Elizabeth W. **Eisenhauer**

Email: eisenhauer@psu.edu | **Phone:** 609.247.8104 | **Website:** sites.psu.edu/eisenhauer

EDUCATION

PENNSYLVANIA STATE UNIVERSITY **University Park, PA**
Ph.D. in Statistics, GPA 3.84 / 4.00 2017 – August 2022 (Expected)

- **Dissertation:** Advances in Stochastic Models for Animal Movement and Assessment of Probability Attitudes
- **Co-Advisors:** Ephraim Hanks and Matthew Beckman

THE COLLEGE OF NEW JERSEY **Ewing, NJ**
B.A. in Mathematics with a Statistics specialization, GPA 3.77 / 4.00 2013 – 2017

- **Honors Thesis:** Structural Equation Modeling of Signaling Networks in Head and Neck Squamous Cell Carcinoma
- **Advisor:** Michael Ochs
- **Honors:** *magna cum laude*, Departmental Honors, Phi Beta Kappa, Pi Mu Epsilon Mathematics Honor Society

PEER-REVIEWED PUBLICATIONS

- **Eisenhauer, Elizabeth**, Ephraim Hanks, Matthew Beckman, Robert Murphy, Tricia Miller, and Todd Katzner. "A Flexible Movement Model for Partially Migrating Species. " *Spatial Statistics* (2022): 100637.
- Wijeyakulasuriya, Dhanushi A., **Elizabeth W. Eisenhauer**, Benjamin A. Shaby, and Ephraim M. Hanks. "Machine learning for modeling animal movement." *PloS one* 15.7 (2020): e0235750.
- **Eisenhauer, Elizabeth**, and Ephraim Hanks. "A lattice and random intermediate point sampling design for animal movement." *Environmetrics* (2020): e2618.

RESEARCH EXPERIENCE

PENNSYLVANIA STATE UNIVERSITY **University Park, PA**
Graduate Researcher 2018 – present

- **Project 1:** Proposed a novel sampling design called lattice and random intermediate points (LARI) for animal movement data inspired by an existing sampling design in geostatistics. Compared LARI and regular samples in a stochastic differential equation model framework with three examples: (1) a carpenter ant dataset estimating spline representations of potential and motility surfaces; (2) guppy dataset with regression; (3) a simulated example using Bayesian analysis. All analyses performed in R.
- **Project 2:** Proposed a flexible model for a partially migrating species, demonstrated using yearly paths for golden eagles. Compared our proposed approach using varying coefficients to a latent-state model, which we define differently for migrating, dispersing, and local individuals. All models rely on a time-varying potential surface defined by several attractors. Analyses in R and Stan.
- **Project 3:** Developed the Survey of Probability Attitudes (SPA) to measure students' attitudes toward probability. Obtained Penn State IRB exempt status. Administered the pre and post SPA in 20 Penn State course sections in Spring 2021 through collaboration with 15 instructors. Analyses in R.

THE COLLEGE OF NEW JERSEY **Ewing, NJ**
Undergraduate Researcher 2016 – 2017

- Creation of structural equations and graphical models to understand the limits of learnability of cell signaling networks based on high-throughput biological measurements with a focus on cell signaling networks in head and neck squamous cell carcinoma.

ADVISING EXPERIENCE

PENNSYLVANIA STATE UNIVERSITY **University Park, PA**
Research Advisor May – December 2021

- Co-advised an undergraduate researcher with Dr. Ephraim Hanks via weekly meetings
- The project involved archetypal analysis of yearly golden eagle movement data to identify dominant movement patterns and assess consistency of movement behavior across years for the same individual

TEACHING EXPERIENCE

PENNSYLVANIA STATE UNIVERSITY **University Park, PA**

Instructor of Record

- STAT 401: Experimental Methods (In Person & Online, 52-56 students) Spring & Fall 2021
- STAT 200: Elementary Statistics (Online, 24-34 students) Summer 2020 & 2021
- MATH/STAT 318: Elementary Probability (In Person & Online, 58-69 students) Fall 2019, Spring & Fall 2020

Lab Instructor

- STAT 200: Elementary Statistics (In Person, >50 students) Fall 2018

PROFESSIONAL EXPERIENCE

PENNSYLVANIA STATE UNIVERSITY CONSULTING CENTER **University Park, PA**

Statistical Consultant Spring 2021

- Advised clients from a variety of research fields on appropriate statistical methods and participated in weekly discussions with other graduate consultants

TERRACYCLE, INC. **Ewing, NJ**

Operations Intern 2015 – 2016

- Analyzed shipping operations through manipulation of Excel spreadsheets
- Improved zero-waste office collection program

THE COLLEGE OF NEW JERSEY OFFICE OF STUDENT ACTIVITIES **Ewing, NJ**

Graphic Designer 2014 – 2016

- Consulted with faculty and student organizations on how best to meet their design goals
- Completed individual graphic design projects and packages (logos, posters, t-shirt designs, and murals)

THE RAINBIRD FOUNDATION **Madison, WI**

Statistics Project Manager 2014 – 2015

- Compiled a national child abuse database through collaboration with state agencies

SELECTED AWARDS & HONORS

WINNER OF HARKNESS AWARD 2021
For showing excellence in teaching | Pennsylvania State University Department of Statistics

UNDERGRADUATE RESEARCH SUPPORT FOR ADVISEE 2021
Office of Science Engagement, Eberly College of Science, Pennsylvania State University | $1,000

STUDENT AWARD FOR ORAL PRESENTATION (2ND PLACE) 2021
Modeling Yearly Patterns in Golden Eagle Movement | EURING Analytical Meeting & Workshop | $481

RUNNER-UP FOR HARKNESS AWARD 2020
For showing excellence in teaching | Pennsylvania State University Department of Statistics

STUDENT PRIZE FOR CONTRIBUTED TALK 2020
A Lattice and Random Intermediate Point Sampling Design for Animal Movement | vISEC

VOLLMER-KLECKNER SCHOLARSHIP IN SCIENCE 2018 – 2019
Pennsylvania State University | $ 28,750

DISTINGUISHED GRADUATE FELLOWSHIP 2017 – 2018
Pennsylvania State University | $ 28,750

SAS CERTIFIED BASE PROGRAMMER FOR SAS 9 2015
SAS Institute

TRAVEL AWARDS

STUDENT & EARLY CAREER FUNDING AWARD 2020
Symposium on Data Science and Statistics (SDSS) | $185

TRAVEL FUNDING BY STATMOS GRANT 2019
STATMOS Spatial Statistics Workshop | $478

TRAVEL FUNDING BY NSF GRANT 2018
American Statistical Association's Statistics for the Environment (ENVR) Workshop | $1,000

LEADERSHIP & PROFESSIONAL SERVICE

PENN STATE STATISTICS DEPARTMENT CLIMATE AND DIVERSITY COMMITTEE
Committee Member 2019 – present
- Collaborated with departmental leadership to develop and deploy departmental climate survey
- Distributed resources and encouraged difficult conversations within the department on issues of diversity, equity, and inclusion
- Held community-building departmental events such as virtual game night

METHODS IN ECOLOGY AND EVOLUTION
Reviewer 2021 & 2022

JOURNAL OF AGRICULTURAL, BIOLOGICAL, AND ENVIRONMENTAL STATISTICS
Reviewer 2020

PENN STATE SCIENCE POLICY SOCIETY
Executive Chair 2019 – 2020
- Helped organize, publicize, and host monthly science on tap events at a local restaurant featuring researchers who discussed their work with attendees in a friendly setting
- Worked collaboratively with other graduate students to write and submit public comments

PENN STATE STATISTICS GRADUATE STUDENT ASSOCIATION
Wellness Chair 2018 – 2019
- Organized yoga sessions for department members one or two days a week

TCNJ ENVIRONMENTAL CLUB
President 2016 – 2017
- Led weekly meetings and organized events such as weekly campus clean-ups, educational film screenings, and recycling presentations

Secretary 2015 – 2016
- Sent weekly reminders and meeting minutes

TCNJ VEG LIFE CLUB
Vice President & Co-Founder 2016 – 2017
- Co-founded an official campus club for students interested in vegetarian and vegan food

SELECTED PRESENTATIONS

INVITED PRESENTATIONS
Guest lecture for STAT 592 (Teaching Statistics) at Penn State 2020
Pennsylvania State University Probability and Financial Mathematics Seminar 2020
Muhlenberg College Math/CS Colloquium Series 2020
Hawk Mountain Sanctuary Seminar 2019

CONTRIBUTED PRESENTATIONS
Joint Statistical Meeting (JSM) 2021
EURING Analytical Meeting & Workshop 2021
Joint Statistical Meeting (JSM) 2020
Virtual International Statistical Ecology Conference 2020
Pennsylvania State University Statistics Department SMAC Talk 2020
Joint Statistical Meeting (JSM) 2019

TECHNICAL SKILLS

- **Computer Programming:** Advanced in R (tidyverse and base R), Stan, Git, GitHub, & Latex; Exposed to MATLAB, SAS, C++, HTML, & CSS
- **Software**: Adobe Creative Suite, Microsoft Office Suite, Keynote, SPSS, & Minitab