Samantha Roth

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EDUCATION:

The Pennsylvania State University: State College, PA — Expected August 2024
Doctor of Philosophy in Statistics
Advisor: Murali Haran

Lehigh University: Bethlehem, PA — May 2019
Bachelor of Science in Statistics, with Highest Honors — Cumulative GPA: 3.82

HONORS AND AWARDS:

2023-2024: Jack and Eleanor Pettit Scholarship in Science
2022-2023: J. Keith Ord Scholarship for Research in Spatial and Environmental Statistics
2019- 2024: Janet L. Norwood Science Achievement Graduate Fellowship in Statistics
2019- 2021: Institute for Computation and Data Science Scholarship
2019: Verne M. Willaman Distinguished Graduate Fellowship in the Eberly College of Science

RESEARCH INTERESTS:

Computer model calibration, uncertainty quantification, Markov chain Monte Carlo algorithms, environmental statistics, spatial/spatiotemporal statistics, climate science, high performance computing

PUBLICATIONS:

Roth, S. M., Lee, B. S., Sharma, S., Hosseini-Shakib, I., Keller, K., & Haran, M. (2023). Flood hazard model calibration using multiresolution model output. Environmetrics, 34(2), e2769. https://doi.org/10.1002/env.2769

Ye, H., Nicholas, R.E., Roth, S.M., & Keller, K. (2021). Considering uncertainties expands the lower tail of maize yield projections. PLoS ONE 16(11): e0259180. https://doi.org/10.1371/journal.pone.0259180

PAPERS UNDER-REVIEW/REVISION:

Roth, S.M., Lee, B.S., Nicholas, R.E., Keller, K., & Haran, M. (2023) Bayesian spatial models for projecting corn yield. Remote Sensing. Under Revision

MANUSCRIPTS IN IN PREPARATION:

Roth, S.M., Sharma, S., Alipour, A., Keller, K., & Haran, M. (TBA) Statistically approximating a computationally demanding flood model. In Preparation.

PRESENTATIONS:

Statistically approximating a computationally demanding flood model
- Talk, Spatial Statistics 2023, Boulder, CO, USA, July 2023

Flood hazard model calibration using multiresolution model output
- Poster, Penn State Climate Solutions Symposium, State College, PA, May 2023

- Poster, Rao Prize Conference at The Pennsylvania State University, State College, PA, May 2023
- Talk, Muhlenberg College Department of Mathematics Colloquium, Allentown, PA, April 2023
- Poster, Institute for Computational and Data Sciences Symposium, State College, PA, October 2022
- Poster, American Geophysical Union Fall Meeting 2022, Chicago, IL, USA, December 2022
- Talk, Joint Statistical Meetings, Washington, DC, USA, August 2022
- Poster, World Meeting of The International Society for Bayesian Analysis, Montreal, QC, Canada, June-July 2022

A Bayesian Spatial Model for Corn Yield
- Talk, Institute for Computational and Data Sciences Symposium, State College, PA, October 2021

Predicting Regional Suitability for Zika Outbreaks: A Comparative Statistical Study
- Poster, Society for Mathematical Biology Annual Meeting, Montreal, QC, Canada, July 2019

TEACHING EXPERIENCE:

Graduate Instructor, The Pennsylvania State University
- STAT415: Introduction to Mathematical Statistics, Summer 2023
- STAT200: Elementary Statistics, Summer 2022

Undergraduate Grader, Lehigh University
- MATH263: Introduction to the Theory of Probability, Fall 2018
- MATH342: Linear Algebra, Fall 2017

RESEARCH EXPERIENCE:

Graduate Research Assistant, The Pennsylvania State University Department of Statistics
Fall 2022-Current

Statistical Project, Lehigh University Department of Mathematics: Bethlehem, PA
August 2018- December 2018

Maryland Sea Grant REU Program, University of Maryland Center for Environmental Science
May 2018-Aug.2018

WORK EXPERIENCE:

Intern, NextGen America: Bethlehem, PA
September 2017-May 2018

Extern, Janssen Research & Development: Malvern & Springhouse, PA
January 2017

EXTRACURRICULAR ACIVITIES:

Treasurer, Institute for Computational and Data Sciences Student Group
September 2022-August 2023

President, Institute for Computational and Data Sciences Student Group
September 2021-August 2022

Treasurer, Statistics Graduate Student Association at The Pennsylvania State University
September 2021-August 2022

President, Green Action at Lehigh University: Bethlehem, PA

May 2018-May 2019

Eco-Rep, Eco-Reps Leadership Program at Lehigh University: Bethlehem, PA
Fall 2016-Spring 2018

Editing Staff, Lehigh Review at Lehigh University: Bethlehem, PA
Spring 2017

VOLUNTEER EXPERIENCE:

Flood Resilience Fest, Selinsgrove, PA, May 2022
American Statistical Association Data Fest at Penn State, State College, PA, March 2022

SKILLS:

Experience with programming in R, Python, MATLAB, and Java
Experience with data analysis using both STATA and SAS
Experience with database manipulation in SQL
Experence with manipulating spatial data in ArcGIS