

Robert C. Garrett

Statistics Student
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EDUCATION

University of Illinois Urbana, IL First-Year Student, GPA: 3.89

Working towards a Ph.D. in Statistics while serving as a Teaching Assistant for an undergraduate-level Mathematical Statistics course

Statistics Coursework

Mathematical Statistics I, Mathematical Statistics II, Advanced Regression Analysis, Multivariate Analysis, Analysis of Variance, Sampling and Categorical Data

Miami University Oxford, OH Graduated May 2019, GPA: 3.9

B.S. in Mathematics & Statistics, Co-major in Predictive Analytics
Minor in Computer Science

Statistics Coursework

Statistical Modeling, Probability, Regression Analysis, Statistical Programming, Statistical Learning, Data Visualization, Inferential Statistics, Time Series, Bayesian Statistics, Statistical Consulting, Design of Experiments, Nonparameteric Statistics

Mathematics Coursework

Calculus 1-3, Linear Algebra, Differential Equations, Abstract Algebra, Real Analysis, Numerical Analysis, Optimization

Computer Science Coursework

Data Structures, Database Systems, Algorithms, Artificial Intelligence

Awards and Honors

University Academic Scholars Program, Mathematics and Statistics Division (2015-2018), Dr. Donald C Weber Memorial Scholarship (2017 and 2018), Eric E Erickson Memorial Scholarship (2018), EY scholarship (2017)

FIELD EXPERIENCE

Cincinnati Children's Hospital Department of Biostatistics and Epidemiology May 2018-July 2019

Aggregated and visualized quarterly data on the progress of Pediatric Obesity patients at 30+ hospitals in the US as part of the Pediatric Obesity Weight Evaluation Registry (POWER) program

IBM Research Triangle Park, NC May 2017-May 2018

Integrated cognitive tools including Watson Machine Learning, SPSS modeler, and R into blockchain networks in order to provide real-time analysis to users

Miami University Undergraduate Associate January 2018-May 2019

Assisted with teaching statistical methods and programming skills to undergraduate students in the Mathematical Statistics, Statistical Learning, and Statistical Modeling courses.

APPLIED RESEARCH EXPERIENCE

Bayesian Hierarchical Modeling for Toxicology Studies, Miami University Spring 2019

Worked with Dr. Jing Zhang to jointly model both growth and survival outcomes in toxicology studies involving Fathead Minnows. Using a Bayesian hierarchical approach in STAN, we were able to adjust for the effect of using multiple tanks of fish at a given concentration level as well as mitigate the effect of survival bias on estimated growth effects.

2018 Joint Statistical Meetings, Data Expo hosted by ASA Section on Statistical Computing

Worked with a team of 4 students to evaluate errors in National Weather Service forecasts using data from National Climatic Data Center weather stations. Work was broken down into two projects: extending the forecasts from the NWS data to all of the NCDC weather stations and comparing the performance of NWS forecasts to that of a naive data-centric approach.

For the data-centric model project, I used ridge regression along with a hull-based spatial variable selection approach to create new weather forecasts for each NCDC weather station.

2017 Joint Statistical Meetings, Data Challenge hosted by ASA Government Section on Statistics

Worked with one other student to analyze the BLS Consumer Expenditure dataset. Focusing on the Great Recession, I modeled consumer budgeting habits using a compositional data approach. I presented our findings at the JSM, where we won third place in the Data Challenge.

2016 Joint Statistical Meetings, Team Member

Worked with a team of 4 students to model car crash injuries using beta-binomial regression. I was the primary maintainer for the project's crash safety ratings database, which required using API calls and web scraping to gather the dataset and rigorous data cleaning to prepare the data for modeling.

ASA DataFest, hosted by Miami University

2019, First place - Measured rugby player fatigue using player tracking data
2018, First place - Analyzed Indeed/US Census data with Voronoi diagrams
2017, Third place - Visualized Expedia user behavior with Alluvial diagrams
2016, First place - Created a network-based ad suggestion algorithm for Ticketmaster

PUBLISHED PAPERS

Garrett, R. C., Nar, A., Fisher, T. J., & Maurer, K., (2018). ggvoronoi: Voronoi Diagrams and Heatmaps with ggplot2. *Journal of Open Source Software*, 3(32), 1096, <https://doi.org/10.21105/joss.01096>

Schweitzer, B., Garrett, R. C. and Fisher, T. J.. 2018. An Analysis on the Accuracy of Weather Forecasts. In 2018 JSM Proceedings, Statistical Computing Section. Alexandria, VA: American Statistical Association.

Garrett, R. C. and Fisher, T. J.. 2017. An Analysis of Consumer Budgeting and the Great Recession. In 2017 JSM Proceedings. Alexandria, VA: American Statistical Association.

PAPERS IN REVIEW

Phillips, C., Garrett, R. C., Tatro, A. J., & Fisher, T. J. (n.d.). An analysis of crash-safety ratings and the true assessment of injuries by vehicle. *Computational Statistics*. Accepted based a satisfactory minor revision as of June 14th, 2018.

Schweitzer, B., Rook, N., Garrett, R. C., & Fisher, T. J. (n.d.). A Spatial Extension of Weather Forecasts. *Computational Statistics*. Recommended for acceptance pending revisions as of November 7th, 2019.

R PACKAGES

Robert C. Garrett, Austin Nar, Thomas J. Fisher, Karsten Maurer. 2018. ggvoronoi: Voronoi Diagrams and Heatmaps with 'ggplot2'. R package version 0.8.1. <https://CRAN.R-project.org/package=ggvoronoi>