**JESSE WHEELER**

Assistant Professor
Department of Mathematics and Statistics
Idaho State University
Pocatello, ID 83209

https://jeswheel.github.io/
Email: jessewheeler@isu.edu

# Education

**PhD in Statistics** *2020–2025*
University of Michigan, Ann Arbor, MI.
Thesis Title: "Innovations in Likelihood-Based Inference for State Space Models"
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
Statistical Practice and Data Science
Modeling Dynamic Ecological Systems

## Peer Reviewed Publications

Bretó, C., Wheeler, J., King, A., Ionides, E. L. (2025). panelPomp: Analysis of Panel Data via Partially Observed Markov Processes in R. *arXiv:2410.07934. The R Journal*, to appear.

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 at PLOS ONE.*

Wheeler, J., Abkemeier, A. A., Ionides, E. L. (2025). Iterating Marginalized Bayes Maps for Likelihood Maximization. *In preperation for the Journal of the American Statistical Association.*

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. *Submitted to the Journal of the American Statistical Association, Case Studies.*

## 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 604**, *Lab Instructor* | (Statistical Practice) |
| **Stats 531**, *Office hours / Grading* | (Modeling and Analysis of Time Series Data) |
| **Datasci 415**, *Lab Instructor* | (Introduction to Statistical Learning) |
| **Stats 306**, *Lab Instructor* | (Introduction to Statistical Computing) |
| **Summer Math Boot Camp** | (Calculus, Linear Algebra, Probability, Computing) |
| **Workshop** *Developing a personal academic website* | (Student Seminar Series) |
| **Tutor**, *Master's level Rackham Merit Fellows* | (Probability and Regression) |

**SISMID (2025)**. Instructor for a short course on *Simulation based inference for Epidemiological Dynamics* at the Summer Institute in Statistics Modeling in Infectious Diseases (SISMID). Emory University, Atlanta, Georgia.

**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**

Peter Yang. Applications of Partially Observed Markov Processes with phylogenetic data. Honors thesis, 2025.

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 Graduate Student Instructor Team Award.** *2025*

**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.

## Consulting

Campfire Interactive, time series modeling. *Nov 2024–Jan 2025*