

Will Bodeau

San Diego, CA | (661) 714-0053 | willbodeau@gmail.com

EDUCATION

University of California, San Diego

September 2026 – Expected 2031

Ph.D. Data Science

University of California, Los Angeles

September 2022 – December 2025

B.S. Statistics and Data Science, Minor in Atmospheric and Oceanic Sciences

GPA: 3.71

Dean's Honors List: Fall 2023, Fall 2024, Winter 2025, Spring 2025

RESEARCH EXPERIENCE

Research Intern – Sea Level and Ice Group

NASA Jet Propulsion Laboratory (JPL)

June 2025 – August 2025

Advisor: Benjamin Hamlington

- Developed modular Python pipelines integrating NOAA tide gauges, satellite altimetry, and digital elevation models to enable high-resolution space-based coastal flood detection.
- Validated remote sensing products against in-situ flood measurements, achieving RMSE 33% below measurement uncertainty and demonstrating viability of space-based flood observation.
- Modeled binomial probabilities of flood observation rates to estimate confidence intervals and quantify satellite coverage across U.S. coastal regions.
- Benchmarked satellite-derived inundation maps against NOAA models, showing space-based observations capture fine-scale flood dynamics consistent with traditional predictions.

Undergraduate Researcher – Junction of Statistics and Biology

Center for Statistical Research in Computational Biology

November 2024 – September 2025

Advisor: Jingyi Jessica Li

- Analyzed how human decision-making in parameter tuning affects scRNA-seq annotation accuracy in the Seurat R package, finding that excessive tuning decreases classification accuracy and hinders reproducibility.
- Quantified correlations between final parameter values and annotation accuracy to identify the most influential hyperparameters governing model performance.
- Characterized how analyst background and a priori expectations influence annotation performance, finding significant positive associations between quantitative training and accuracy, and 58% higher false positive rates when analysts expected specific cell types.
- Contributed to preprocessing and statistical analysis for submission to Cell Systems (in review).

Undergraduate Researcher – Jay Lab

UCLA Samueli Civil and Environmental Engineering

September 2023 – December 2024

Advisor: Jennifer Jay

- Investigated antimicrobial resistance in *E. coli* downstream of concentrated animal feeding operations, including field sampling in Wisconsin to collect water for bacterial isolation.
- Performed Kirby-Bauer disk diffusion assays using nine antibiotics to assess resistance profiles and multidrug resistance prevalence.
- Informed methodological design by evaluating antibiotic efficacy for Gram-negative bacteria, leading to the exclusion of an unsuitable antibiotic to improve experimental validity.
- Contributed to literature review, data curation, and manuscript editing for a peer-reviewed publication in *Environmental Microbiology Reports* (2025).

PUBLICATIONS

1. Zhai, Z., Jiang, C., Qian, S., **Bodeau, W.**, Ge, X., Li, J. J. (2025). How does human subjectivity affect the reliability of single-cell RNA-seq cell-type annotation? *Cell Systems*. (in review).
2. Chowdhry, R., Jun, S., Kong, Y., Casillas Saenz, A., Chung, J., Chang, M., Osborn, K., Zhang, Y., **Bodeau, W.**, et al. (2025). Community-engaged course-based undergraduate research of multidrug resistance in *Escherichia coli* in water near dairy and hog farms in Michigan. *Environmental Microbiology Reports*, 17 (4), e70151. <https://doi.org/10.1111/1758-2229.70151>

PRESENTATIONS

1. **Bodeau, W.** (2025, August). High-resolution monitoring of U.S. coastal flooding via integration of SWOT and tide gauge observations. NASA Jet Propulsion Laboratory, Pasadena, CA. (Internship presentation).
2. Curristan, N., Chowdhry, R., Alejo, G., Ballow, E., **Bodeau, W.**, Casillas Saenz, A., Chung, J., Ding, A., Espinoza, A., Lin, J., Nuñez-Leon, D., Rolland, E., Jay, J. (2024, May). Characterization of antibiotic resistance in environmental isolates from pristine and highly-impacted sites in Los Angeles and San Diego. UCLA Undergraduate Research Week, Los Angeles, CA. (Poster; Presented by Curristan, N., **Bodeau, W.**, Casillas Saenz, A., Rolland, E.)

PROJECTS

Energy Production Optimization

- Built an ensemble machine learning model using Scikit-Learn in Python to predict power plant output from ambient conditions ($R^2 = 0.955$, RMSE = 3.62MW), surpassing published baselines with a Lasso meta-learner and SHAP explanations for physically grounded interpretation.

Regional Sea Level Rise Analysis

- Implemented a rolling Modified Mann-Kendall trend test in R to detect spatiotemporal trends in sea level anomalies along the U.S. West Coast. Identified statistically significant trends linked to ENSO and decadal variability, and applied false discovery rate correction to visualize regional variation in sea level rise.

American Statistical Association DataFest 2024

- Collaborated with a team of six to provide actionable insights to improve the student experience on CourseKata based on data-driven analysis of engagement trends and platform bottlenecks.

SKILLS

Programming & Tools: R, Python, Julia, Github, LaTeX

Data Analysis: Pandas, NumPy, Tidyverse, Ggplot2, Matplotlib, xarray

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