

Hudson Smith

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EDUCATION

University of California, Berkeley - B.A. in Applied Mathematics (Data Science Concentration)

Graduated May 2026

Relevant Coursework: Probability Theory, Statistical Inference, Linear Algebra, Data Structure

PROJECTS

I-80 Donner Pass Closure Risk Dashboard | Python, scikit-learn, AWS Lambda, S3 [GitHub](#)

- Designed a machine-learning risk-ranking system by parsing 3,000 Facebook posts to extract CHP closure records and pulling 7 years of hourly weather data via API, producing a labeled dataset for 24-hour I-80 Donner Pass closure prediction.
- Engineered 6-hour, 12-hour, and 24-hour rolling weather features and compared logistic regression, random forest, and histogram gradient boosting using chronological winter validation.
- Selected a constrained random forest; final 2024-2025 held-out test achieved 0.259 average precision, 0.769 ROC AUC, and 7.5x lift in the Extreme-risk category over the 5.8% baseline.
- Deployed a serverless AWS Lambda/S3 pipeline that fetches recent weather, loads a versioned joblib model, and publishes dashboard-ready JSON.

Water Park Ticket Predictor | Python

[GitHub](#)

- Extracted and structured daily sales data from a 2,600 page PDF and engineered weather and temporal features to forecast ticket demand.
- Compared scikit-learn linear regression with a PyTorch neural network; linear regression achieved lower test RMSE (37 vs. 180) and stronger generalization.

Spam Email Filter

- Analyzed 8,000+ emails to identify text, HTML, and link patterns associated with spam.
- Trained a logistic regression classifier using engineered features and K-fold cross-validation.

WORK EXPERIENCE

City of Brentwood

April 2022 - August 2025

Assistant Pool Manager

- Led biweekly training for 30+ staff members to improve teamwork and emergency response in high-stress situations.
- Monitored staffing and weather conditions on peak-demand days to support opening decisions and safe operations.

SKILLS

Languages: Python, SQL, Java

Libraries: Pandas, NumPy, scikit-learn, Matplotlib, Seaborn, PyTorch

Cloud & Tools: AWS Lambda, Amazon S3, CloudFront, Git, GitHub, Jupyter Notebook, Tableau, Excel