Brendan Sinclair

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Education

University of California, Berkeley **Expected December 2025**
Data Science (B. A.), Electrical Engineering and Computer Science (Minor) **GPA: 3.6**

Skills

Languages: Python, Java, SQL, HTML, CSS
Libraries: Pandas, NumPy, TensorFlow, Keras, scikit-learn, CVXPY, Pvlib, Seaborn, Plotly
Tools: Git, AzureDevOps, Tableau, MS Office
Courses:

- Data Science: Principles of Data Science (DATA 100), Data Structures & Algorithms (CS 61B), Structure & Interpretation of Programs (CS 61A)
- Electrical Engineering: Optimization Models (EECS 127), Designing Information Devices and Systems I/II (EECS 16A/B), Mathematics for the Physical Sciences (Math 121B)

Self-Taught Skills:

- **Complete Tensorflow 2 and Keras Deep Learning Bootcamp**, **Signals & Systems** (in-progress)

Relevant Experience

RWE Clean Energy: Solar Methods, Tools, and Automation Team **June 2024 - August 2024**
Software Engineer

- Probability of Defaults tool
  - Utilized the Monte Carlo method and optimization techniques to estimate the likelihood of a proposed project defaulting on its contract
  - Automated probability of default calculations, improving evaluation efficiency by 90% and generating easily interpreted probability of default vs. contract amount curves
- Soiling and Snow Loss Tools
  - Developed a program using Pvlib to estimate energy losses from soil and snow accumulation at planned solar sites, reducing calculation error by 25%
  - Implemented data pipeline to automate the retrieval and transformation of weather and air quality data from the NOAA and EPA web APIs for use in soiling loss calculations

Personal Projects

Battery SOC Simulation and Alert System:

- Designed and implemented a battery state-of-charge (SOC) simulation tool using methodology from literature, enabling accurate tracking of battery SOC based on input parameters such as current and time
- Integrated SOC model with an interactive Dash dashboard to visualize real-time battery behavior, providing users with visual insights into SOC and charge/discharge relationship
- Developed an alerting system connected to Discord, enabling real-time notifications for critical battery events, enhancing user awareness and response time

Sales Forecasting:

- Engineered predictive features including Fourier terms to capture seasonality, lagged sales data to capture autocorrelation, and decomposition to enhance model accuracy
- Prepared grouped data for forecasting and EDA using periodograms and autocorrelation (ACF) plots to identify dominant seasonal patterns and significant lag relationships
- Developed a Random Forest model to forecast store sales, leveraging its ability to capture non-linear relationships and feature interactions

Flight Delay Classification:

- Achieved 71% test accuracy in predicting flight delays exceeding 15 minutes by engineering features from external airport metadata, including region, international status, and elevation
- Designed a preprocessing pipeline that incorporated one-hot encoding, feature aggregation, and low-frequency handling, optimizing data for input into a random forest classifier