JESSE WHEELER

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Education

PhD in Statistics *2020–Present*
University of Michigan, Ann Arbor, MI.
Thesis Advisor: Edward Ionides

B.S. in Mathematics, Statistics, Minor in Computer Science *2016–2020*
Utah State University (USU), Logan, UT.
Graduated as valedictorian of the College of Science, class of 2020

Research

Interests

Time Series Analysis
Mechanistic Models
Computational Statistics
Infectious Disease Modeling
Reproducibility and Transparency in Statistics

Working Papers

Wheeler, J., Ionides, E. (2024). Likelihood Based Inference for ARMA models. *arXiv:2310.01198*. In review at the Journal of Computational and Graphical Statistics.

Bretó, C., Wheeler, J., King, A., Ionides, E. L. (2024). panelPomp: Analysis of Panel Data via Partially Observed Markov Processes in R. In review at the Journal of Machine Learning Research: Machine Learning Open Source Software.

Yang, B., Wheeler, J., King, A., Duffy, M., Ionides, E. L. (2024). Mechanistic Models for Panel Data: Analysis of Ecological Experiments with Four Interacting Species. *In preparation.*

Peer Reviewed Publications

Wheeler, J., Rosengart, A., Jiang, Z., Tan, K., Truetle, N., Ionides, E. (2024). Informing policy via dynamic models: Cholera in Haiti. PLOS Computational Biology, 20(4), e1012032. doi:10.1371/journal.pcbi.1012032

Wagstaff, J., Bean, B., Wheeler, J., Maguire, M., Sun, Y. (2024). Adaptive Mapping of Design Ground Snow Loads in the Conterminous United States. *Journal of Structural Engineering*, 150(1), 04023193. doi:10.1061/JSENDH.STENG-12396

Ionides, E. L., Ning, N. and Wheeler, J. (2024). An iterated block particle filter for inference on coupled dynamic systems with shared and unit-specific parameters. *Statistica Sinica*, 34, 1241-1262. doi:10.5705/ss.202022.0188.

Wheeler, J., Bean, B., Maguire, M. (2022). Creating a Universal Depth-to-Load Conversion Technique for the Conterminous United States Using Random Forests. *Journal of Cold Regions Engineering, 36(1), 04021019*. doi:10.1061/(ASCE)CR.1943-5495.0000270

White, T., Wheeler, J., Lindstrom, C., Christensen, R., Moon, K. (2021). GPS-Denied Navigation Using SAR Images and Neural Networks. *ICASSP 2021 - 2021 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*. Toronto, ON, Canada, 2021, pp. 2395-2399, doi:10.1109/ICASSP39728.2021.9414421.

Non-Refereed Publications

Bean, B., Maguire, M., Sun, Y., Wagstaff, J., Al-Rubaye, S., Wheeler, J., Jarman, S., Rogers, M. (2021). The 2020 National Snow Load Study. *Utah State University*. doi:10.26077/200k-pr86.

Ionides, E. L., Wheeler, J. (2024). Review 2: "Efficacy, Public Health Impact and Optimal Use of the Takeda Dengue Vaccine." Rapid Reviews Infectious Diseases. doi:10.1162/2e3983f5.1f0cb1f4.

Conference Presentations

2024 Modelling and inference for pandemic preparedness. Isaac Newton Institute, Cambridge, England.

2024 Michigan Student Symposium for Interdisciplinary Statistical Sciences. Ann Arbor, MI.

2023 Bayes Comp 2023, Satellite Event: Bayesian Inference of Epidemics. Levi, Finland.

2023 Models of Infectious Disease Agent Study (MIDAS) Network Annual Meeting. Atlanta, GA.

2022 JSM 2022. Washington D.C.

2020 National Conference on Undergraduate Research. Online (COVID-19).

2020 USU Student Research Symposium. Logan, UT.

2020 Utah Conference on Undergraduate Research. Logan, UT.

Awards

Best Oral Presentation, MSSIS 2024, University of Michigan. *2024*
Award amount: $200

Rackham Graduate Student Research Grant, University of Michigan *2024*
Award amount: $2500

Honorable Mention NSF GRFP *2022*

Rackham Merit Fellowship, University of Michigan *2020–2025*

Valedictorian, USU College of Science *2020*

URCO Grant, USU *2020*
Award amount: $1000

Teaching

University of Michigan *2020–Present*

Stats 531, *Office hours / Grading*	(Modeling and Analysis of Time Series Data)
Stats 604, *Lab Instructor*	(Statistical Practice)
Summer Math Boot Camp	(Calculus, Linear Algebra, Probability, Computing)
Stats 306, *Lab Instructor*	(Introduction to Statistical Computing)
Tutor, *Master's level Rackham Merit Fellows*	(Probability and Regression)

SISMID (2022). Instructor for a short course on *Simulation based inference for Epidemiological Dynamics* at the Summer Institute in Statistics Modeling in Infectious Diseases (SISMID). University of Washington, Seattle.

Utah State University *2017–2020*

Math 0995, *Recitation Leader* (Remedial Algebra)
Math 1210, *Recitation Leader* (Introductory Calculus)
Math 1220 *Recitation Leader* (Calculus II, sequences and series)
Stats 1040, *Recitation Leader*, (Introductory Statistics, non-Calculus based)

Undergraduate Research Projects Mentored

Weizhe Sun. Model Based Inference of Stochastic Volatility via Iterated Filtering. Honors thesis, 2024.

Zuyuan Han. Signature Methods in Variance Swap Pricing. Honors thesis, 2023.

Bo Yang. Analysis of Panel Data via Mechanistic Models in a PanelPOMP Framework. Honors thesis, 2023.

Kevin Tan and Noah Treutle. On the Transmissibility of Cholera During the 2010–2019 Haiti Cholera Epidemic. Research project, 2022.

Awards

Outstanding Undergraduate Recitation Leader *2019*
USU Mathematics and Statistics Department

Service

Computing Club Committee Member, UM Statistics Department *2022–Present*
Committee Chair *2023–Present*

Peer Reviews: PLOS Computation Biology, Nature Communications, Rapid Reviews Infectious Diseases

President, USU Data Science Club *2019–2020*

Software

Author and maintainer for the R package **arima2**, available on CRAN. As of October 1, 2024, this package has been downloaded more times than 79.7% of all packages on CRAN since it was first published (October 5, 2023).

Primary maintainer of the R package **panelPomp**, available on CRAN.

Core developer of the Python package **pypomp**, available on PyPI.

Contributor to open source R packages **pomp** and **spatPomp**, both available on CRAN.