Hannah Correia

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https://hannahcorreia.github.io

EDUCATION

AUBURN UNIVERSITY

PhD in Biology
July 2019 | Auburn, Alabama, USA
"Modeling complex climate change effects on fluctuating populations of fish communities in the Northern Pacific Ocean."

MS in Statistics
August 2016 | Auburn, Alabama, USA

HUNTINGDON COLLEGE

BA in Mathematics and Biology
May 2011 | Montgomery, Alabama, USA

GRANTS, AWARDS, & HONORS

- NSF GRFP Fellowship | 2015-19
- NSF GROW Additional Funding | 2017-18
- ESA Katherine S. McCarter Graduate Student Policy Award | 2019
- AU COSAM Dean's Research Award | Spring 2019
- AU COSAM Travel Grant | Fall 2018
- DoD SMART Scholarship | 2015 (declined)

COURSEWORK

GRADUATE

Quantitative Methods for Biological Data
Longitudinal Data Analysis
Applied Multivariate Statistical Analysis
Statistical Theory & Methods
Experimental Statistics

SKILLS

PROGRAMMING

Proficient:
R • LaTeX• CSS • HTML
Familiar:
Shell • Python • Fortran • C++ • Sage • SAS

CONFERENCES & WORKSHOPS

2018

- 2018 Joint Statistical Meetings
- 2018 ESA Annual Meeting

2017

- 2017 SAMSA Annual Conference
- 2017 Joint Statistical Meetings

2016

- Workshop on Infusing Data-Enabled Active Learning in Mathematics and Statistics Courses
- 2016 Ecological Society of America Annual Meeting
- 2016 Joint Statistical Meetings

2015

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

RESEARCH

HARVARD UNIVERSITY DATA SCIENCE INITIATIVE

| Postdoctoral Fellow
September 2019 – present | Cambridge, Massachusetts, USA
Working with **Francesca Dominici** and **Tyler VanderWeele** to expose and ameliorate weaknesses in causal analysis techniques for ecological data and test the performance of such methods in detecting multiple causal influences in dynamic, nonlinear systems. Applying causal analysis methods to well-studied ecological systems using intuitive model frameworks to encourage wider examination, modification and utilization of causal analysis techniques for ecological data.

AUBURN UNIVERSITY DEPT. OF BIOLOGICAL SCIENCES

| NSF Graduate Research Fellow
May 2015 – August 2019 | Auburn, Alabama, USA
Worked with **Prof F. Stephen Dobson** to develop statistical methods for ecological data. Improved and applied complex statistical techniques to fisheries data to explain interactions and quantify trends in fish population dynamics.

NORWEGIAN INSTITUTE FOR NATURE RESEARCH

| 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
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.

EXPERIENCE

AUBURN UNIVERSITY | Graduate Teaching Assistant

August 2013 – May 2015 | May 2018 – August 2019 | Auburn, Alabama, USA

RECENT PUBLICATIONS

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. 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).

Correia, H. E., Abebe, A. (2021) Capturing spatio-temporal dynamics of Alaskan groundfish catch using rank estimation for varying coefficient models. *Journal of Applied Statistics.* 00(00).

Correia, H. E., Abebe, A., Dobson, F. S. (2021) Multiple paternity and the number of offspring: A model reveals two major groups of species. *BioEssays.* 43(4).

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).

Abebe, A., **Correia, H. E.**, Dobson, F. S. (2019) Estimating a key parameter of mammalian mating systems: the chance of siring success for a mated male. *BioEssays.* 41(12).

Sun, W., Bindele, H. F., Abebe, A., **Correia, H. E.**. (2019) General local rank estimation for single-index varying coefficient models. *Journal of Statistical Planning and Inference.* 202(September 2019):57–79.

Correia H. E. (2018) Spatiotemporally explicit model averaging for forecasting of Alaskan groundfish catch. *Ecology & Evolution.* 8(24):12308–12321.

Dobson, F. S., Abebe, A., **Correia, H. E.**, Kasumo, C., Zinner, B. (2018) Multiple paternity and number of offspring in mammals. *Proc. R. Soc. Lon. B.* 285(1891).