

MINGYA HUANG

University of Wisconsin – Madison

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Education

University of Wisconsin – Madison (UW–Madison) Ph.D. Quantitative Methods Department of Educational Psychology (Advisor: Dr. David Kaplan)	2025 Expected
M.S. Statistics Department of Statistics (Advisor: Dr. Sameer Deshpande)	2024
Minor. Computer Science Department of Computer Science	2024
University of Illinois at Urbana – Champaign (UIUC) M.S. QUERIES Department of Educational Psychology (Advisors: Dr. Carolyn Anderson & Dr. Hua-Hua Chang)	2019
University of Macao (UM) Honors College B.Ed. Education Minor. Psychology	2015

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](https://doi.org/10.31234/osf.io/e9m6x). 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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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 estimation 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.

* indicates co-first author.

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 Data Science 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](https://doi.org/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 Seminar, University of Wisconsin – Madison, Madison WI.

Teaching Experience

Teaching Assistant Guest Lecturer	<i>UW-Madison</i>
ED PSYCH 763 Regression Models in Education	2024
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	<i>UIUC</i>
EPSY 199 Undergraduate Open Seminar	2018 – 2019
Intern Homeroom Teacher	<i>Urbana, IL</i>
<i>Jefferson Middle School</i>	Jan – May 2014

Research & Professional Experience

LED TA & Statistical Consultant	2024 – 2025
Department of Educational Psychology <i>University of Wisconsin – Madison</i>	
Project Assistant	June – July 2023
World-Class Instructional Design and Assessment (WIDA) <i>University of Wisconsin – Madison</i>	
Project Assistant	2021 – 2022
Testing and Evaluation Services (TNE) <i>University of Wisconsin – Madison</i>	
Project Assistant	June – August 2021
Wisconsin Center for Education Research (WCER) <i>University of Wisconsin – Madison</i>	
Chair Project Assistant	2020 – 2021
Department of Educational Psychology <i>University of Wisconsin – Madison</i>	

Graduate (Research) Assistant International Student and Scholar Services <i>University of Illinois at Urbana – Champaign</i>	2017 – 2018
Research Assistant Honors College Research Program <i>University of Macao</i>	2012 – 2015
International Baccalaureate (IB) PYP Program Coordinator <i>Country Garden Silver Beach International School</i>	2015 – 2017

Honors & Awards

Graduate School Fellowship <i>University of Wisconsin – Madison</i>	2019/2024
Student Travel Award <i>International Society of Bayesian Analysis (ISBA)</i>	2024
Busk Travel Award <i>University of Wisconsin – Madison</i>	2024
Student Travel Award <i>Psychometric Society (IMPS)</i>	2023
RAFA Travel Award <i>University of Wisconsin – Madison</i>	2022/2023
Henry Fok Foundation Academic Prize <i>University of Macao</i>	2015
Dean’s Honors List <i>University of Illinois at Urbana – Champaign</i>	2014
Wu’s Group Scholarship <i>University of Macao</i>	2013
Dean’s Honors List <i>University of Macao</i>	2011 – 2015
The Third Prize <i>National Biology Competition, China</i>	2010

Service

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

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 | *Mplus* | Julia | CSS | shell script | C/C++ | Git | Docker | L^AT_EX

Last updated: August 2024