[9/21/26]

Xiao Liu
Department of Educational Psychology
The University of Texas at Austin
1912 Speedway, Stop D5800, Austin, TX 78712

EDUCATION

Ph.D., Quantitative Psychology, University of Notre Dame, Notre Dame, IN 2022
Dissertation: Causal mediation analysis with the latent growth curve mediation model
Advisor: Dr. Lijuan Wang

M.S., Applied Statistics, University of Notre Dame, Notre Dame, IN 2020
Advisor: Dr. Fang Liu

B.S., Statistics, Renmin University of China, Beijing, China 2017

PROFESSIONAL APPOINTMENTS

Assistant Professor, Department of Educational Psychology 2022 - present
The University of Texas at Austin

Faculty Affiliate, Center for Research to Community Impact 2023 - present
The University of Texas at Austin

Faculty Affiliate, Population Research Center 2023 - present
The University of Texas at Austin

PUBLICATIONS AND OTHER SCHOLARLY ACTIVITIES

Peer-Reviewed Journal Articles *(italics indicate student author)*

Mason, S. A., **Liu, X.**, Mason, K. K., Isaza, A. G., Bateman, A., & Eddy, J. M. (2026). Assessing the potential cumulative effects of longitudinal interventions for depression and deviant peer association on academic achievement: A causal inference approach. *Prevention Science*. Accepted

Liu, X. & *McCann, C*. (2026). Sensitivity analysis for unmeasured pretreatment confounders in causal mediation analysis with debiased machine learning. *British Journal of Mathematical and Statistical Psychology*. http://doi.org/10.1111/bmsp.70072

Romero, M. E., **Liu, X.**, Rodriguez Robles, A., Quirk, M., & Davila, M. (2026). Exploring school readiness profiles at kindergarten entry among Latine dual language learners: Centering Indigenous Latinidad. *Journal of School Psychology*. Accepted.

Kim, Y. S., **Liu, X.**, Chang, J., Koh, Y.-J., Kim, J., Choi, Y., Cho, Y. J., Fombonne, E., & Leventhal, B. L. (2026). Cumulative incidence and prevalence of autism spectrum disorder

across 12 prospective birth cohorts. *JAMA Pediatrics*. https://doi.org/10.1001/jamapediatrics.2026.4066

Zhang, Q., **Liu, X.**, & Ke, Z. (2026). Best practices in multilevel modeling for within-cluster group comparisons: An evaluation of coding strategies reflecting group composition and heterogeneity. *Psychological Methods.* http://doi.org/10.1037/met0000836

Liu, X., Eddy, J. M., & Martinez, C. R. (2026). Treatment effect moderation with small subgroups: An incremental subgroup analysis approach. *Multivariate Behavioral Research*. https://doi.org/10.1080/00273171.2026.2634993

Liu, X., & Romero, M. (2026). A causal inference approach for mediated moderation with multiple mediators. *Journal of Educational and Behavioral Statistics*. Advanced Online Publication. https://doi.org/10.3102/10769986251410929

Wang, L. & **Liu, X.** (2026). Modeling intraindividual variability as a predictor with intensive longitudinal data. *Psychological Methods.* Advanced Online Publication. https://doi.org/10.1037/met0000818

Ma, C., & **Liu, X.** (2025). PND.heter.cluster: An R package for estimating cluster-specific treatment effects in partially nested designs. *Behavior Research Methods*, *57*(12), 321. https://doi.org/10.3758/s13428-025-02857-2

Liu, X. (2025). Estimating causal mediation effects in multiple-mediator analyses with clustered data. *Journal of Educational and Behavioral Statistics*. Advanced Online Publication. https://doi.org/10.3102/10769986251318093

McCann, C., & **Liu, X.** (2025). Evaluating propensity score models for estimating causal mediation effects under unmeasured cluster-level confounding. *Health Services and Outcomes Research Methodology*. https://doi.org/10.1007/s10742-025-00352-x

Liu, X., Eddy, M., & Martinez, C. R. (2025). Causal estimands and multiply robust estimation of mediated-moderation. *Multivariate Behavioral Research*, *60*(3), 460–486. https://doi.org/10.1080/00273171.2024.2444949

Zhou, Y., Meyer, K., Irani, E., **Liu, X.**, & Choi, N. (2025). Change in fall status of older people with dementia and caregiving difficulties: Moderation effects of living arrangements. *Journal of the American Geriatrics Society*, *73*(6), 1808–1818. https://doi.org/10.1111/jgs.19442

Lam, J., Kim, D., **Liu, X.**, Quartana, P., Yoon, K. L. (2025). Associations of recovery sleep and time of day with the inhibition of positive versus negative information: A pilot study. *Cognition and Emotion*. Advanced Online Publication. https://doi.org/10.1080/02699931.2025.2597886

Liu, X. (2024). Assessing heterogeneous causal effects across clusters in partially nested designs. *Psychological Methods.* Advanced Online Publication. https://doi.org/10.1037/met0000723

Liu, X., & Wang, L. (2024). Causal mediation analysis with the parallel process latent growth curve mediation model. *Structural Equation Modeling: A Multidisciplinary Journal*, *31*(6), 983–1004. https://doi.org/10.1080/10705511.2024.2347588

Liu, X. (2024). Propensity score weighting with missing data on covariates and clustered data structure. *Multivariate Behavioral Research*, *59*(3), 411–433. https://doi.org/10.1080/00273171.2024.2307529

Liu, X., Zhang, Z., & Wang, L. (2024). Detecting mediation effects with the Bayes factor: Performance evaluation and tools for sample size determination. *Psychological Methods.* Advanced online publication. https://doi.org/10.1037/met0000670

Liu, X., Zhang, Z., Valentino, K., & Wang, L. (2024). The impact of omitting confounders in parallel process latent growth curve mediation models: Three sensitivity analysis approaches. *Structural Equation Modeling: A Multidisciplinary Journal*, *31*(1), 132–150. https://doi.org/10.1080/10705511.2023.2189551

Clemens, N., Lee, K., **Liu, X.**, Boucher, A., Al Otaiba, S., & Simmons, L. (2023). The relations of kindergarten early literacy skill trajectories on common progress monitoring measures to subsequent word reading skills for students at risk for reading difficulties. *Journal of Educational Psychology*, *115*(8), 1045–1069. https://doi.org/10.1037/edu0000814 (Featured as *Journal of Educational Psychology* Editor's Choice article)

Liu, X., Liu, F., Miller-Graff, L., Howell, K. H., & Wang, L. (2023). Causal inference for treatment effects in partially nested designs. *Psychological Methods. 29*(3), 457–479. https://doi.org/10.1037/met0000565

Liu, X., Zhang, Z., & Wang, L. (2023). Bayesian hypothesis testing of mediation: Methods and the impact of prior odds specifications. *Behavior Research Methods*, 55(3), 1108–1120. https://doi.org/10.3758/s13428-022-01860-1

Liu, X., Valentino, K., & Wang, L. (2022). The impact of omitting confounders in latent growth curve mediation models: analytical examination and tools for sensitivity analysis (abstract). *Multivariate Behavioral Research*. *57*(1), 153-154. https://doi.org/10.1080/00273171.2021.2011701

Li, Y., Liu, F., & **Liu, X.** (2021). Adaptive noisy data augmentation for regularized construction of undirected graphical models. *2021 IEEE 8th International Conference on Data Science and Advanced Analytics (DSAA),* pp. 1-10. https://doi.org/10.1109/DSAA53316.2021.9564128

Liu, X., & Wang, L. (2021). The impact of measurement error and omitting confounders on statistical inference of mediation effects and tools for sensitivity analysis. *Psychological Methods, 26*(3), 327-342. https://dx.doi.org/10.1037/met0000345

Liu, X., & Wang, L. (2020). The combined effects of omitting confounders and measurement error on statistical inference of mediation and a new tool for sensitivity analysis (abstract). *Multivariate Behavioral Research*, *55*(1), 137-138. https://dx.doi.org/10.1080/00273171.2019.1694478

Liu, X., & Wang, L. (2019). Sample size planning for detecting mediation effects: a power analysis procedure considering uncertainty in effect size estimates. *Multivariate Behavioral Research*, *54*(6), 822-839. https://dx.doi.org/10.1080/00273171.2019.1593814

Wang, L., Yang, M., & **Liu, X.** (2019). The impact of over-simplifying the between-subject covariance structure on inferences of fixed effects in modeling nested data. *Structural Equation Modeling: A Multidisciplinary Journal*, *26*(1), 1-11. https://dx.doi.org/10.1080/10705511.2018.1489725

Articles in Peer-Reviewed Conference Proceedings

Liu, X., & Wang, L. (2019). Latent growth curve models with VAR residuals for longitudinal mediation analysis. In Z. Zhang, K. Yuan, Y. Wen, & J. Tang (Ed.), *Proceedings of the 2019 Meeting of International Society for Data Science and Analytics* (pp. 9-22). Granger, IN: ISDSA Press.

Under Review/Revision *(italics indicate student author)*

McCann, C. & **Liu, X.** (under review). Estimation of causal mediation effects under unmeasured cluster-level confounding using machine learning.

Liu, X. & *Zeng, Q.* (under revision). Familywise Type I error rates and statistical power in causal mediation analysis with multiple mediators.

Liu, X., Mason, S. A., & Eddy, J. M. (under review). Causal inference methods for mediated moderation: Unpacking intervention effect heterogeneity.

Liu, X., Eddy, J. M., Martinez, C. R., Rodriguez, E., & McClure, H. H. (under review). Principal stratification by individual- and cluster-level adherence in cluster-randomized trials: A doubly robust approach.

Liu, X., Eddy, J. M., Skinner, M., Hanson, K., & Haggerty, K. (under review). Long-term program exposure and young adulthood outcomes within a randomized controlled trial of a professional youth mentoring program.

FUNDING

Current

Agency: NIH (1R01NR022445-01A1)
PIs: Yang Li, UT Austin
Title: Self-Compassion, Health, and Empowerment: A Randomized Controlled Trial for Chinese Immigrant Women Experiencing Intimate Partner Violence
Period: 05/2026-02/2031
Total award amount: $3,233,182
Role: Co-Investigator

Agency: NIH (R33CA280979-03)
PIs: Eun-Ok Im & Wonshik Chee, UT Austin (2024-2026), Vanderbilt (2026-2027)
Title: *Cancer Pain Management: A Technology-Based Intervention for Asian American Breast Cancer Survivors with Depressive Symptoms*
Period: 2022-2027
Total award amount: $5,100,000
Role: Co-Investigator (2024-2026); Consultant (2026-2027)

Agency: NIH (1R01NR020334-01)
PIs: Eun-Ok Im & Wonshik Chee, UT Austin (2024-2026), Vanderbilt (2026-2027)
Title: *A Web-App Based Lifestyle Physical Activity Promotion Program to Improve Depressive Symptom Experience: Midlife Korean American Women*
Period: 2022-2027
Total award amount: $2,720,000
Role: Co-Investigator (2024-2026); Consultant (2026-2027)

Completed

Agency: Oregon Criminal Justice Commission; Sponsors, Inc.
PIs: Mark Eddy, UT Austin
Title: The Way Home Study: Follow-up of Participants in a Natural Experiment of Permanent Supportive Housing
Period: 05/2025-11/2025
Total award amount: $85,122
Role: Co-Investigator

Agency: NIH (R21AG075247-01A1)
PIs: Eun-Ok Im & Wonshik Chee, UT Austin
Title: *To Reduce the Burden of Caregiving on Health Outcomes of Midlife Women: Asian American Family Caregivers of Persons Living with Alzheimer's Disease*

Period: 2022-2024
Total award amount: $430,375
Role: Consultant

AWARDS & HONORS

Pearson Endowed Faculty Fellowship in Psychometrics 2026-2027
Dean's Distinguished Faculty Program, College of Education, UT Austin

Best Paper Award 2026
International Society for Data Science and Analytics (ISDSA) Meeting

Summer Research Award 2025
College of Education, The University of Texas at Austin

Outstanding Quantitative Dissertation Award 2023
American Educational Research Association, Division D

Psychology Department's Excellence in Graduate Student Teaching Award 2021
University of Notre Dame

Competitive Society of Multivariate Experimental Psychology (SMEP) Travel Award 2019
17th Annual SMEP Graduate Student Conference

University Presidential Fellowship 2017-2022
University of Notre Dame

China Petrol Scholarship 2016
Renmin University of China

Fei Hsiao-Tung Scholarship 2015
Renmin University of China

China National Scholarship 2014
The State Council of the People's Republic of China

SOFTWARE DEVELOPMENT

Liu, X., Zhang, Z., Valentino, K., & Wang, L. (2023). R Shiny web application for conducting the frequentist, Bayesian, and Monte Carlo sensitivity analysis to assess the impact of omitting confounders in parallel process latent growth curve mediation models. https://github.com/xliu12/PP-LGCMM_sensitivity_analysis

Liu, X., Zhang, Z., & Wang, L. (2023). WebPower tool for sample size determination with the mediation Bayes factor. https://webpower.psychstat.org/models/med02/

Liu, X., Zhang, Z., & Wang, L. (2022). R Shiny web application for Bayesian hypothesis testing of mediation effects. https://xiaoliu.shinyapps.io/BayesianHypothesisTestingMediation/

Wang, L., **Liu, X.,** & Yang, M. (2021). R package "IIVpredictor": Modeling within individual variability as predictor. https://cran.r-project.org/package=IIVpredictor

Liu, X., & Wang, L. (2020). R Shiny web application for sensitivity analysis of statistical inference of mediation to measurement error and omitting confounders. https://xiaoliu.shinyapps.io/MediationSensitivityAnalysis/

Liu, X., & Wang, L. (2019). R Shiny web application for sample size planning for detecting mediation effects with accounting for uncertainty in effect size estimates. https://xiaoliu.shinyapps.io/MediationPowerAnalysis/

PRESENTATIONS

Invited Presentations

Liu, X. (2025, February). *Causal mediation analysis for understanding why effects vary.* Invited presentation at the Faculty Research Symposium of the Department of Special Education at the University of Texas at Austin, Austin, TX.

Liu, X. (2024, November). *Parallel process latent growth curve mediation models: Causal mediation effects, Bayesian estimation, and sensitivity analysis methods.* Invited presentation at the Methods Group of the Department of Human Development and Family Studies at Michigan State University, Virtual.

Liu, X., & Wang, L. (2024, January). *Causal mediation analysis with the latent growth curve mediation model.* Invited talk at the 35th Young Scholars Forum of the Educational Statistics and Measurement Branch of the Chinese Education Society, Virtual.

Liu, X. (2024, April). *Causal mediation analysis with the latent growth curve mediation model.* Invited presentation at the 2024 American Educational Research Association Annual (AERA) Division D Business Meeting, Philadelphia, PA.

Conference Presentations *(italics indicate student author)*

Liu, X., Eddy, J. M., Skinner, M., & Haggerty, K. (2026, May). *Examining the impact of an extended dose of mentoring on outcomes within a randomized controlled trial of a 12+ year long professional youth mentoring program*. Poster presented at the 2026 Society for Prevention Research (SPR) Annual Meeting, Washington, DC.

Liu, X., Eddy, J. M., Martinez Jr, C. R., Rodriguez, E., & McClure, H. H. (2026, July). *Treatment-by-adherence moderation in cluster-randomized trials: Doubly robust estimation*

using machine learning. Talk presented at the 2026 Meeting of The International Society for Data Science and Analytics (ISDSA), Virtual.

Liu, X. & *Zeng, Q.* (2026, April). *Familywise Type I error rates and statistical power in causal mediation analysis with multiple mediators*. Talk presented at the 2026 American Educational Research Association Annual (AERA) Meeting, Los Angeles, CA.

McCann, C. **& Liu, X.** (2025, May). *Multiply robust estimation with machine learning for causal mediation analysis with clustered data and unmeasured cluster-level confounders.* Poster presented at the 2025 American Causal Inference Conference (ACIC), Detroit, Michigan.

Liu, X., Eddy, J. M., & Martinez Jr, C. R. (2025, May). *A causal inference method for mediated moderation with multiple mediators*. Poster presented at the 2025 Society for Prevention Research (SPR) Annual Meeting, Seattle, Washington.

Liu, X. (2025, May). *Assessing sensitivity to unmeasured confounders in causal mediation analysis with multiple mediators and clustered data.* Talk presented at the 2025 American Causal Inference Conference (ACIC), Detroit, Michigan.

McCann, C. **& Liu, X.** (2025, April). *Causal mediation analysis with the multiply robust method under unmeasured cluster-level confounders.* Poster presented at the 2025 American Educational Research Association Annual (AERA) Meeting, Denver, CO.

Liu, X. (2024, May). *Assessing heterogeneous causal effects across clusters in partially nested designs*. Talk presented at the 2024 Society for Prevention Research (SPR) Annual Meeting, Washington, DC.

Liu, X., Eddy, J. M., & Martinez Jr, C. R. (2024, May). *A causal decomposition approach for mediated moderation analysis.* Talk presented at the 2024 American Causal Inference Conference (ACIC), Seattle, Washington.

Liu, X. (2024, May). *Unpacking subgroup differences in treatment effects: A causal decomposition approach for mediated moderation analysis.* Presentation at the 2024 Annual TEXPOP Conference of the Population Research Center at the University of Texas at Austin, Austin, Texas.

Liu, X. (2023, July). *Heterogenous treatment effects in nonrandomized partially nested designs: A principal stratification approach.* Talk presented at the 2023 International Meeting of the Psychometric Society (IMPS), College Park, Maryland.

Liu, X., Zhang, Z., & Wang, L. (2023, July). *Detecting mediation effects with the Bayes factor: Performance evaluation and tools for sample size determination.* Talk presented at the 2023 Meeting of The International Society for Data Science and Analytics (ISDSA), Virtual.

Liu, X., Zhang, Z., & Wang, L. (2023, June). *An evaluation of the Bayesian hypothesis test of mediation effects via the Bayes factor.* Poster presented at the 2023 Modern Modeling Methods Conference, Storrs, Connecticut.

Liu, X. (2023, May). *Handling covariate missingness in propensity score weighting with clustered data: A comparison of multiple imputation and complete-case analysis.* Poster presented at the 2023 American Causal Inference Conference (ACIC), Austin, Texas.

Liu, X., Zhang, Z., Valentino, K., & Wang, L. (2023, April). *A Monte Carlo sensitivity analysis approach for omitted confounders in latent growth curve mediation models*. Presentation at the 2023 American Educational Research Association Annual (AERA) Meeting, Chicago, Illinois.

Liu, X., & Keller, B. (2023, March). *Propensity score weighting with clustered data and covariate missingness*. Talk presented at the 2023 Texas Universities' Educational Statistics And Psychometrics (TUESAP) Meeting, Austin, Texas.

Liu, X., & Wang, L. (2022, June). *Causal mediation analysis with the latent growth curve mediation model.* Talk presented at the 2022 Meeting of The International Society for Data Science and Analytics (ISDSA), Notre Dame, Indiana.

Liu, X., Valentino, K., & Wang, L. (2021, October). *The impact of omitting confounders in latent growth curve mediation models: analytical examination and tools for sensitivity analysis.* Poster presented at the 2021 Annual Society of Multivariate Experimental Psychology (SMEP) Graduate Student Conference (Virtual).

Liu, X., Wang, L., & Zhang, Z. (2021, July). *Bayesian hypothesis testing of mediation: Methods and the impact of prior odds specifications.* Talk presented at the 2021 International Meeting of the Psychometric Society (IMPS), Virtual.

Liu, X., Wang, L, Liu, F., Miller-Graff, L., & Howell, K. H. (2020, July). *Causal inference with partially nested designs: A propensity-score-based approach.* Talk presented at the 2020 International Meeting of the Psychometric Society (IMPS), Virtual.

Liu, X, & Wang, L**.** (2019, October). *The combined effects of omitting confounders and measurement error on statistical inference of mediation and a new tool for sensitivity analysis.* Poster presented at the 2019 Annual Society of Multivariate Experimental Psychology (SMEP) Graduate Student Conference, Baltimore, Maryland.

Liu, X., & Wang, L. (2019, July). *Latent growth curve models with VAR residuals for longitudinal mediation analysis.* Talk presented at the 2019 Meeting of The International Society for Data Science and Analytics (ISDSA), Nanjing, China.

TEACHING & MENTORSHIP

<u>Department of Educational Psychology, University of Texas at Austin</u>

Courses Taught

Spring 2026	Data Exploration and Visualization in R (Graduate)
Fall 2025	Research Design and Methods for Psychology and Education (Graduate)
Spring 2025	Statistical Analysis for Experimental Data (Graduate)
	Causal Inference (Graduate)
Fall 2024	Research Design and Methods for Psychology and Education (Graduate)
	Data Exploration and Visualization in R (Graduate)
Spring 2024	Data Exploration and Visualization in R (Graduate)
Fall 2023	Research Design and Methods for Psychology and Education (Graduate)
Spring 2023	Causal Inference (Graduate)
Fall 2022	Research Design and Methods for Psychology and Education (Graduate)

Dissertation, Thesis, and Prospectus Direction

Doctoral Dissertation, Committee Co-Supervisor

Completed
Joseph Miller (Quantitative Methods, Spring 2024)

Doctoral Dissertation, Committee Member

Completed
Natashia Bibriescas (Quantitative Methods, Spring 2024)
Jiwon Kim (Quantitative Methods, Spring 2024)
Pierce Cappelli (Quantitative Methods, Summer 2025)
Bethany Hamilton (Quantitative Methods, Summer 2025)
Stephany Rea (Human Development, Culture, and Learning Sciences, Spring 2026)
Kathleen Mason (Special Education, Spring 2026)

Current
Yixian Huang
Claudia Reino
Yijie Tian
Ziyu Fan
Gregory Arbet
Hyo-Mi Pak
Avia Bateman

Qualifying Process, Chair

Cameron McCann (Fall 2024)

Qualifying Process, Committee Member

Zixuan Ma (Fall 2026)
Hanwen Zhang (Fall 2025)
Madeline O'Grady (Fall 2025)
Brendan Shanahan (Spring 2025)
Ziyu Fan (Fall 2024)
Stephany Rea (Spring 2024)
Suyoung Kim (Fall 2023)

Graduate Student Mentorship

Graduate Students
Cameron McCann (2023-present)
Younghoe Cha (2026-present)
Ji Yun Lee (2026-present)

Professional Associations

Mentor at the 2026 Society for Prevention Research (SPR) Sloboda and Bukoski Cup Competition (selected as one of four finalist teams).

SERVICE

Service to the Department, College, and University

Service to the Department

2024-25 Member of the search committee for Counseling Psychology faculty position

Professional Service

Leadership
Program Chair, American Educational Research Association (AERA) Special Interest Group on Multiple Linear Regression (2026-2027)

Program Chair-Elect, American Educational Research Association (AERA) Special Interest Group on Multiple Linear Regression (2025-2026)

Guest Editor
Journal of Behavioral Data Science, 2026—present

Ad hoc Reviewer for Conference
American Educational Research Association (AERA)

Ad hoc Reviewer for Journals
Journal of Educational and Behavioral Statistics
Communications in Statistics - Simulation and Computation
British Journal of Mathematical and Statistical Psychology
Multivariate Behavioral Research
Psychological Methods
Psychometrika
Behavior Research Methods
BMC Medical Research Methodology
Statistical Methods in Medical Research
Frontiers in Psychology
Structural Equation Modeling: A Multidisciplinary Journal
Methods in Psychology
Journal of Experimental Education
British Journal of Psychology
Prevention Science

MEMBERSHIP

Society for Prevention Research
American Educational Research Association
Psychometric Society
Society for Research on Educational Effectiveness
Society for Causal Inference