

MINGYA HUANG

University of Wisconsin–Madison

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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](#) | Department of Computer Science 2023

University of Illinois at Urbana–Champaign (UIUC) 2019

M.S., [QUERIES](#) | Department of Educational Psychology

Advisor: Dr. Carolyn Anderson

University of Macao (UM) | Honors College 2015

B.Ed., Education

Minor., Psychology

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 effect estimation in experimental/observational settings.

Preprints

- 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

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

- 6 **Huang, M.**, & Lyu, W. (2024+). Personalized predictive modeling using Bayesian non-parametric methods with input-dependent weighting scheme. [**Finishing simulation**].
- 5 **Huang, M.**, & Ghost, S. (2024+). A Bayesian item response theory approach for multinomial responses with spatial clustering. [**Coding in Progress**].
- 4 **Huang, M.**, & Kaplan, D. (2024+). Enhancing predictive performance in Bayesian ensembles: A sensitivity analysis of adaptive priors. [**Discussion stage**].
- 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

- **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

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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| 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 |
| 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

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| 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> | |

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| Graduate (Research) Assistant International Student and Scholar Services <i>University of Illinois at Urbana–Champaign</i> | 2017 – 2018 |
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| Research Assistant Honors College Research Program <i>University of Macao</i> | 2012 – 2015 |
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Honors & Awards

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

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| 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)

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

Last updated: September 2024