

# MINGYA HUANG

University of Wisconsin – Madison

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## Education

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<b>University of Wisconsin – Madison (UW–Madison)</b> <b>PhD. <a href="#">Quantitative Methods</a></b>   Department of Educational Psychology (Advisor: Dr. David Kaplan)	2025 Expected
<b>M.S. Statistics</b>   Department of Statistics (Advisor: Dr. Sameer Deshpande)	2024
<b>Minor. Computer Science</b>	2023
<b>University of Illinois at Urbana – Champaign (UIUC)</b> <b>M.S. <a href="#">QUERIES</a></b>   Department of Educational Psychology (Advisor: Dr. Carolyn Anderson)	2019
<b>University of Macao (UM)   Honors College</b> <b>B.Ed. Education</b> <b>Minor. Psychology</b>	2015

## Research Interests

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- **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

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- 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

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## 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](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

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- 5 **Huang, M.**, & Kaplan, D. (2024+). Sensitivity analysis of adaptive priors to improve prediction in Bayesian ensembles.
- 4 **Huang, M.**, & Lyu, W. (2024+). Personalized predictive modeling using Bayesian nonparametric ensembles with input-dependent weighting scheme.
- 3 Kanopka, K., **Huang, M.** & Hill, J. (2024+). Bayesian treed regressions in conjoint survey experimental settings.
- 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+). A tutorial of Bayesian methods for estimating crossed-classified random effects.

## Conference Presentations

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- **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 meeting of the 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 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 meeting of the 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 meeting of the 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 meeting of the 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 meeting of the Psychometric Society (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

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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

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### 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

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### 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

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

## Service

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

## Professional Affiliations

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Psychometric Society  
International Society of Bayesian Analysis (ISBA)  
American Psychological Association (APA) – Division 5  
American Educational Research Association (AERA) – Division D

## Programming

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R, Python, Stan, SAS, *Mplus*, Julia, CSS, shell script, C/C++,  $\text{\LaTeX}$ , Git, Docker.

Last updated: August 2024