

Shannon Gallagher

STATISTICIAN · PH.D.

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Current

National Institute of Allergy and Infectious Diseases

BIostatistics Research Branch | Department of Clinical Research

Post-Doctoral Fellow

Rockville, MD

2019-2021

Education

Carnegie Mellon University

PH.D. IN STATISTICS

M.S. IN STATISTICS

B.S. IN MATHEMATICAL SCIENCES

Dissertation: "Catalyst: agents of change. Integration of compartment and agent-based models for use in infectious disease methodology"

Advisor: William F. Eddy

Pittsburgh, PA

2014-2019

2014-2015

2010-2014

Selected Publications and Reports

Faye, M. and **Gallagher, S.** "Developing a statistical Loewe's synergy model." In preparation, 2019.

Gallagher, S. and Leroy, B. "Visualizing SIR models via ternary plots." In preparation, 2019.

Gallagher, S. "An agent-based model approach to the measles outbreak in Hagelloch Germany, 1861." In preparation, 2019.

Gallagher, S., Chang, A., Eddy, W.F.. "Nine ways to estimate R_0 in the SIR model." Submitted, 2019.

Gallagher, S., Frisoli K., and Luby, A. "Opening up the court (surface) in tennis grand slams." Accepted with major revisions to *Journal of Quantitative Analysis in Sports*, 2019.

Gallagher, S., Richardson L.F., Ventura S.L., and Eddy, W.F.. "SPEW: Synthetic Populations and Ecosystems of the World." *Journal of Computational and Graphical Statistics*, 2018.

Selected Presentations and Posters

Dissertation Defense

PRESENTATION

"Catalyst: agents of change. Integration of compartment and agent-based models for use in infectious disease epidemiology."

Pittsburgh, PA

July 2019

Carnegie Mellon Sports Analytics Conference

PRESENTATION – HONORABLE MENTION

"Opening up the (court) surface in tennis grand slams." Joint work with Kayla Frisoli and Amanda Luby.

Pittsburgh, PA

October 2018

International Conference on Synthetic Populations

PRESENTATION – INVITED SPEAKER

"Generating Synthetic Ecosystems: A Tutorial" Joint work with Lee Richardson, Samuel Ventura, and William Eddy.

Lucca, Italy

February 2017

MIDAS National Conference

PRESENTATION

"Services for the MIDAS Network: Visualization and Synthetic Ecosystems." Joint work with Lee Richardson, Samuel Ventura, and William Eddy.

Washington D.C.

May 2016

UP-STAT

PRESENTATION – 2ND PLACE

"From forecasting the Flu to Predicting the 'Next' Disease." Joint work with Roni Rosenfeld, Ryan Tibshirani, Lee Richardson, Samuel Ventura, and William Eddy.

Buffalo, NY

March 2016

Honors & Awards

2018	Honorable Mention , Carnegie Mellon University Sports Analytics Conference Reproducible Paper Competition. \$1,000 award.	Pittsburgh, PA
2018, 2014	Honorable Mention , Gertrude M. Cox Scholarship. ASA Committee on Women in Statistics and the Caucus for Women in Statistics.	
2018	Scholarship Recipient , Summer Institute in Statistics and Modeling. Tuition and travel stipend.	Seattle, WA
2017	Selected Presenter , AT&T Labs Graduate Student Symposium. One of fourteen PhD students out of 79 applicants selected. Awarded \$800 in travel funding	New York, NY
2016	Hackathon Champion , MIDAS MISSION Public Health Hackathon. Awarded \$3,000 prize.	Pittsburgh, PA
2016	2nd place , Student presentation at UP-STAT conference.	Buffalo, NY
2014	Judith A. Resnik Award for Outstanding Women in the Sciences , Carnegie Mellon University	Pittsburgh, PA
2013	Phi Beta Kappa Honor Society , Fall induction.	Pittsburgh, PA

Software

2019	timeternR , Gallagher, S. and Leroy, B.. Software for simulation and analysis of disease data via ternary plots. Available at www.github.com/shannong19/timeternR .
2019	catalyst , Gallagher, S. Software for simulation, testing, and analysis of compartment and agent-based models. Available at www.github.com/shannong19/catalyst .
2018	spew , Richardson L., Gallagher, S. , Ventura, S., and Eddy, W.F.. R package for synthetic ecosystem generation. Available at www.github.com/lrichardson/spew .
2016	spewview , Gallagher, S. and Richardson L.. R Shiny application for infectious disease visualization. Available at www.github.com/shannong19/hackathon .

Research, Teaching, and Work Experience

Carnegie Mellon University

Pittsburgh, PA

RESEARCH AND TEACHING ASSISTANT

2014-2019

- Developed and presented material for the Summer Undergraduate Research Experience in Statistics.
- Generated high-resolution synthetic ecosystem of the U.S. and 70+ countries for use in agent-based models for transmission of disease.
- Oversaw lab for 100 students, organized and led review sessions for a variety of statistics and mathematics classes including Epidemiology, Statistical Computing, Intro to Probability, Advanced Undergraduate Research, Concepts of Mathematics, and Multi-dimensional Calculus.

PNC

Pittsburgh, PA

GRADUATE INTERN

2015

- Scraped and analyzed social media data for sentiment analysis.
- Parallelized code via Hadoop

Professional Service

2018-2019	PI , ProSeed/Crosswalk recipient for \$1600 to seed a mentorship program across all levels of students within the Stat&DS community.
	President , Carnegie Mellon University Women in Statistics. <ul style="list-style-type: none">• Organized Women in Data Science Pittsburgh @CMU as an Executive Committee Member. Invited speakers and sponsors, helped organize venue logistics, sent out invitations for attendance, and created the 2018 website.
2018-2019	<ul style="list-style-type: none">• Maintained the Women in Statistics Website from 2017-2018.• Organized a seminar by former PhD student about her experiences as a post-doc at Harvard Biostatistics (2017).• Organized a panel about applying to graduate school for 30+ undergraduate and masters students (2016).• Organized dinner with new dean of Mellon College of Science (2016).
2016-PRESENT	Reviewer , Statistics in Medicine and Journal of Quantitative Analysis in Sports
2016-2018	Co-Organizer , Pittsburgh useR. Organized meet-ups for 30+ members on a variety of topics including cross-language coding and integrating R with <code>github</code> .
2016-2017	Judge and volunteer , Tartan Data Science Cup - three separate events.
2016-2017	Vice President , CMU Women in Statistics.
2016	Presenter , Coding for Girls

Relevant Course Work

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

Volunteering

Family House

VOLUNTEER

2016-2019

Made meals for families with members in the hospital approximately every other month

Stat Help Network

VOLUNTEER

2016-2019

Held anonymous “office hours” for graduate students within the Statistics & Data Science Dept. in order to support students.