Samantha Roth

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WORK EXPERIENCE:

Postdoctoral Research Associate, Thayer School of Engineering at Dartmouth College   2024-Present
Mentor: Klaus Keller

EDUCATION:

The Pennsylvania State University: State College, PA   2019-2024
Doctor of Philosophy in Statistics
Advisor: Murali Haran

Lehigh University: Bethlehem, PA   2015-2019
Bachelor of Science in Statistics, with Highest Honors   Cumulative GPA: 3.82

HONORS AND AWARDS:
2024: SIAM Conference on Uncertainty Quantification Travel Award
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, statistical downscaling, environmental statistics, spatial/spatiotemporal statistics, climate science, high performance computing

PUBLICATIONS:

Roth, S.M., Lee, B.S., Nicholas, R.E., Keller, K., & Haran, M. (2024) Bayesian spatial models for projecting corn yield. Remote Sensing. 16(1): 69. https://doi.org/10.3390/rs16010069.

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 IN IN PREPARATION:

Roth, S.M., Sharma, S., Alipour, A., Keller, K., & Haran, M. (TBA) Probabilistic Flood Model Downscaling. In Preparation.

Roth, S.M., Nicholas, R.E., Keller, K., & Haran, M. (TBA) Impact-driven climate projection adjustment. In Preparation.

Pollack, A., Campbell, J.E., Condon, M., Cooper, C., Coronese, M., Doss-Gollin, J., Hedge, P., Helgeson, C., Lesk, C., Mankin, J., Mayfield, E., Nicholas, R.E., **Roth, S.M.**, Srikrishnan, V., Tuana, N., & Keller, K. Peer-reviewed climate

change research has a transparency problem. The scientific community needs to do better. Preprint:

PRESENTATIONS:

Probabilistic Downscaling for Flood Models
- Talk, Society for Industrial and Applied Mathematics Conference on Uncertainty Quantification 2024, Trieste, Italy, 2024

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

Flood hazard model calibration using multiresolution model output
- Poster, Penn State Climate Solutions Symposium, State College, PA, 2023
- Poster, Rao Prize Conference at The Pennsylvania State University, State College, PA, 2023
- Talk, Muhlenberg College Department of Mathematics Colloquium, Allentown, PA, 2023
- Poster, Institute for Computational and Data Sciences Symposium, State College, PA, 2022
- Poster, American Geophysical Union Fall Meeting 2022, Chicago, IL, USA, 2022
- Talk, Joint Statistical Meetings, Washington, DC, USA, 2022
- Poster, World Meeting of The International Society for Bayesian Analysis, Montreal, QC, Canada, 2022

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

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

TEACHING EXPERIENCE:

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

RESEARCH EXPERIENCE:

Graduate Research Assistant, The Pennsylvania State University Department of Statistics   2022-2024

Maryland Sea Grant REU Program, University of Maryland Center for Environmental Science   2018

SERVICE:

Flood Resilience Fest, Selinsgrove, PA, May 2022
American Statistical Association Data Fest at Penn State, State College, PA, March 2022
Undergraduate Women in Science Grad School 101 Panel, State College, PA, November 2023

EXTRACURRICULAR ACTIVITIES:

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

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

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

SKILLS: Skilled with R and Stan; experience with Python, ArcGIS, and SQL