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. 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](https://sites.psu.edu/eisenhauer/teaching/) (In Person & Online, 52-56 students) Spring & Fall 2021
* [STAT 200: Elementary Statistics](https://sites.psu.edu/eisenhauer/teaching/) (Online, 24-34 students) Summer 2020 & 2021
* [MATH/STAT 318: Elementary Probability](https://sites.psu.edu/eisenhauer/teaching/) (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](https://sites.psu.edu/eisenhauer/2020/06/30/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