MINGYA HUANG

University of Wisconsin – Madison

1025 W Johnson St Room 1075A, Madison, WI 53706

✉ mhuang233@wisc.edu | ⌨ mhuang233 | 🌐 mhuang233.github.io

Education

University of Wisconsin – Madison (UW–Madison)   2025 Expected
Ph.D. Quantitative Methods | Department of Educational Psychology
(Advisor: Dr. David Kaplan)

M.S. Statistics | Department of Statistics   2024
(Advisor: Dr. Sameer Deshpande)

Minor. Computer Science   2024

University of Illinois at Urbana – Champaign (UIUC)   2019
M.S. QUERIES | Department of Educational Psychology
(Advisor: Dr. Carolyn Anderson & Dr. Huahua Chang)

University of Macao (UM) | Honors College   2015
B.Ed. Education
Minor. Psychology

Research Interests

- **Bayesian Statistics**: Bayesian nonparametrics for developmental outcomes prediction.

- **Machine Learning**: ensemble methods for generalizable statistical inference.

- **Hierarchical Modeling**: dynamic cluster structure adapted to large-scale assessment.

- **Causal Inference**: heterogeneous treatment effects in experimental/observational settings.

- **Data Science in Education and Psychology**: STEM education and psychometrics.

Preprints

6 **Huang, M.** (2024+). Bayesian additive regression trees for estimating heterogeneous trajectories of test scores in large-scale education assessment. PsyArXiv: https://doi.org/10.31234/osf.io/s6cb3.

Publications

Peer-reviewed Journal Articles

5 **Huang, M.**, & Kaplan, D. (2024) Predictive performance of Bayesian stacking in multilevel education data. *Journal of Educational and Behavioral Statistics.* DOI: 10769986241255969. PsyArXiv: https://doi.org/10.31234/osf.io/e9m6x.

4 Xia, Y., Luo, Y., **Huang, M.**, & Yang, Y. (2022). On the use of inclusive strategy when some participants fail to provide data on all studied variables. International Journal of Quantitative Research in Education, 5(4), 356-378. DOI: 10.1504/IJQRE.2022.129794

3 Garbacz, S. A., Stormshak, E. A., McIntyre, L. L., Bolt, D., & **Huang, M.** (2022). Family-Centered Prevention During Elementary School to Reduce Growth in Emotional and Behavior Problems. *Journal of Emotional and Behavioral Disorders*, 10634266221143720. DOI: 10.1177/10634266221143720.

2 Kaplan, D., & **Huang, M.** (2021). Bayesian probabilistic forecasting with large-scale educational trend data: a case study using NAEP. *Large-scale Assessments in Education*, 9(1), 1-31. DOI: 10.1186/s40536-021-00108-2.

Book Chapters

1 **Huang, M.**, & Anderson, C. (2021). A Bayesian solution to non-convergence of crossed random effects models. *Quantitative Psychology*, (pp. 297-307). Springer International Publishing. DOI: 10.1007/978-3-030-74772-5_27.

Working Papers & Research in Progress

5 **Huang, M.**, & Kaplan, D. (2024+). Enhancing predictive performance in Bayesian ensembles: A sensitivity analysis of adaptive priors.

4 **Huang, M.**, & Lyu, W. (2024+). Personalized predictive modeling using Bayesian nonparametric methods with input-dependent weighting scheme.

3 Kanopka, K., **Huang, M.**, Perrett, G. (2024+). Optimizing causal estimations in conjoint survey experiments with Bayesian treed regressions.

2 Kokandakar, A.H., **Huang, M.**, Lyu, W., & Deshpande, S.K. (2024+). A Bayesian nonparametric mixture approach for estimating heterogeneous treatment effects.

1 Pan, P., & **Huang, M.**, & Anderson, C. (2024+). Navigating crossed-classified random effects: A comprehensive Bayesian tutorial.

Conference Presentations

- **Huang, M.** (2024). "Bayesian treed regressions for estimating heterogeneous trajectories of test scores in large-scale data". Presented at the world meeting of the International Society of Bayesian Analysis (ISBA), Venice, Italy.

- **Huang, M.** (2024). "Bayesian Additive Regression Trees for estimating heterogeneous trajectories of test scores in large-scale educational data". Presented at the 89th annual Psychometric Society International Meeting (IMPS), Prague, Czech Republic.

- Edwards, E., & **Huang, M.** (2024). "Predictive performance of Bayesian model mixing in large-scale clustered data". Presented at the 5th annual Research Bazaar, Madison, WI.

- Edwards, E., & **Huang, M.** (2024). "Predictive performance of Bayesian model mixing in large-scale clustered data". Presented at the Undergraduate Research Symposium, Madison, WI.

- **Huang, M.**, & Kaplan, D. (2023). "Bayesian stacking in multilevel Models". Presented at the 88th annual Psychometric Society International Meeting (IMPS), College Park, MD.

- **Huang, M.**, & Kaplan, D. (2023). "Bayesian hierarchical stacking in large-scale assessment". Presented at the annual meeting of the National Council on Measurement in Education (NCME), Chicago, IL.

- **Huang, M.**, & Kaplan, D. (2022). "Bayesian hierarchical stacking in random effects models". Presented at the 87th annual Psychometric Society International Meeting (IMPS), Bologna, Italy.

- **Huang, M.**, & Anderson, C. (2020) [Virtual]. "A Bayesian solution to non-convergence of crossed random effects models". Presented at the 85th annual Psychometric Society International Meeting (IMPS).

- Kaplan, D., & **Huang, M.** (2020) [Virtual]. "Bayesian probabilistic forecasting with large-scale educational trend data: a case study using NAEP". Presented at the 85th annual Psychometric Society International Meeting (IMPS).

- **Huang, M.** (2019). "Self-concept, motivational calibration and biology performance of college students". The Annual Meeting of American Educational Research Association (AERA) [Accepted]. DOI: 10.3102/1431491.

Invited Talks

May 2024   "Bayesian treed regressions for estimating heterogeneous trajectories of test scores in large-scale clustered data". Statistics Graduate Students Association, University of Wisconsin – Madison, Madison WI.

Teaching Experience

Teaching Assistant | Guest Lecturer   *UW–Madison*
ED PSYCH 965 Applied Bayesian Statistics for Education Research   2024
ED PSYCH 761 Statistical Methods Applied to Education II   2023/2024
ED PSYCH 760 Statistical Methods Applied to Education I   2022/2023

Graduate (Teaching) Assistant   *UIUC*
EPSY 199 Undergraduate Open Seminar   2018 – 2019

Intern Homeroom Teacher   *Urbana, IL*
Jefferson Middle School   Jan – May 2014

Professional Experience

LED TA & Statistical Consultant   2024 – 2025
Department of Educational Psychology
University of Wisconsin – Madison

Project Assistant   June – July 2023
World-Class Instructional Design and Assessment (WIDA)
University of Wisconsin – Madison

Project Assistant   2021 – 2022
Testing and Evaluation Services (TNE)
University of Wisconsin – Madison

Project Assistant   June – August 2021
Wisconsin Center for Education Research (WCER)
University of Wisconsin – Madison

Chair Project Assistant   2020 – 2021
Department of Educational Psychology
University of Wisconsin – Madison

Graduate (Research) Assistant   2017 – 2018
International Student and Scholar Services
University of Illinois at Urbana – Champaign

Research Assistant   2012 – 2015
Honors College Research Program
University of Macao

International Baccalaureate (IB) PYP Program Coordinator   2015 – 2017
Country Garden Silver Beach International School

Honors & Awards

Graduate School Fellowship   2019/2024
University of Wisconsin – Madison

Student Travel Award   2024
International Society of Bayesian Analysis (ISBA)

Busk Travel Award   2024
University of Wisconsin – Madison

Student Travel Award   2023
Psychometric Society (IMPS)

RAFA Travel Award   2022/2023
University of Wisconsin – Madison

Henry Fok Foundation Academic Prize   2015
University of Macao

Dean's Honors List   2014
University of Illinois at Urbana – Champaign

Wu's Group Scholarship   2013
University of Macao

Dean's Honors List   2011 – 2015
University of Macao

The Third Prize   2010
National Biology Competition, China

Service

Ad Hoc Reviewer	AERA/NCME Annual Meeting.
Graduate Research Mentor	Undergraduate Research Scholar Program. evanjje.
	University of Wisconsin – Madison
Exchange Program Coordinator	Macao Honors College Exchange Program.
	University of Illinois at Urbana – Champaign

Professional Affiliations

Psychometric Society (PS)

International Society of Bayesian Analysis (ISBA)

American Psychological Association (APA) – Division 5

American Educational Research Association (AERA) – Division D

Programming

R, Python, Stan, SAS, M*plus*, Julia, CSS, shell script, C/C++, LaTeX, Git, Docker.