Jordan M. Wheeler

University of Georgia, Athens, Ga.
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Education

Ph.D. Candidate, Quantitative Methodology, University of Georgia August 2019 - Present
Advisor: Allan S. Cohen, Ph.D.

M.S., Mathematical Statistics, University of Nebraska at Omaha May 2019
Master's Project: Automated ARMA and GARCH Forecasting Application
Advisor: Andrew W. Swift, D.Sc.

B.S., Mathematics, Nebraska Wesleyan University May 2017

Academic Experience

University of Georgia

Graduate Research Assistant, Department of Educational Psychology August 2019 - June 2022
Research Assistant, Georgia Center for Assessment August 2019 - May 2021

University of Nebraska at Omaha

Research Assistant, Department of Statistics August 2018 - May 2019

Research Interests

item response theory; mixed-format assessments; topic models; process data; estimation procedures

Publications

Journal Articles

3. **Wheeler, J. M.,** Raczynski, K., Cohen, A. S., & Engelhard, G. (In Press) Using Topic Models to Understand Rater-Mediated Writing Assessments. *Journal of Experimental Education.*
2. **Wheeler, J. M.,** Engelhard, G., & Wang, J. (2022) Exploring Rater Accuracy Using Unfolding Models Combined with Topic Models: Incorporating Supervised Latent Dirichlet Allocation. *Measurement: Interdisciplinary Research and Perspectives*, 20(1), 34-46.
1. Hyo J.-E., Hulland J., **Wheeler, J. M.,** & Kim S.-H. (2021) Use of item response theory in marketing research. *American Journal of Educational Research and Reviews*, 6:87. DOI: 10.28933/ajerr-2021-09-2609

Conference Proceedings

6. **Wheeler, J. M.,** Xiong, J., Mardones, C., Choi, H.-J., & Cohen, A. S. (2022) An Investigation of Prior Specification on Parameter Recovery for Latent Dirichlet Allocation of Constructed-Response Items. In Wiberg, M., Molenaar, D., Gonzalez, J., Kim, J.-S., & Hwang, H. (Editors) *Quantitative Psychology: The 86th Annual Meeting of the Psychometric Society.*
5. Xiong, J., **Wheeler, J. M.,** Choi, H.-J., & Cohen, A. S. (2022) A Bi-Level Individualized Adaptive Learning Recommendation System Based on Topic Modeling. In Wiberg, M., Molenaar, D., Gon-

zalez, J., Kim, J.-S., & Hwang, H. (Editors) *Quantitative Psychology: The 86th Annual Meeting of the Psychometric Society.*

4. Mardones, C., Choi, H.-J., Hong, M., **Wheeler, J. M.,** & Cohen, A. S. (2022) Comparison of Estimation Algorithms for Latent Dirichlet Allocation. In Wiberg, M., Molenaar, D., Gonzalez, J., Kim, J.-S., & Hwang, H. (Editors) *Quantitative Psychology: The 86th Annual Meeting of the Psychometric Society.*

3. **Wheeler, J. M.,** Cohen, A. S., Xiong, J., Lee, J., & Choi, H.-J. (2021) Sample Size for Latent Dirichlet Allocation of Constructed-Response Items. In Wiberg, M., Böckenholt, U., Gonzalez, J., Molenaar, D. & Kim, J.-S. (Editors) *Quantitative Psychology: The 85th Annual Meeting of the Psychometric Society.*

2. Xiong, J., **Wheeler, J. M.,** Lee, J., Choi, H.-J., & Cohen, A. S (2021) An Empirical Study of Developing Automated Scoring Engine using supervised Latent Dirichlet Allocation. In Wiberg, M., Böckenholt, U., Gonzalez, J., Molenaar, D. & Kim, J.-S. (Editors) *Quantitative Psychology: The 85th Annual Meeting of the Psychometric Society.*

1. Kim, S.-H., Duong, E., Mardones, C., Schellman, M., **Wheeler, J. M.,** Xiong, J., Zheng, G., Zor, S., & Cohen, A. S. (2021) Priors in Bayesian Estimation Under the Two- Parameter Logistic Model. In Wiberg, M., Böckenholt, U., Gonzalez, J., Molenaar, D. & Kim, J.-S. (Editors) *Quantitative Psychology: The 85th Annual Meeting of the Psychometric Society.*

Book Chapters

1. Shermis, M. D., Cohen, A. S., & **Wheeler, J. M.** (Accepted). Test Administration and Scoring. *Educational Measurement* (5th edition).

Manuscripts Submitted to Journals

4. **Wheeler, J. M.,** Cohen, A. S., & Wang, S. (under revision) Comparison of Latent Semantic Analysis and Latent Dirichlet Allocation in Educational Measurement.

3. **Wheeler, J. M.,** Wang, S., Tan, Y., & Cohen, A. S. (under review) Textual Data as Process Data: A New Scoring Procedure for Mixed-Format Assessments.

2. Bradshaw, L. & **Wheeler, J. M.** (submitted) A Caution in the Quest for Diagnostic Test-based Inferences.

1. Mardones, C., **Wheeler, J. M.,** Cohen, A. S., & Choi, H.-J. (submitted) Model Selection for Latent Dirichlet Allocation with Short Answers.

Manuscripts in Preparation

4. **Wheeler, J. M.,** Xiong, J., Wang, S., Choi, H.-J., & Cohen, A. S. (in preparation) A Semi-Confirmatory Latent Dirichlet Allocation Topic Model.

3. **Wheeler, J. M.,** Bradshaw, L., & Schellman, M. (in preparation) A Method for Annual Summative Determination Classification Consistency and Accuracy using a Diagnostic Assessment System.

2. Wang, S., **Wheeler, J. M.,** Cohen, A. S., & Hodges, G. (in preparation) Computerized Adapative Testing for Mixed-Format Assessments.

1. Xiong, J., Liu, Q., Wang, S., **Wheeler, J. M.,** & Cohen, A. S. (in preparation) Machine Learning - Assisted Psychometrics: Principles, Challenges, and Applications.

Presentations

Invited Presentations

3. **Wheeler, J. M.** (2021, November) Structural Tradition: Explanatory Item Response Model. *Theories of Educational Measurement, Department of Educational Psychology, University of Georgia*, Athens, GA.
2. **Wheeler, J. M.** (2021, October) Introduction of Reliability for Assessments. *Classroom Assessments, Department of Educational Psychology, University of Georgia*, Athens, GA.
1. Cohen, A. S., & **Wheeler, J. M.** (2021, February) Topic Modeling of Answers to Constructed Response Tests. *Department of Psychology, University of Notre Dame*, South Bend, IN.

Conference Papers

21. **Wheeler, J. M.,** Wang, S., Tan, Y., & Cohen, A. S. (2022, April) *Textual Data as Process Data: A New Scoring Procedure for Mixed-Format Assessments.* Paper presented at the Annual Meeting of the National Council on Measurement in Education. San Diego, Ca.
20. Mardones, C., Choi, H.-J., **Wheeler, J. M.,** & Cohen, A. S. (2022, April) *Model Selection for Latent Dirichlet Allocation in Assessment Data: New Advances.* Paper presented at the Annual Meeting of the National Council on Measurement in Education. San Diego, Ca.
19. Xiong, J., **Wheeler, J. M.,** & Cohen, A. S. (2022, April) *Multi-task classification for constructed responses with the topic model and deep neural network.* Paper presented at the Annual Conference of the American Educational Research Association. San Diego, Ca.
18. Englehard, G., Wind, S., & **Wheeler, J. M.** (2021, December) *Revisiting and Extending the Family of Rasch Models.* Paper presented at the Pacific Rim Objective Measurement Society Conference. Nanjing, China (Virtual).
17. **Wheeler, J. M.,** Xiong, J., Mardones, C., Choi, H.-J., & Cohen, A. S. (2021, July) *Impact of priors on parameter recovery for latent Dirichlet allocation.* Paper presented at the International Meeting of the Psychometric Society (IMPS). College Park, MD (Virtual).
16. Xiong, J., **Wheeler, J. M.,** Choi, H.-J., & Cohen, A. S. (2021, July) *Individualized test preparation recommendation systems based on latent Dirichlet allocation.* Paper presented at the International Meeting of the Psychometric Society (IMPS). College Park, MD (Virtual).
15. Xiong, J., **Wheeler, J. M.,** & Cohen, A. S. (2021, July) *Applications of machine learning in educational and psychological measurement.* Paper presented at the International Meeting of the Psychometric Society (IMPS). College Park, MD (Virtual).
14. Mardones, C., Choi, H.-J., Hong, M., **Wheeler, J. M.,** & Cohen, A. S. (2021, July) *Comparison of estimation algorithms for latent Dirichlet allocation.* Paper presented at the International Meeting of the Psychometric Society (IMPS). College Park, MD (Virtual).
13. **Wheeler, J. M.,** Wang, S., & Cohen, A. S. (2021, June) *Comparison of Latent Semantic Analysis and Latent Dirichlet Allocation.* Paper presented at the Annual Meeting of the National Council on Measurement in Education (Virtual).
12. **Wheeler, J. M.,** Choi, H.-J., Cohen, A. S., Xiong, J., & Lee, J. (2021, June) *A Semi-Confirmatory Latent Dirichlet Allocation Topic Model.* Paper presented at the Annual Meeting of the National Council on Measurement in Education (Virtual).
11. Raczynski, K., Choi, H.-J., **Wheeler, J. M.,** Shermis, M., Lottridge, S., Cohen, Y., & Cohen, A.S. (2021, June) *Using Artificial Intelligence for Constructed-Response Scoring: Some Practical Considerations.* Symposium presented at the Annual Meeting of the National Council on Measurement in Education (Virtual).
10. Mardones, C., **Wheeler, J. M.,** Choi, H.-J., & Cohen, A. S. (2021, June) *Model Selection for Latent Dirichlet Allocation with Small Number of Topics.* Paper presented at the Annual Meeting of the National Council on Measurement in Education (Virtual).

9. Lee, J., Xiong, J., **Wheeler, J. M.,** Choi H.-J., & Cohen, A. S. (2021, June) *Application of Multidimensional Mixture IRT and supervised-LDA for DIF in Mixed-Format Test.* Paper presented at the Annual Meeting of the National Council on Measurement in Education (Virtual).
8. **Wheeler, J. M.,** Engelhard, G. Jr., & Wang, J. (2021, April) *Exploring Rater Accuracy Using Unfolding Models Combined with Topic Models Incorporating Supervised Latent Dirichlet Allocation.* Paper presented at the Annual Conference of the American Educational Research Association (Virtual).
7. **Wheeler, J. M.,** Cohen, A. S., Xiong, J., Lee, J., & Choi, H.-J. (2020, July) *A Simulation Guide for Topic Models of Constructed-Response Items.* Paper presented at the International Meeting of the Psychometric Society (IMPS) in College Park, MD (Virtual).
6. Xiong, J., **Wheeler, J. M.,** Lee, J., Choi, H.-J.,& Cohen, A. S (2020, July) *An Empirical Study of Developing Automated Scoring Engine using supervised Latent Dirichlet Allocation.* Paper presented at the International Meeting of the Psychometric Society (IMPS) in College Park, MD (Virtual).
5. Kim, S.-H., Duong, E., Mardones, C., Schellman, M., **Wheeler, J. M.,** Xiong, J., Zheng, G., Zor, S., & Cohen, A. S. (2020, July) *Priors in Bayesian Estimation for the Two- and Three-Parameter Logistic Models* Paper presented at the International Meeting of the Psychometric Society (IMPS) in College Park, MD (Virtual).
4. **Wheeler, J. M.,** & Cohen, A. S. (2020, April) *Comparison of Latent Semantic Analysis and Latent Dirichlet Allocation.* Paper accepted at the Annual Meeting of the National Council on Measurement in Education in San Francisco, CA (Conference Canceled).
3. **Wheeler, J. M.,** Cohen, A. S., Choi, H.-J., Lee, J., & Xiong, J. (2020, February) *Ninth Grade English Language Arts Constructed-Response Item: A Topic Model Analysis.* Poster presented at the College of Education Graduate Student Research Conference in Athens, GA.
2. Xiong, J., **Wheeler, J. M.,** Lee, J., Choi, H.-J., & Cohen, A. S (2020, February) *An Empirical Study of Constructing Topic Structures Using Latent Dirichlet Allocation.* Poster presented at the College of Education Graduate Student Research Conference in Athens, GA.
1. Choi, H.-J., Xiong, J., Lai, S., Raczynski, K., **Wheeler, J. M.,** & Lee, J. (2019, October) *A New Method for Analyzing Students' Answers for Constructed Response Items in Formative Assessments: An Application of a Topic Model.* Paper presented at the Georgia Educational Research Association Annual Conference in Macon, GA.

Technical Reports

3. Bradshaw, L., Madison, M., Schellman, M., & **Wheeler, J. M.** (2022) *Navvy Education Assessment System Technical Manual.* Technical Report. Pearson Education.
2. Bradshaw, L., Madison, M., Schellman, M., & **Wheeler, J. M.** (2022) *Innovative Assessment Demonstration Authority Comparability Analysis for Navvy Education Assessment System.* Technical Report. Pearson Education.
1. Kwak, M., Xiong, J., Kim, S., **Wheeler, J. M.,** Lee, J., Choi, H.-J., & Cohen, A. S. (2019) *Georgia Center for Assessment Writing Assessment Analysis Summary Report.* Technical Report. Georgia Center for Assessment.

Teaching Experience

Graduate Teaching Assistant, *ERSH 8610, Theories of Educational Measurement* Fall 2021

Helped answer questions from students
Graded and provided feedback on term papers
Gave a lecture over Explanatory Item Response Models

Graduate Teaching Assistant, *ERSH 6600E, Applied Educational Assessment* Spring 2022
Gave lectures over various assessment topics (e.g., reliability, fairness)
Graded homework and project assignments
Held office hours to answer questions and assist students

Work Experience

Research Scientist and Psychometrician, Pearson Education May 2022 - Present
Performed psychometric analyses for an online assessment system
Conducted studies and research through real-data analysis and simulations
Developed reports and visualizations for internal and external use

Data Scientist, CATCH Intelligence August 2018 - July 2020
Consulted with clients across multiple industries
Built and delivered data pipelines and predictive models
Developed and managed summer internship program

Data Science Intern, CATCH Intelligence January 2018 - August 2018
Researched different machine learning models
Generated visualizations and slide decks for proof of concepts

Mathematics Mentor, Lincoln Public Schools August 2017 - January 2018
Created lesson plans and used multiple strategies to teach required topics
Accountable for writing reports on students' progress for administration

Service Activities and Leadership Positions

Peer Reviewer for Journals
Educational Measurement: Issues and Practices

Graduate Researchers in Educational Psychology (GREP)
University of Georgia, Department of Educational Psychology
Executive Committee: Vice President June 2021 - June 2022
Executive Committee: Secretary June 2020 - June 2021

Honors

College of Education's Research Scholar Award August 2019 - Present
University of Georgia, College of Education Fellowship

Outstanding Scholarship in Quantitative Methodology May 2021
University of Georgia, Department of Educational Psychology

Second Place: Machine Learning Kaggle Competition Spring 2019
University of Nebraska Omaha, Statistics Department

Miscellaneous

Application Development

Wheeler, J. M. (2020) Item Response Theory's Item Characteristic Curve Generator. *Shiny Application.* Retrieve: http://159.65.226.102/shiny/SingleItemCharacteristicCurve/

Wheeler, J. M. (2019) NYSE Automated Generalized Autoregressive Conditional Heteroskedasticity Forecasting. *Shiny Application.* Retrieve: http://159.65.226.102/shiny/ForecastingApplication/

Software Skills

R, Python, and SAS
Git, SQL, and Microsoft Office
JAGS, Stan, Mplus, OpenBUGS, WinBUGS, Facets, and BILOG-MG

Professional Affiliations

Psychometric Society	2020 - Present
American Educational Research Association	2020 - Present
National Council on Measurement in Education	2020 - Present