

# Lijin Zhang

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Psychometrics, Bayesian Analysis, Structural Equation Models, Child Development

## EDUCATION

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### 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, Department of Psychology 2019 - 2022
- B.S. in Psychology, Department of Psychology 2015 - 2019

## RESEARCH EXPERIENCES

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

### Domingue Lab, Stanford University 09/2022 - present

Advisor: Prof. Ben Domingue  
Research Topics: Model Fitting, Item Response Theory

### Psychological Statistics and Modeling Lab, Sun Yat-sen University 09/2017 - 06/2022

Website: <https://panlab.xyz>  
Advisor: Prof. Junhao Pan  
Research Topics: Bayesian Lasso Confirmatory Factor Analysis [5,6,8,17,19,34]  
Mediation and Moderation Analysis. [9,18,35]  
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 [??,33]

### Prof. Xinya Liang's Lab, University of Arkansas Summer, 2020

Advisor: Prof. Xinya Liang  
Research Topics: Bayesian Regularization, Structural Equation Modeling [??,??]

## PUBLICATIONS

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### Book Chapters

1. **Computational Neuroscience and Cognitive Modelling - Chinese Version (Anderson, 2014)**  
Translated chapters 9-13 (Neural Networks).
2. **Handbook of Quantitative Methods in Psychological and Behavioral Research (in Chinese)**  
Wrote the Bayesian Structural Equation Modeling chapter with Prof. Junhao Pan.

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

3. Zheng, S., **Zhang, L.**, Jiang, Z., & Pan, J. (Accepted). The influence of inaccurate informative priors on Bayesian multilevel modeling: A simulation study. *Structural Equation Modeling*.

4. Wei, X.<sup>+</sup>, Huang, J.<sup>+</sup>, **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.\* & 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.<sup>+</sup>, Song, Q.<sup>+</sup>, **Zhang, L.**<sup>+</sup>, 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:**

*Advances in Psychological Science* was rated as one of the most influential Chinese journals.

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 under Review and in Preparation**

15. **Zhang, L.**, & Liang, X.\* (R&R). Bayesian Regularization in Multiple-Indicators Multiple-Causes Models.
16. **Zhang, L.**, Li, X., & Zhang, Z. (under review). Diversity and Mainstays of the R Developer Community.
17. Pan, J., **Zhang, L.**, & Ip, E.H.\* (in preparation). Bayesian Covariance Adaptive Lasso Factor Analysis Models with Ordinal Data.
18. **Zhang, L.**, & Pan, J.\* (in preparation). Latent Multiple Mediation Analysis with the Bayesian Lasso.
19. Ip, E.H., Sandberg, J., **Zhang, L.**, & Pan, J.\* (in preparation). Matched-pair Binary Item Response Analysis Using Bayesian Adaptive Lasso Factor Model.

#### **Invited Talk** (underline: presenter)

20. **Zhang, L.**, & Pan, J.\* (To be presented). Latent Multiple Mediation Analysis with the Bayesian Lasso. The 15th Chinese R Conference, Nov, Virtual.
21. **Zhang, L.**, Pan, J., & Ip, E.H., (2022). *Bayesian Lasso Confirmatory Factor Analysis*. Utrecht University, 23 May, Virtual. [[abstract](#)][[slides](#)]
22. **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

23. Ip, E.H., 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.
24. **Zhang, L.**, & 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.
25. **Zhang, L.**, & Liang, X.\* (2021). *Bayesian Regularization in Multiple Indicators Multiple Causes Models*. International Meeting of Psychometric Society, 19-23 July, Virtual. [[abstract](#)][[slides](#)]
26. **Zhang, L.**, Pan, J.\*, & 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](#)]
27. Pan, J., **Zhang, L.**, & Ip, E.H.\* (2021). *Bayesian Covariance Adaptive Lasso Factor Analysis Models with Ordinal Data*. International Meeting of Psychometric Society, 19-23 July, Virtual. [[abstract](#)]
28. **Zhang, L.**, 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](#)]
29. **Zhang, L.**, 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](#)]
30. 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](#)]
31. 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.

### Software Development

33. **Zhang, L.** (2021). *wordRG: An R Function for Extracting Abstracts from ResearchGate and Generating A Personal Research Word Cloud*. Retrievable from <https://github.com/zhanglj37/wordRG>.
34. **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>.
35. **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

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National Innovation Training Program for Undergraduates, China (about \$1,500)	2018
Climbing Plan for Undergraduate and Graduate Students, Guangdong Province (about \$2,300)	2018

# HONORS & AWARDS

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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

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## Teaching Assistant

· Experience Sampling Method Workshop	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, <a href="#">Chariot Lab</a> , Lucile Packard Children's Hospital, Stanford University	2022 - present
· Data Analyst, The Science of Well-being Research Institute, Guangdong, China <sup>[7]</sup>	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

## Memberships

- Psychometric Society
- Capital of Statistics, China

# SKILLS

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<b>Programming</b>	Proficient: R, $\text{\LaTeX}$ , Mplus; Basic: flexMIRT, HTML, C++
<b>Data Analysis</b>	Bayesian analysis, Structural Equation Modeling, Text Mining