

**XINGYAO (DORIA) XIAO**Tel: +1 (510)-385-3542 Email: [xiaoxg@berkeley.edu](mailto:xiaoxg@berkeley.edu)**EDUCATION**

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- University of California, Berkeley** Berkeley, USA  
 Ph.D. in Social Research Methodologies, GPA: 4.00/4.00 08/2020 - 05/2025
- Research Areas: Bayesian Longitudinal and latent variable Modelling, Growth Mixture Modeling, Model Selection, Multidimensional Item Response Theory (mIRT), Many-Facet Rasch Model (MFRM), and Integration of AI in Education
- Boston College** Boston, USA  
 M.S. in Applied Statistics and Psychometrics, GPA: 3.88/4.00, Major GPA: 4.00/4.00 08/2018 - 05/2020
- Scholarship: Dean's Merit Scholarship (07/2018 & 08/2019)
- University of Minnesota, Morris** Morris, USA  
 B.A. in Statistics, Minor in Mathematics: GPA: 3.82/4.00, Major GPA: 4.00/4.00 01/2016 - 09/2018
- Honors: Graduated with Distinction, Project Stipend, Outstanding Performance Award, Dean's List
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**PUBLICATIONS****Submitted/ Under Review**

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- [1] Li, Z. & Xiao, X. \* (2025). Which Countries are More Meritocratic? Individual- and Country-level Patterns of Meritocratic Beliefs. *Manuscript submitted for publication.*
- [2] Xue, M., Xiao, X., Liu, Y., & Wilson, M. (2025). On the Consistency of Automatic Scoring with Large Language Models. *Manuscript submitted for publication.*
- [3] Xue, M., Xiao, X., Liu, Y., & Wilson, M. (2025). Extract Information from Process Data Using the Transformer. *Manuscript submitted for publication.*
- [4] Xiao, X. \* & Cheng, Y. (2024). Different Genders, Different Paths to Self-Efficacy: An Analysis of the Moderating and Mediating Effects of Environmental Factors on the Relationship between Gender and Self-Efficacy. *Manuscript submitted for publication.*
- [5] Xiao, X. \*, Li, Z., Liu, Y., & Cheng, Y. (2024). Identifying sensitive periods for the impact of physical abuse on psychopathology symptoms. *Manuscript submitted for publication.*
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**Accepted/Published**

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- [6] Xiao, X., Rabe-Hesketh, S., & Skrondal, A. (2025). Bayesian identification and estimation of growth mixture models. *Psychometrika*. <https://doi.org/10.1017/psy.2025.11>
- [7] Xue, M., Liu, Y., Xiao, X. & Wilson, M. (2025). Automatic prompt engineering for automatic scoring. *Journal of Educational Measurement*. <https://doi.org/10.1111/jedm.70002>
- [8] Su, B., Xiao, X. \*, Cheng, Y., Liu, C., & Yang, C. (2025). Trajectories of depressive symptom among college students in China during the COVID-19 pandemic: Association with suicidal ideation and insomnia symptoms. *Suicide and Life-Threatening Behavior*. <https://doi.org/10.1111/sltb.70051>
- [9] Xiao, X. \*, Patz, R., & Wilson, M. (2025). Integration of machine learning and human rater Scores with Many Facet Rasch Model. *British Journal of Mathematical and Statistical Psychology*. Accepted with minor revisions.
- [10] Cheng, Y., Xiao, X., Jackson, D., Shah, S. A., Abdus-Sabur, F., Hira, A., ... & Barnett, M. (2025). Competent but Anxious Smart Greenhouse Makers: Findings from a Physical Computing Project. *Journal of Science Education and Technology*, 1-19.
- [11] Wang, F., Zhu, X., Pi, L., Xiao, X., & Zhang, J. (2024) Patterns of participation and performance at the class level in English online education: A longitudinal cluster analysis of online K-12 after-school education in China. *Education and Information Technologies*, 29, 15595–15619. <https://doi.org/10.1007/s10639-024-12451-2>
- [12] Ma, J., Shen, Z., Wang, N., Xiao, X., & Zhang, J. (2023). Developmental differences in children's adaptation to vehicle distance and speed in street-crossing decision-making. *Journal of Safety Research*, 88, 261-274. <https://doi.org/10.1016/j.jsr.2023.11.013>
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- [13] Zhang, J., Liu, F., Chen, Z., Yu, Z., **Xiao, X.**, Shi, L., & Guo, Z. (2023). A multi-level analysis on the causes of train-pedestrian collisions in Southwest China 2011–2020. *Accident Analysis & Prevention*, 193, 107332. <https://doi.org/10.1016/j.aap.2023.107332>
- [14] **Xiao, X.**\*, Xue, M., Cheng, Y. (2023). Bayesian partial credit model and its applications in science education. In: Liu, X., Boone, W.J. (eds) *Advances in Applications of Rasch Measurement in Science Education. Contemporary Trends and Issues in Science Education*, vol 57. Springer, Cham. [https://doi.org/10.1007/978-3-031-28776-3\\_4](https://doi.org/10.1007/978-3-031-28776-3_4)
- [15] **Xiao, X.**, Ji, F. & Rabe-Hesketh, S. (2022). Introduction to multilevel logistic regression using rstanarm. *Stan Case Study*. [https://education-stan.github.io/tutorial\\_glmm.html](https://education-stan.github.io/tutorial_glmm.html)
- [16] **Xiao, X.**\* & Cheng, Y. (2021). Movie title keywords: A text mining and exploratory factor analysis of popular movies in the United States and China. *Journal of Risk and Financial Management*, 14(2). <https://doi.org/10.3390/jrfm14020068>
- [17] Kim, J. M., **Xiao, X.**, & Kim, I. (2020). Hollywood movie data analysis by social network analysis and text mining. *International Journal of Electronic Commerce Studies*, 11(1), 75-92. <https://doi.org/10.7903/ijecs.1731>
- [18] Kim, J. M., Lee, N., & **Xiao, X.** (2019). Directional dependence between major cities in China based on copula regression on air pollution measurement. *PLoS ONE* 14(3), e0213148. <https://doi.org/10.1371/journal.pone.0213148>

Note. \* Corresponding author

## RESEARCH EXPERIENCE

### LEVANTE Project, Graduate School of Education & Department of Psychology

Palo Alto, USA

#### Postdoctoral Scholar

07/2025 – Present

- Working under Prof. Ben Domingue and Prof. Nilam Ram on developmental change and psychometrics research.
- Focus on measurement invariance, growth modeling, and statistical methods for modeling behavioral and developmental change.
- Contributing to research design, Bayesian modeling, and engagement within Stanford's behavioral science and education research communities.
- Collaborative project supported by the Jacobs Foundation with international sites including the U.S., Canada, Colombia, and Germany.

### Influence Score Chat Project, The Munathara Initiative

Online

#### Lead Researcher

03/2025 – 07/2025

- Led the development of AI-powered metrics to assess the vibrancy, inclusiveness, and health of public discourse in Tunisia and Lebanon.
- Designed and implemented a mixed-methods data collection strategy integrating qualitative fieldwork and large-scale social media analytics.
- Applied natural language processing (NLP) and machine learning to model sentiment, polarization, and narrative diversity across multiple media sources.
- Collaborated with regional researchers for contextual interpretation and partnered with developers to visualize key findings on an interactive web platform.

### Berkeley Evaluation and Assessment Research (BEAR) Center, UC Berkeley

Berkeley, USA

#### Graduate Student Researcher

11/2020 – 01/2025

- AI Integration for Scoring: Assisted in integrating machine learning models with human rater scores for open-ended items.
- Rater Assignment Optimization: Contributed to research on training sample sizes and rater assignment strategies to optimize MFRM.
- Measurement Invariance: Applied mIRT and differential item functioning (DIF) to detect bias and improve assessment precision.
- Collaborative Research: Facilitated team meetings, coordinated contributions to publications, and supported task prioritization.

### Education Research using Stan,

Berkeley, USA

#### Graduate Student Researcher (Bayesian Modeling)

11/2020 - 01/2025

- Tutorial Development: Created accessible tutorial on multilevel logistic regression using rstanarm.
- Identifiability Diagnostics: Identified convergence issues in Bayesian growth mixture models by developing code-based and visual diagnostics for identifiability problems and proposing solutions through careful prior selection.

**Edmentum, Remote Engagement**

Online

**Summer Intern**

06/2023 - 08/2023

- AI Transadaptation: Assessed the quality of GPT-generated translations using a mixed-method approach, combining algorithmic analysis with human reviews.
- Benchmarking & Evaluation: Compared AI translations with human translations to evaluate linguistic accuracy and contextual relevance.

**Chinese Academy of Sciences, Institute of Psychology**

Beijing, China

**Statistical Modeling Consultant**

06/2022 - 04/2023

- Statistical Consultation: Provided guidance on advanced R-based statistical models, supporting research teams in applying appropriate techniques.
- Research Collaboration: Contributed to research projects by refining methodologies and enhancing data analysis, helping improve the robustness and clarity of findings.

**California Computer Science Project (CCSP), Berkeley**

Berkeley, USA

**Graduate Student Researcher**

11/2020 - 01/2022

- Instructional Design: Helped develop computer science instructional materials in collaboration with educational specialists to support leadership in California public schools.
- Community Engagement: Contributed to outreach strategies to engage diverse educational communities.

**City Connects: Mary E. Walsh Center for Thriving Children at Boston College**

Boston, USA

**Graduate Research Assistant**

08/2019 - 07/2020

- Research & Analysis: Assisted in data collection, statistical analysis (regression, multivariate techniques), and report preparation for evaluating educational intervention programs, providing actionable insights to stakeholders.

**Innovation in Urban Science Education Lab**

Boston, USA

**Data Analyst**

05/2019 - 06/2020

- Qualitative Analysis: Conducted and analyzed qualitative data from cognitive interviews for STEM education programs, providing insights into program effectiveness.
- AI Inventory Development: Assisted in developing AI Concept Inventories using psychometric analyses to measure STEM understanding.

**Research Service at Boston College**

Boston, USA

**Statistical Research Consultant**

02/2019 - 06/2019

- Statistical Consulting: Provided statistical analysis and guidance to researchers and faculty, assisting with data interpretation, results dissemination, and application of best practices.

**TEACHING EXPERIENCE****Graduate Student Instructor, University of California, Berkeley**

- **Hierarchical and Longitudinal Modeling** (Fall 2021, 2022, 2023).
- **Data Analysis in Education Research II** (Spring 2022, 2023).
  - Supported instruction of graduate-level courses on advanced statistical methods and quantitative research techniques.
  - Facilitated lab sessions with hands-on exercises, guiding students in applying statistical methods to real-world problems.
  - Provided individualized feedback on assignments and research projects, helping students develop analytical skills and confidence in using statistical modeling.

**Teaching Assistant, Boston College**

- **Intermediate Statistics** (Spring 2020).
- **Statistics I** (Fall 2019).
  - Encouraged collaborative learning through group projects, fostering peer engagement and deeper understanding of course material.

**Teaching Assistant, University of Minnesota, Morris**

- **Introduction to Statistics** (Fall 2017).

- Assisted in teaching foundational statistical concepts and applications.

## AWARDS & GRANTS

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- Dissertation Completion Fellowship: \$30,000 (2024-2025), Berkeley School of Education, UC Berkeley.
- Continuing Student Fellowship Award: \$8,000 (2022-2024), Berkeley School of Education, UC Berkeley.
- Psychometric Society Travel Award: IMPS 2023, sponsored by EdAstra Tech.
- Barbara White Bequest Competition Award: \$3,300, Berkeley School of Education, UC Berkeley.
  - Xiao, X. (2021). *Using Item Response Theory to critique, develop, and validate concept inventories in STEM education*.

## PROFESSIONAL SERVICE

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- Editorial Board Member: Measurement: Interdisciplinary Research and Perspectives (Taylor & Francis), 2025–Present
- Conference Reviewer and Chair: 2024 National Council on Measurement in Education (NCME).
- Manuscript Reviewer: Measurement: Interdisciplinary Research and Perspectives, May 2023.

## TECHNICAL SKILLS

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R, Stata, SPSS, Mplus (statistical modeling, data management, visualization); Stan (Bayesian modeling); Shiny (interactive web applications); Python (machine learning, automation); SQL (database management).

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## CONFERENCE PRESENTATIONS

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### National Council on Measurement in Education (NCME):

- **2025**
  - [1] Xiao, X., Patz, R., & Wilson, M. *Integration of machine learning and human rater scores using the many-facet Rasch model*. Denver, CO, USA.
  - [2] Xiao, X., Gochyyev, P., & Wilson, M. *Comparing the difficulty of selected-response and constructed-response items*. Denver, CO, USA.
- **2024**
  - [3] Xiao, X., Razavi, P., & Powers, S. *Bridging bilingual gaps: An in-depth exploration of ChatGPT's transadaptation capabilities*. Philadelphia, PA, USA.
  - [4] Xiao, X., Patz, R., & Wilson, M. *Designing scoring reliability and instructional support into classroom-based math assessments*. Philadelphia, PA, USA.
- **2023**
  - [5] Xiao, X. *Bayesian comparison of Growth Mixture Models*. Chicago, IL, USA.
- **2022**
  - [6] Xiao, X. *Bayesian Growth Mixture Models for classifying and measuring individual trajectories*. San Diego, CA, USA.

### American Educational Research Association (AERA)

- **2023**
  - [7] Xiao, X., Rabe-Hesketh, S., & Cheng, Y. *Bayesian comparison of Growth Mixture Models: To better pursue truth*. Chicago, IL, USA.

### International Meeting of the Psychometric Society (IMPS)

- **2025**
  - [8] Xiao, X., Rabe-Hesketh, S. *When Model Evaluation Fails in Growth Mixture Models: Diagnostic and Comparative Perspective*. Minneapolis, MN, USA.
- **2023**
  - [9] Xiao, X., Rabe-Hesketh, S. *Bayesian model evaluation and local identifiability for Growth Mixture Models*. College Park, MD, USA.
  - [10] Xiao, X., Ji, F., & Ernst, A. *Sample heterogeneity in dynamic psychological processes*. College Park, MD, USA.

### Royal Statistical Society International Conference

- **2024**
  - [11] Xiao, X., Rabe-Hesketh, S., & Skrondal, A. *Bayesian approaches to identifiability and estimation of Growth Mixture Models*. Brighton, United Kingdom.

### StanCon

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- **2024**

- [12] Xiao, X., Rabe-Hesketh, S., & Skrondal, A. *Bayesian identification estimation and diagnostic techniques for Growth Mixture Models using Stan*. Oxford, United Kingdom.

**Modern Modeling Methods (M3) Conference**

- **2023**

- [13] Xiao, X. *Bayesian model evaluation using marginal likelihood for Growth Mixture Models*. Storrs, CT, USA.
- [14] Xiao, X., Ji, F. *Sample heterogeneity in dynamic psychological processes*. Storrs, CT, USA.

**Other Conferences**

- **2022**

- [15] Xiao, X., Li, Y., & Park, Y. *Automating book-to-curriculum mapping using representation learning*. Association for Education Finance & Policy 47<sup>th</sup> Annual Conference, Denver, CO, USA.

- **2019**

- [16] Xiao, X. *Directional dependence between major cities in China based on copula regression on air pollution measurements*. Southern Regional Council on Statistics 2019, Carrolton, KY, USA.
- [17] Xiao, X. *Investigation of the psychometric characteristics of Taylor Manifest Anxiety Scale (TMAS)*. New England Educational Research Organization 2019, Portsmouth, NH, USA.

- **2018**

- [18] Xiao, X. *Visualizing statistical data on United States agriculture*. Undergraduate Research Symposium 2018, Twin Cities, MN, USA.
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