

JESSE WHEELER

Department of Statistics
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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
Infectious Disease Modeling
Modeling Dynamic Ecological Systems
Statistical Practice and Data Science

Peer Reviewed Publications

- 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., 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
- 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.

Working Papers

Wheeler, J., Ionides, E. L. (2024). Likelihood Based Inference for ARMA models. *arXiv:2310.01198*. *In review*.

Bretó, C., Wheeler, J., King, A., Ionides, E. L. (2024). panelPomp: Analysis of Panel Data via Partially Observed Markov Processes in R. *arXiv:2410.07934*. *In review*.

Wheeler, J., Abkemeier, A. A., Ionides, E. L. (2024). Iterating Marginalized Bayes Maps for Likelihood Maximization. *In preparation*.

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*.

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
Award amount: Three years of PhD student funding.

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)
Workshop *Developing a personal academic website* (Student Seminar Series)
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, Bulletin of Mathematical Biology

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 contributor and current 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.