Elizabeth W. **Eisenhauer**

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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.
- **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.
- **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.

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, 52 students) Fall 2021
- STAT 401: Experimental Methods (Online, 56 students) Spring 2021
- STAT 200: Elementary Statistics (Online, 24 students) Summer 2021
- STAT 200: Elementary Statistics (Online, 34 students) Summer 2020
- MATH/STAT 318: Elementary Probability (Online, 58 students) Fall 2020
- MATH/STAT 318: Elementary Probability (In Person and Online, 69 students) Spring 2020
- MATH/STAT 318: Elementary Probability (In Person, 68 students) Fall 2019

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 consultants in a graduate course

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

AWARDS & HONORS

WINNER OF HARKNESS AWARD 2021

For outstanding efforts in teaching and scholarly approaches to teaching and learning, especially at the 300 level.

Pennsylvania State University Department of Statistics

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 as well as innovation in developing an assessment of student attitudes toward probability.

Pennsylvania State University Department of Statistics

STUDENT PRIZE FOR CONTRIBUTED TALK 2020

A Lattice and Random Intermediate Point Sampling Design for Animal Movement

Virtual International Statistical Ecology Conference (vISEC)

GRADUATE STUDENT ONLINE TEACHING CERTIFICATE 2019

Penn State World Campus

SAS CERTIFIED BASE PROGRAMMER FOR SAS 9 2015

SAS Institute

FELLOWSHIPS

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

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

TRAVEL AWARDS

STUDENT & EARLY CAREER FUNDING AWARD 2020
A Lattice and Random Intermediate Point Sampling Design for Animal Movement
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

RESEARCH FUNDING

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

PRESENTATIONS

INVITED PRESENTATIONS

Guest lecture for STAT 592 (Teaching Statistics) at Penn State 2020
- **Topic:** Implementing the 2016 GAISE Guidelines

Pennsylvania State University Probability and Financial Mathematics Seminar 2020
- **Topic:** Modeling COVID-19 with an SIR model accounting for temperature

Muhlenberg College Math/CS Colloquium Series 2020
- **Topic:** A lattice and random intermediate point sampling design for animal movement

Hawk Mountain Sanctuary Seminar 2019
- **Topic:** A lattice and random intermediate point sampling design for animal movement

CONTRIBUTED PRESENTATIONS

Joint Statistical Meeting (JSM) 2021
- **Topic:** Survey of Probability Attitudes

EURING Analytical Meeting & Workshop 2021
- **Topic:** Modeling yearly patterns in golden eagle movement

Joint Statistical Meeting (JSM) 2020
- **Topic:** Modeling migratory and residential movement of golden eagles

Virtual International Statistical Ecology Conference 2020
- **Topic:** A lattice and random intermediate point sampling design for animal movement

Pennsylvania State University Statistics Department SMAC Talk 2020
- **Topic:** A lattice and random intermediate point sampling design for animal movement

Joint Statistical Meeting (JSM) 2019
- **Topic:** An irregular sampling design for animal movement.

POSTER PRESENTATIONS

United States Conference on Teaching Statistics (USCOTS) 2021
- **Topic:** Survey of Probability Attitudes

Symposium on Data Science and Statistics (SDSS) 2020
- **Topic:** A lattice and random intermediate point sampling design for animal movement

Rao Prize Conference 2019
- **Topic:** Comparing sampling designs for carpenter ant movement data

American Statistical Association's Statistics for the Environment (ENVR) Workshop 2018
- **Topic:** Optimal sampling schemes for animal movement modeling

TCNJ Celebration of Student Achievement Poster Session 2017
- **Topic:** Structural equation modeling of protein signaling networks in Head and Neck Squamous Cell Carcinoma

Eastern North American Region (ENAR) International Biometric Society Spring Meeting 2017
- **Topic:** Structural equation modeling of protein signaling networks in Head and Neck Squamous Cell Carcinoma

TCNJ Mentored Undergraduate Summer Experience Poster Session 2016
- **Topic:** Structural equation modeling of protein signaling networks in Head and Neck Squamous Cell Carcinoma

WORKSHOP & CONFERENCE ATTENDENCE

International Association for Statistical Education (IASE) Satellite Conference 2021
Electronic Conference on Teaching Statistics (eCOTS) 2020
Preparing for Careers in Teaching Statistics and Data Science Workshop 2020
STATMOS Spatial Statistics Workshop 2019
United States Conference on Teaching Statistics (USCOTS) 2019
5th Annual Summer School on Sustainable Climate Risk Management 2017

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