [pdf]

5. **Zhang, L.**, Pan, J.*, & Ip, E.H. (2021). Criteria for Parameter Identification in Bayesian Lasso Methods for Covariance Analysis: Comparing Rules for Thresholding, *p*-value, and Credible Interval. *Structural Equation Modeling, 28* (6), 941-950. [pdf]

6. **Zhang, L.**, Pan, J.*, Dubé, L., & Ip, E.H. (2021). blcfa: An R Package for Bayesian Model Modification in Confirmatory Factor Analysis. *Structural Equation Modeling, 28* (4), 649-658. [pdf]

7. Zeng, G., **Zhang, L.**, Fung, S.*, Li, J., Liu, Y-M., Xiong, K-Z., Jiang, Z-Q., Zhu, F-F., Chen, Z-T., Luo, S-D., Yu, P., & Huang, Q. (2021). Problematic Internet Usage and Self-Esteem in Chinese Undergraduate Students: The Mediation Effects of Individual Affect and Relationship Satisfaction. *International Journal of Environmental Research and Public Health, 18* (13), 6949. [pdf]

8. Chen, J.*, Guo, Z., **Zhang, L.**, & Pan, J.* (2021). A Partially Confirmatory Approach to Scale Development with the Bayesian Lasso. *Psychological Methods, 26* (2), 210-235. [pdf]

9. Feng, Q.[+], Song, Q.[+], **Zhang, L.**[+], Zheng, S., & Pan, J.* (2020). Integration of Moderation and Mediation in a Latent Variable Framework: A Comparison of Estimation Approaches for the Second-stage Moderated Mediation Model. *Frontiers in Psychology, 11*, 2167. [pdf]

10. Liu, S., Huang, Z., **Zhang, L.**, Pan, J., Lei, Q., Meng, Y., & Li, Z.* (2020). Plasma Neurofilament Light Chain may be a Biomarker for the Inverse Association between Cancers and Neurodegenerative Diseases. *Frontiers in Aging Neuroscience, 12* (10), 1-8. [pdf]

In Chinese:

11. Zheng, S., **Zhang, L.**, Qiao, X., & Pan, J.* (2021). Intensive Longitudinal Data Analysis: Models and Application. *Advances in Psychological Science, 29* (11), 1948-1969. [pdf]

12. Zhang, X., **Zhang, L.**, Ding, Y., Qu, Z.* (2021). Behavioral Oscillations in Attention. *Advances in Psychological Science, 29* (3): 461-471. [pdf]

13. **Zhang, L.**, Wei, X., Lu, J., & Pan, J.* (2020). Lasso Regression: From Explanation to Prediction. *Advances in Psychological Science, 28* (10), 1777-1788. [pdf]

14. **Zhang, L.**, Lu, J., Wei, X., & Pan, J.* (2019). Bayesian Structural Equation Modeling and Its Current Research. *Advances in Psychological Science, 27* (11), 1812-1825. [pdf]

Manuscripts Drafted and Under Preparation

15. Gu, X., Zhu, X., **Zhang, L.**, Pan, J.* (submitted). Testing Informative Hypotheses in Factor Analysis Models using Bayes Factors.

16. Ahmed, I., Bertling, M., **Zhang, L.**, Ho, A., Loyalka, P., Xue, H., Rozelle, S., & Domingue, B.W. (manuscript drafted). Heterogeneity of item-treatment interactions masks complexity and generalizability in randomized controlled trials. [preprint]

17. Pan, J., **Zhang, L.**, & Ip, E.H.* (manuscript drafted). Bayesian Covariance Adaptive Lasso Factor Analysis Models with Ordinal Data.

18. Wang, E., Kennedy, K.M., **Zhang, L.**, Qian, D., Forbes, T., Rodriguez, S., Zuniga-Hernandez, M., Li, B., Domingue, B.W., & Caruso, T.J. (manuscript drafted). Predicting Pediatric Healthcare Provider Use of Virtual Reality using a Technology Acceptance Model.

19. **Zhang, L.**, & Domingue, B.W. (in prep). The InterModel Vigorish for Model Comparison in Confirmatory Factor Analysis with Binary Outcomes.

20. **Zhang, L.**, Liang, X., & Pan, J. (in prep). Comparison Between Bayesian and Frequentist Regularization in Factor Analysis.

21. **Zhang, L.**, & Pan, J.* (in prep). Latent Multiple Mediation Analysis with the Bayesian Lasso.

Invited Talk

22. **Zhang, L.**, & Pan, J.* (2022). Latent Multiple Mediation Analysis with the Bayesian Lasso. The 15th Chinese R Conference, 25 Nov, Virtual. [slides]

23. **Zhang, L.**, Pan, J., & Ip, E.H., (2022). *Bayesian Lasso Confirmatory Factor Analysis.* Utrecht University, 23 May, Virtual. [abstract][slides]

24. **Zhang, L.**, Lu, J., Wei, X., & Pan, J.* (2019). *Bayesian Structural Equation Modeling and Its Current Research.* The 12th Chinese R Conference, 24-26 May, Beijing. [abstract][slides]

Contributed Conference Presentations (underline: presenter)

25. <u>**Zhang, L.**</u>, & Domingue, B.W. (To be presented). *The InterModel Vigorish for Model Comparison in Confirmatory Factor Analysis with Binary Outcomes.* International Meeting of Psychometric Society, 25-28 July, Maryland, USA.

26. <u>**Zhang, L.**</u>, <u>Liang, X.</u>, & Pan, J. (To be presented). *Comparison between Bayesian and Frequentist Regularization in Factor Analysis.* International Meeting of Psychometric Society, 25-28 July, Maryland, USA.

27. <u>**Zhang, L.**</u>, & Domingue, B.W. (To be presented). *The InterModel Vigorish for Model Comparison in Confirmatory Factor Analysis with Binary Outcomes.* Annual Meeting of the International Society for Data Science and Analytics, 4-6 July, Shanghai.

28. <u>**Zhang, L.**</u>, & Liang, X.* (2023). *Bayesian Regularization in Multiple Indicators Multiple Causes Models.* National Council on Measurement in Education Annual Meeting, 12-15 April, Chicago, USA.

29. <u>Ip, E.H.</u>, Sandberg, J., **Zhang, L.**, & Pan, J.* (2022). *Matched-pair Binary Item Response Analysis Using Bayesian Adaptive Lasso Factor Model.* International Meeting of Psychometric Society, 11-15 July, Bologna, Italy.

30. <u>**Zhang, L.**</u>, & Pan, J.* (2021). *How to Select Prior Variance in Bayesian Approximate Measurement Invariance?* The 6th Eastern Chapter of International Society for Bayesian Analysis Conference, 17 November, Virtual.

31. <u>**Zhang, L.**</u>, & Liang, X.* (2021). *Bayesian Regularization in Multiple Indicators Multiple Causes Models.* International Meeting of Psychometric Society, 19-23 July, Virtual. [abstract][slides]

32. <u>**Zhang, L.**</u>, <u>Pan, J.*</u>, & Ip, E.H. (2021). *Comparison between Different Parameter Identification Criteria using the Bayesian Lasso.* International Meeting of Psychometric Society, 19-23 July, Virtual. [abstract][slides]

33. Pan. J, **Zhang, L.**, & <u>Ip, E.H.*</u> (2021). *Bayesian Covariance Adaptive Lasso Factor Analysis Models with Ordinal Data.* International Meeting of Psychometric Society, 19-23 July, Virtual. [abstract]

34. <u>**Zhang, L.**</u>, Pan, J.*, & Ip, E.H. (2020). *blcfa: An R package for Bayesian Model Modification in Confirmatory Factor Analysis.* International Meeting of Psychometric Society, 14-17 July, Virtual. [abstract][slides]

35. <u>**Zhang, L.**</u>, Lu, J., Zhang, Y., & Pan, J.* (2019). *The Influence of Social Support on Career Decision-Making Difficulty: Bayesian Modeling Based on Longitudinal Data.* The 22nd National Academic Conference of Psychology, 18-20 Oct, Hangzhou. [abstract][poster]

36. Pan, J., **Zhang, L.**, & Ip, E.H.* (2018). *Bayesian Lasso Factor Analysis Models with Ordered Categorical Data.* The 13th Cross-Straits Conference on Educational and Psychological Testing, 22-25 Oct, Taiwan. [abstract][slides]

37. Pan, J., **Zhang, L.**, Ip, E.H.* (2017). *Bayesian Lasso Factor Analysis Models with Ordered Categorical Data.* The 20th Chinese Academic Conference of Psychology, 3-5 November, Chongqing.

Book Chapters

38. **Computational Neuroscience and Cognitive Modelling - Chinese Version (Anderson, 2014)** Translated chapters 9-13 (Neural Networks).

39. **Handbook of Quantitative Methods in Psychological and Behavioral Research (in Chinese)** Wrote the Bayesian Structural Equation Modeling chapter with Prof. Junhao Pan.

Software Development

40. **Zhang, L.**, Pan, J., & Ip, E.H. (2020). *blcfa: An R Package for Bayesian Model Modification in Confirmatory Factor Analysis.* Retrievable from https://github.com/zhanglj37/blcfa.

41. **Zhang, L.**, Sun, R., & Pan, J. (2020). *sampleMplus: An R Package for Sample Size Determination in Structural Equation Modeling.* Retrievable from https://github.com/zhanglj37/sampleMplus.

GRANTS

National Innovation Training Program for Undergraduates, China	2018
Climbing Plan for Undergraduate and Graduate Students, Guangdong Province	2018

HONORS & AWARDS

EDGE Fellowship, Stanford University	2022
Outstanding Graduates, Sun Yat-sen University	2022
First Prize Scholarship of Outstanding Students, Sun Yat-sen University	2017 - 2021
National Scholarship, Minister of Education of China	2020
Third Prize, Outstanding Graduate Thesis Award, Chinese Psychological Society	2019
Outstanding Undergraduate Thesis, Sun Yat-sen University	2019
Outstanding Presenter, Undergraduate Psychology Forum, Peking University	2018
Honorable Mention in American Mathematical Contest in Modeling	2018

PROFESSIONAL EXPERIENCES

Teaching Assistant

· Workshop on Structural Equation Modeling with Mplus	2023
· Workshop on Experience Sampling Method	2022
· Advanced Structural Equation Modeling, Sun Yat-sen University	2021
· Structural Equation Modeling, Sun Yat-sen University	2020
· Psychological Statistics, Sun Yat-sen University	2020

Data Analyst & Statistical Consultant

· Data Analyst, Chariot Lab, Lucile Packard Children's Hospital, Stanford University [18]	2022 - present
· Data Analyst, The Science of Well-being Research Institute, Guangdong, China [7]	2021 - 2022
· Statistical Consultant, Ni Lab, Tsinghua Shenzhen International Graduate School	2020
· Statistical Consultant, Pang Lab, School of International Relations, Sun Yat-sen University	2019 - 2020

Ad-hoc Reviewer

- · Structural Equation Modeling
- · Journal of Behavioral Data Science
- · Science Progress
- · British Journal of Mathematical and Statistical Psychology
- · BMC Medical Research Methodology

Memberships
- · Psychometric Society
- · Capital of Statistics, China
- · National Council on Measurement in Education