

# MINGYA HUANG

University of Wisconsin–Madison

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## Education

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<b>University of Wisconsin–Madison (UW–Madison)</b> <b>Ph.D., Quantitative Methods</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>   Department of Computer Science	2023
<b>University of Illinois at Urbana–Champaign (UIUC)</b> <b>M.S., QUERIES</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, 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 effect estimation in experimental/observational settings.

## Preprints

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- 6 **Huang, M.** (2024+). Bayesian treed regressions for estimating heterogeneous trajectories of test scores in large-scale education assessments. 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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\* indicates co-first author.

- 5 **Huang, M.**, Lyu, W., & Kaplan, D.(2024+). Personalized predictive modeling using Bayesian nonparametric methods with input-dependent weighting scheme. [**Finishing simulation**].
- 4 **Huang, M.**, & Ghosh, S. (2024+). A Bayesian multinomial item response model with spatial clustering. [**Coding in progress**].
- 3 Kanopka, K., **Huang, M.\***, & Perrett, G. (2024+). Optimizing causal estimation in conjoint survey experiments with Bayesian treed regressions. [**Coding in progress**].
- 2 Kokandakar, A.H., **Huang, M.**, Lyu, W., & Deshpande, S.K. (2024+). A Bayesian non-parametric mixture approach for estimating heterogeneous treatment effects. [**Coding in progress**].
- 1 Pan, P., & **Huang, M.**, & Anderson, C. (2024+). Navigating crossed-classified random effects: A comprehensive Bayesian tutorial. [**Manuscript in preparation**].

## 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 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” [Accepted]. The Annual Meeting of American Educational Research Association (AERA). 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 Seminar, University of Wisconsin–Madison, Madison WI.

## Teaching Experience

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<b>Teaching Assistant   Guest Lecturer</b>	<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
ED PSYCH 760 Statistical Methods Applied to Education I	2022/2023
<b>Graduate (Teaching) Assistant</b>	<i>UIUC</i>
EPSY 199 Undergraduate Open Seminar	2018 – 2019
<b>Intern Homeroom Teacher</b>	<i>Urbana, IL</i>
<i>Jefferson Middle School</i>	Jan – May 2014

## Research & Professional Experience

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

<b>Graduate (Research) Assistant</b> International Student and Scholar Services <i>University of Illinois at Urbana-Champaign</i>	2017 – 2018
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<b>Research Assistant</b> Honors College Research Program <i>University of Macao</i>	2012 – 2015
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## 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>Busk Travel Scholarship</b> <i>University of Wisconsin-Madison</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
<b>The Third Prize</b> <i>National Biology Competition, China</i>	2010

## Service

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<b>Ad Hoc Reviewer</b>	AERA/NCME Annual Meeting.
<b>Graduate Research Mentor</b>	Undergraduate Research Scholar Program. <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 (PS)

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* | CSS | shell script | C/C++ | Git | Docker | L<sup>A</sup>T<sub>E</sub>X

Last updated: September 2024