Carson Slater

Research Assistant
Department of Statistical Science
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Summary

Aspiring data scientist who loves to use statistical methods to empower people with insights for good stewardship.

Education

Baylor University

PhD Statistical Science 2024–2027

Advised by Amanda S. Hering. Research involves developing statistical methods for time series clustering with applications in urban water distribution processes.

M.S. Statistical Science 2023–2024

(GPA: 3.86/4.0)

Wheaton College

B.S. Applied Mathematics with Statistics 2019–2023

B.A. Economics 2019–2023

(GPA: 3.46/4.0), Edman Presidential Scholarship

Employment

Baylor University

Research Assistant 2024–Present

Developing statistical methods for urban water distribution processes, leveraging unsupervised learning on time series for customer-level water utility data.

Graduate Assistant 2023–2025

Consulted for ongoing interdisciplinary research in the computer engineering and environmental science departments, and for the American Holistic Nursing Association.

Wheaton College

Mathematics Teaching Assistant 2022–2023

Facilitated help sessions for undergraduate students in the topics of Machine Learning and Probability Theory.

Peer-Reviewed Works

Carnathan, Brittany J., Dinny Stevens, Swarna Shikha, Carson Slater, Nathen Byford, Rodney X. Sturdivant, Kuzy Zarzosa, W. Evan Braswell, and Christie M. Sayes. 2025. "Assessing the Effects of Surface-Stabilized Zero-Valent Iron Nanoparticles on Diverse Bacteria Species Using Complementary Statistical Models." *Journal of Functional Biomaterials* 16 (3). https://doi.org/10.3390/jfb16030113.

Swindell, Jonathan E., Carson Slater, Samuel Hussey, Charles Baylis, and Robert J. Marks. 2024. "Assessing Interference with Regression Analysis Techniques." In *2024 IEEE Texas Symposium on Wireless and Microwave Circuits and Systems (WMCS)*, 1–6. https://doi.org/10.1109/WMCS62019.2024.10619025.

Hering, Amanda S., Douglas Nychka, Luke Durell, Carson Slater, Michael Poor, Greg Hamerly, and Tzahi Y. Cath. 2024. "Mo(Wa)²TER Introduction to Data Science Course Material." Harvard Dataverse. https://doi.org/10.7910/DVN/BZJW2E.

Projects

Forecasting Fast-Moving Consumer Good Demand With Generalized Additive Models
Link to Github

- Built time-series forecasting models to predict quantity-demanded for fast-moving consumer goods in Indonesia.
- Presented poster at University of Illinois – Chicago's 2022 Undergraduate Mathematics Symposium and Wheaton College's 2022 Homecoming STEM Poster Session.

Understanding and Modeling Predictors to Earned Run Average in Modern Major League Baseball

- Conducted variable selection using predictors from the Lahman baseball database to model Earned Run Average using regression analysis. Used the same predictors to build a single-layer neural network and a radial support vector regression model in R/RStudio.

Skills

Technology: Docker, Positron (≈ VS Code), Git/Github, reveal.js, R/RStudio, SQL, duckDB, LaTeX.

Python: pandas, numpy, PyTorch (Lightning), plotnine, seaborn, plotly, scikit-learn, Jupyter

R: tidyverse (dplyr, ggplot2, etc.), TensorFlow (Keras), torch, shiny, RMarkdown/Quarto, rstan, rjags, caret, tidymodels, targets (gittargets, proffer, etc.)

Statistics and Machine Learning: statistical modeling, hypothesis testing, mixture models, time series, regression, linear mixed models, clustering, classification, deep learning, PCA, random forests, ensemble models (e.g., XGBoost), SVM, Bayesian methods, spatiotemporal modeling

Relevant Coursework: Statistical Bioinformatics, Deep Learning, Bayesian Methods, Bayesian Theory, Survival Analysis, Time Series, Theory of Statistics, Statistical Methods, Computational Statistics, Numerical Analysis, Linear Algebra for Data Analysis, Mathematical Statistics, Machine Learning, Probability Theory, Real Analysis, Intensive Introduction to Computer Science (*Harvard*), Econometrics, Economics of Labor and Poverty.

Honors & Awards

2019-22 **Varsity Baseball Player** — *Wheaton College Athletics, NCAA* — Practiced baseball six days a week for multiple hours and played over forty-games during the spring semester.

2019 **Christian Character Award** — *Valley Christian High School, Chandler AZ* — Given to one graduating senior each year that exemplified honorable character in their tenure at the high school.

Service & Volunteer

Wheaton Academy Center for Lifelong Learning

Academic Coach 2023–2023

Mentored students 1-on-1 to sharpen math skills from Algebra I to AP Statistics.

Duke/North Carolina State University Summer Institute for Biostatistics

Participant 2022–2022

Engaged standard biostatistical methods; Hackathon studying myocardial infarction.

Křesťanská Akademie Mladých (CZ)

Volunteer Intern 2023–2023

Assisting local CB churches by teaching English and sports in Czech Republic schools and camps.