Will Bodeau

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PROFILE

Motivated student graduating with a B.S. in Statistics and Data Science and a minor in Atmospheric and Oceanic Sciences. Extensive research experience in bioinformatics and environmental engineering, with expertise in programming, data analysis, and machine learning to drive data-driven solutions.

EDUCATION

University of California, Los Angeles **September 2022 – December 2025 (Expected)**

B.S. Statistics and Data Science, Minor in Atmospheric and Oceanic Sciences **GPA: 3.61**

- Relevant Courses: Advanced Programming in R, Statistical Learning, Probability, Data Analysis and Regression, Statistical Models and Data Mining, Computational Statistics, Text Mining, Statistical Consulting
- Graduate Coursework: Machine Learning

EXPERIENCE

Bioinformatics Research Assistant

UCLA Center for Statistical Research in Computational Biology **November 2024 - Present**

- Conducting research in the Junction for Statistics and Biology lab, evaluating computational methods for classifying cell types using single-cell RNA sequencing (scRNA-seq) data, enhancing accuracy and efficiency.
- Assessed how diverse computational approaches and parameter choices influenced cell-type classification outcomes using the Seurat pipeline in R.
- Performed statistical analyses, including ANOVA, hypothesis testing, and Adjusted Rand Index calculations, to identify robust strategies for cell-type classification and improve reproducibility.

Environmental Engineering Researcher

UCLA Department of Civil and Environmental Engineering **September 2023 – January 2025**

- Conducted substantial research at UCLA's Jay Lab understanding the impacts of antibiotics on the agricultural industry and community health. Contributed findings to policymakers to advocate for sustainable agricultural practices.
- Led a team of undergraduates testing *E. coli* for multi-drug resistance (MDR), coordinating fieldwork, and analyzing impacts of sewage and concentrated animal feeding operation (CAFO) runoff across Wisconsin, Michigan, and California.
- Identified a strong correlation (R-squared of 85%) between ampicillin resistance and MDR prevalence, and highlighted limitations in WHO's Tricycle Protocol for environmental AMR surveillance.
- Presented and authored findings at UCLA Undergraduate Interdisciplinary Research Association and the 34th UCLA Lake Arrowhead Symposium.
- Co-authored manuscript on multidrug resistance in *E. coli* (under review in *Environmental Microbiology Reports*).

PROJECTS

Energy Production Optimization

- Developed an ensemble machine learning model using Scikit-Learn in Python to predict power plant electrical output based on ambient conditions, achieving an R^2 of 95.5% and RMSE of 3.62. Optimized energy production to deliver economic and environmental benefits, outperforming published models by incorporating a Lasso meta-learner.

Flight Delay Analysis using SQL

- Aggregated, cleaned, and imputed data from the Federal Aviation Administration and Department of Transportation to build a unique dataset encompassing three million flights and 21 variables, enabling exploratory analysis and modeling of airline delay causes.

American Statistical Association DataFest 2024

- Collaborated with a team of six to provide actionable insights for improving the student experience on CourseKata based on data-driven solutions. Identified student engagement trends and platform bottlenecks, offering tailored recommendations that enhanced CourseKata's learning experience.

SKILLS

Programming: R, Python, SQL, C, C++, Java, Javascript

Data Analysis & Visualization: Tableau, Pandas, NumPy, Tidyverse, Ggplot2, Matplotlib, Seaborn

Machine Learning Frameworks: Scikit-Learn, TensorFlow, PyTorch, XGBoost

Tools and Platforms: Visual Studio Code, Git, Jupyter Notebook, LaTeX, Seurat

Lab Skills: Pipetting, Membrane Filtration, Disk Diffusion, IDEXX Quanti-Tray, Galaxy ASaiM (metagenomic analysis)