

MINGYA HUANG

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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 Sciences Department of Computer Sciences	2023
University of Illinois at Urbana–Champaign (UIUC) M.S. QUERIES Department of Educational Psychology Advisor: Dr. Carolyn Anderson	2019
University of Macao (UM) Honors College B.Ed. Education Minor. Psychology	2015

Research Interests

Bayesian Statistics | Machine Learning | Multilevel Modeling | Causal Inference

- Bayesian ensemble learning for personalized predictive modeling in large-scale assessments.
- Bayesian nonparametrics for dynamic modeling in multilevel and longitudinal data.
- Bayesian causal effects estimation in observational/experimental settings.
- Applications of Bayesian statistics/machine learning in social and behavioral sciences.

Preprints

- 6 **Huang, M.** (2025+). Bayesian treed regressions for estimating heterogeneous trajectories of test scores in large-scale educational assessments. 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 Garbacz, S. A., Stormshak, E. A., McIntyre, L. L., Bolt, D., & **Huang, M.** (2024). Family-Centered Prevention During Elementary School to Reduce Growth in Emotional and Behavior Problems. *Journal of Emotional and Behavioral Disorders*. DOI: 10.1177/10634266221143720.
- 3 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
- 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

- 6 **Huang, M.**, Lyu, W., & Kaplan, D. (2025+). Personalized predictive modeling using Bayesian nonparametric methods with input-dependent weighting scheme. [**Manuscript in preparation**].
- 5 **Huang, M.**, Ghosh, S. & Bolt, D. (2025+). A Bayesian multidimensional item response theory model with spatial clustering. [**Manuscript in preparation**].
- 4 **Huang, M.**, Kokandakar, A. H., Lyu, W., & Deshpande, S. K. (2025+). A Bayesian nonparametric mixture approach for estimating heterogeneous treatment effects. [**Coding in progress**].
- 3 Lyu, W., & **Huang, M.**, (2025+). A Utility Maximization Model for Joint Determination of Response Time and Accuracy under Time Pressure. [**Coding in progress**].
- 2 Kanopka, K., **Huang, M.**, & Perrett, G. (2025+). Optimizing Causal effects estimation in conjoint survey experiments with Bayesian treed regressions. [**Finishing replications**].

- 1 Pan, P., & **Huang, M.**, & Anderson, C. (2025+). Navigating crossed-classified random effects: A comprehensive Bayesian tutorial. [Manuscript in preparation].

Conference Presentations

* indicates students mentored.

- **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 International Meeting of Psychometric Society (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 International Meeting of Psychometric Society (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 International Meeting of Psychometric Society (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 International Meeting of Psychometric Society (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 International Meeting of Psychometric Society (IMPS).
- **Huang, M.** (2019). “Self-concept, motivational calibration and biology performance of college students” [Accepted]. The Annual Meeting of American Educational Research Association (AERA). 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 965 Applied Bayesian Statistics for Education Research	2024
ED PSYCH 763 Regression Models in Education	2024
ED PSYCH 762 Introduction to the Design of Educational Experiments	2024
ED PSYCH 761 Statistical Methods Applied to Education II	2023/2024/2025
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>Champaign, IL</i>
<i>Jefferson Middle School</i>	Jan – May 2014

Research & Professional Experience

TA & Statistical Consultant	<i>UW–Madison</i>
Supervised by Dr. Jee-Seon Kim & Dr. James Pustejovsky	Fall 2024
Laboratory for Experimental Design (LED)	
Project Assistant	<i>UW–Madison</i>
Supervised by Dr. Rosalie Grant	Summer 2023
World-Class Instructional Design and Assessment (WIDA)	
Project Assistant	<i>UW–Madison</i>
Supervised by Dr. James Wollack & Dr. Sonya Sedivy	2021 – 2022
Testing and Evaluation Services (T&E)	
Project Assistant	<i>UW–Madison</i>
Supervised by Dr. Bonnie Doren	Summer 2021
Wisconsin Center for Education Research (WCER)	
Chair Project Assistant	<i>UW–Madison</i>
Supervised by Dr. Daniel Bolt & Dr. Andy Garbacz	2020 – 2021
Department of Education Psychology	

Graduate (Research) Assistant
Supervised by Dr. Allison Witt
International Student and Scholar Services

UIUC
2017 – 2018

Research Assistant
Supervised by Dr. Tat Ming Sze & Dr. Daming Xu
Honors College Research Program

UM
2012 – 2015

Honors & Awards

Department of Educational Psychology Dissertator Award <i>University of Wisconsin–Madison</i>	2024
Graduate School Fellowship <i>University of Wisconsin–Madison</i>	2019/2024
Student Travel Award <i>International Society of Bayesian Analysis (ISBA)</i>	2024
RAFA Travel Award <i>University of Wisconsin–Madison</i>	2022/2023/2024
Student Travel Award <i>Psychometric Society (PS)</i>	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. <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)

American Statistical Association (ASA)

International Society of Bayesian Analysis (ISBA)

American Educational Research Association (AERA) – Division D

Computer Skills

R | Python | Stan | C/C++ | Git | Docker | SAS | *Mplus* | Shell script | L^AT_EX

References

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Dr. Sameer Deshpande

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Dr. Carolyn Anderson

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(217)-244-3537

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