Hannah Correia

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https://hannahcorreia.github.io | github.com/hannahcorreia

EDUCATION

PHD IN BIOLOGY
Auburn University
August 2019 | Auburn, Alabama, USA
"Modeling complex climate change effects on fluctuating populations of fish communities in the Northern Pacific Ocean"

MS IN STATISTICS
Auburn University
August 2016 | Auburn, Alabama, USA
"Rank-based estimation for generalized additive models"

BA IN MATHEMATICS AND BIOLOGY
Huntingdon College
May 2011 | Montgomery, Alabama, USA

GRANTS, AWARDS, & HONORS

- USDA NIFA Grant | 2023-25
- NSF GRFP Fellowship | 2015-19
- NSF GROW Additional Funding (Norway) | 2017-18
- ESA Katherine S. McCarter Graduate Student Policy Award | 2019
- Auburn University COSAM Dean's Research Award | Spring 2019
- AU COSAM Travel Grant | Fall 2018

SKILLS

PROGRAMMING
Proficient:
R • Python • LaTeX • CSS • HTML
Familiar:
Google Earth Engine • JavaScript • Shell • Fortran • C++ • Sage • SAS

SELECT TRAINING & CONFERENCES

2023
- Causal Inference in Ecology Workshop at Johns Hopkins University

2022
- The Inclusive STEM Teaching Project
- Harvard Career Catalyst Program
- Harvard Catalyst Course: NIH Funding: Navigating the R01 and K Grant Submission Process

2021
- OTS Course: Google Earth Engine for Ecology and Conservation
- Columbia University Environmental Justice Boot Camp
- Columbia University Causal Mediation Analysis Training

2019
- Harvard Summer Short Course: An Introduction to Causal Inference

2016
- Workshop on Infusing Data-Enabled Active Learning in Mathematics and Statistics Courses

APPOINTMENTS & EXPERIENCE

JOHNS HOPKINS UNIVERSITY
Postdoctoral Fellow
September 2022 – Present | Baltimore, Maryland, USA
Developing causal inference methods for natural and coupled human-natural systems, and modeling and estimating effects of behavioral changes in agri-environmental systems (with Paul Ferraro).

HARVARD UNIVERSITY DATA SCIENCE INITIATIVE HARVARD TH CHAN SCHOOL OF PUBLIC HEALTH
Postdoctoral Fellow
September 2019 – August 2022 | Cambridge, Massachusetts, USA
Developed and applied causal analysis methods for detecting and quantifying multiple causal influences in dynamic, nonlinear ecological systems (with Francesca Dominici).

AUBURN UNIVERSITY DEPT. OF BIOLOGICAL SCIENCES
NSF Graduate Research Fellow
May 2015 – August 2019 | Auburn, Alabama, USA
Developed novel statistical methods for ecological data. Improved and applied complex statistical techniques to fisheries data to explain interactions and quantify trends in fish population dynamics (with Prof F. Stephen Dobson).

NORWEGIAN INSTITUTE FOR NATURE RESEARCH
NSF Visiting Graduate Research Fellow
August 2017 – February 2018 | Tromsø, Norway
Conducted original research on the effects of climate change on semi-domesticated reindeer in Norway.

MASAMU ADVANCED STUDY INSTITUTE (MASI) AND WORKSHOPS IN MATHEMATICAL SCIENCES
Researcher
2023 - Pretoria, South Africa | 2022 - Maputo, Mozambique | 2021 - Virtual | 2020 - Virtual | 2019 - Blantyre, Malawi | 2018 - Palapye, Botswana | 2017 - Arusha, Tanzania | 2015 - Windhoek, Namibia | 2014 - Victoria Falls, Zimbabwe
Leading research working group in statistics (machine learning and causal inference) since 2020. Working with members of the Auburn University Department of Mathematics and Statistics to further research in statistics and mathematical biology in southern Africa.

SELECT RECENT PUBLICATIONS

Dobson, F. S., **Correia, H. E.**, Abebe, A. (2024) How much multiple paternity should we expect? A study of birds and contrast with mammals. *Ecology & Evolution*. Forthcoming.

Correia HE, Stien A, Tveraa T, Yoccoz N. (2022) Nonlinear spatial and temporal decomposition provides insight for climate change effects on sub-Arctic herbivore populations. *Oecologia*. 198:889–904.

Correia, H. E., Abebe, A. (2022) Capturing spatio-temporal dynamics of Alaskan groundfish catch using rank estimation for varying coefficient models. *Journal of Applied Statistics*. 49:8, 2137-2156.

Otlaadisa M, Bindele HF, Abebe A, **Correia HE**. (2022) Varying coefficient single-index regression model with missing responses under rank-based modeling. *Journal of Nonparametric Statistics*.

Buley, R., **Correia, H. E.**, Abebe, A., Issa, T. B., Wilson, A. E. (2021) Predicting microcystin occurrence in freshwater lakes and reservoirs: assessing environmental variables. *Inland Waters*. 11(3): 430–444.

Correia, H. E. (2021). Selecting environmental covariates related to adult groundfish catches and weights in the Gulf of Alaska. *Scientific Reports* 11, 9949.

Correia, H. E., Abebe, A. (2021) Regularised rank quasi-likelihood estimation for generalised additive models. *Journal of Nonparametric Statistics*. 33(1).

Levy, B., **Correia, H. E.**, Chirove, F., Ronoh, M., Abebe, A., Kgosimore, M., Chimbola, O., Machingauta, M. H., Lenhart, S., White, K. A. J.(2021) Modelling the effect of HIV/AIDS stigma on HIV infection dynamics in Kenya. *Bulletin of Mathematical Biology*. 83(55).

Sun, W., Bindele, H. F., Abebe, A., **Correia, H. E.** (2021) Robust functional selection for the single-index varying coefficients regression model. *Journal of Statistical Computation and Simulation*. 91(8). 1681–1697.

A complete list of publications can be found on my personal website or my Google Scholar page.