

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., Auermueller, L., Burleyson, C., Campbell, J.E., Condon, M., Cooper, C., Coronese, M., Dangendorf, S., Doss-Gollin, J., Hedge, P., Helgeson, C., Kopp, R., Kwakkel, J., Leaf, A., Lesk, C., Mankin, J., Mayfield, E., Nicholas,

R.E., Rice, J., **Roth, S.M.**, Scheeler, M., Srikrishnan, V., Tuana, N., Vernon, C., Zhao, M., & Keller, K. Investing in transparency and transferability for more useful and equitable climate-risk research.

PRESENTATIONS:

Probabilistic Downscaling for Flood Hazard Models

- Invited Talk, Society for Industrial and Applied Mathematics Conference on Uncertainty Quantification 2024, Trieste, Italy, 2024
- Talk, DOE's Earth and Environmental Systems Modeling Program Principal Investigator's Meeting, Rockville, MD, USA, 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, USA, 2023
- Poster, Rao Prize Conference at The Pennsylvania State University, State College, PA, USA, 2023
- Invited Talk, Muhlenberg College Department of Mathematics Colloquium, Allentown, PA, USA, 2023
- Poster, Institute for Computational and Data Sciences Symposium, State College, PA, USA, 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, USA, 2022
- American Statistical Association Data Fest at Penn State, State College, PA, USA, 2022
- Undergraduate Women in Science Grad School 101 Panel, State College, PA, USA, 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