

Shannon Gallagher

Curriculum Vitae

Education

- 2014–2019 **PhD in Statistics and Data Science**, *Carnegie Mellon University*.
- 2014–2015 **MS in Statistics**, *Carnegie Mellon University*.
- 2010–2014 **BS in Mathematical Sciences**, *Carnegie Mellon University*.
University and College Honors

Dissertation

- Expected 2019 "Building a Hybrid Model from Compartment and Agent-based Models." Advisor: William F. Eddy. Committee: Joel Greenhouse, Howard Seltman, Cosma Shalizi, and Samuel L. Ventura.

Publications

- 2017 Gallagher, S., Richardson, L., Ventura, S.L., and Eddy, W.F. "SPEW: Synthetic Populations and Ecosystems of the World." Tentatively accepted to *Journal of Computational and Graphical Statistics*, 2017.
- 2017 Gallagher, S. and Eddy, W.F. "On the stochastic equivalence of compartment and agent-based models." In preparation, 2017.
- 2017 Gallagher, S., Andersen, C., and Eddy, W.F. "21 dubious ways to estimate R_0 ." In preparation, 2017.
- 2017 Gallagher, S. "Comparing compartment and agent-based models." Proposal Document, 2017.
- 2016 Gallagher, S., Eddy, W.F., and Tibshirani, R.J. *Prediction Fever: Modeling Influenza with Regional Effects*. Advanced Data Analysis Report, 2016.

Selected Presentations and Posters

- 2017 Presentation. "Comparing Compartment and Agent-based Models." Advisor: William F. Eddy. Committee: Joel Greenhouse, Howard Seltman, Cosma Shalizi, and Samuel L. Ventura. Joint Statistical Meetings. Baltimore, MD.
- 2017 Invited presentation. "Generating Synthetic Ecosystems: A Tutorial". Joint work with Lee Richardson, Samuel Ventura, and William Eddy. International Conference on Synthetic Populations. Lucca, Italy.
- 2016 Presentation. "Women in Statistics at Carnegie Mellon University." Joint work with Purvasha Chakravarti. Women in Statistics and Data Science. Charlotte, NC.
- 2016 Poster. "Statistical Modelling of Infectious Diseases: Influenza and the 'Next Disease.'" Joint work with Roni Rosenfeld, Ryan Tibshirani, Lee Richardson, Samuel Ventura, and William Eddy. Women in Statistics and Data Science. Charlotte, NC.

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- 2016 Poster. "Services for the MIDAS Network: Visualization and Synthetic Ecosystems." Joint work with Lee Richardson, Samuel Ventura, and William Eddy. MIDAS National Conference. Washington D.C.
- 2016 "From Forecasting the Flu to Predicting the 'Next' Disease." Joint work with Roni Rosenfeld, Ryan Tibshirani, Lee Richardson, Samuel Ventura, and William Eddy. UP-STAT. Buffalo, NY.

Software

- 2016-Present `spew`: R package for synthetic ecosystem generation. Lee Richardson, Shannon Gallagher, Samuel L. Ventura, and William F. Eddy.
- 2017 `spew_d1`: R Shiny application to easily browse our synthetic ecosystems produced by `spew`. Shannon Gallagher, Lee Richardson, Samuel L. Ventura, and William F. Eddy.
- 2016 `spewview`: R Shiny application for infectious disease visualization. Shannon Gallagher and Lee Richardson.

Honors and Awards

- 2016 MIDAS MISSION Public Health Hackathon Champion
- 2016 UP-STAT 2nd Place Student Presentation
- 2014 Gertrude M. Cox Scholarship Honorable Mention; ASA Committee on Women in Statistics and the Caucus for Women in Statistics
- 2014 Judith A. Resnik Award for Outstanding Women in the Sciences; Carnegie Mellon University
- 2013 Phi Beta Kappa Honor Society

Research, Teaching, and Work Experience

- 2014-Present Research Assistant, Carnegie Mellon University. Generated high-resolution synthetic ecosystem of U.S. and 70+ countries for use in agent-based models for transmission of disease
- 2012-Present Teaching Assistant, Carnegie Mellon University. Oversaw lab for 100 students, organized, and led review sessions for a variety of statistics and mathematics classes.
- 2015 Graduate Intern, PNC. Scraped and analyzed social media data for sentiment analysis. Parallelized code with Hadoop.

Programming Languages

R (expert), julia (proficient), Python (intermediate), C++ (intermediate), SQL (some experience), jekyll (some experience)

Professional Service

- 2017-Present President. Carnegie Mellon University Women in Statistics. Organized a panel about applying to graduate school for 30+ undergraduate and masters students. Organized a seminar by a former PhD student about her experiences as a post-doc at Harvard Biostatistics. Organized dinner with new dean of Mellon College of Science.
- 2016-Present Co-organizer. Pittsburgh useR. Organized meet-ups for 30+ members on a variety of topics including cross-language coding and integrating R with github.
- 2016-Present Judge and volunteer. Tartan Data Science Cup – 4 to date.
- 2016-2017 Vice President. Carnegie Mellon University Women in Statistics
- 2016 Presenter. Coding for Girls.

Relevant Course Work

- Machine Learning I & II
- Statistical Computing
- Modern Regression
- Hierarchical Models
- Multivariate Methods & Data Mining
- Data Matching and Record Linkage
- Advanced Methods for Data Analysis
- Epidemiology