Reese Karo

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EDUCATION

University of California – Santa Barbara   September 2021 - June 2025
Bachelor of Science (B.S.) - Applied Mathematics   *Santa Barbara, CA*
Bachelor of Science (B.S.) - Statistics and Data Science
GPA**:** 3.6
Relevant Coursework**:** Optimization (Python), *Statistical Machine Learning (Python/R), Numerical Analysis (Python), Time Series Analysis (Python/R),*

EXPERIENCE

Data Analyst   August 2025 – Present
SpotGamma   *Remote*
- Lead development of an automated reporting infrastructure, transforming manual reporting into a scalable data pipeline and enabling faster, more reliable executive decision-making through Python.
- Develop and own core subscription health metrics, including MRR, Churn, and Cohort Retention, delivering actionable insights into revenue performance and customer lifecycle trends.
- Identify elevated churn among monthly subscribers through tier-level analysis; recommend and help implement targeted annual plan promotions that improve retention and increase customer lifetime value.
- Consolidate marketing, transaction, and customer feedback data into a unified data model, establishing a centralized source of truth to support strategic planning and revenue forecasting.

Mathematics Tutor   September 2024 – June 2025
UCSB Campus Learning Assistance Services   *Santa Barbara, CA*
- Applying mathematical and statistical principles to enhance students' comprehension of advanced topics such as Differential Equations and Linear Algebra, emphasizing practical problem-solving for real-world applications.
- Cultivating strong communication and organizational skills by guiding students in self-directed learning and academic achievement, providing structured guidance and feedback.
- Identifying and addressing areas of weakness to strengthen student comprehension by addressing diverse challenges in mathematics, utilizing mathematics and data science techniques.

PROJECT EXPERIENCE

Data Scientist (Capstone Program)   January 2025 – June 2025
SLAC National Laboratory   *Remote*
- Designed and implemented end-to-end deep learning models in PyTorch to classify protein crystal formations, optimizing hyperparameters (e.g., learning rates, hidden layers) to improve classification performance.
- Explored generative approaches using autoencoders and variational autoencoders (VAEs) to synthesize crystal images and augment training data, analyzing their impact on model performance.
- Fine-tuned ResNet-50 and autoencoder architectures on 400,000+ pre-labeled images; automated data preprocessing with Bash on Linux/Unix systems, improving accuracy and reducing training time.
- Collaborated with a research team via GitHub and bi-weekly meetings; documented methods and results in a final research poster that won 'Audience Favorite' at the showcase, achieving ~94% model accuracy.

Brain Tumor (Image Classification)   November 2024 – December 2024
UCSB Data Science Capstone   *Santa Barbara, CA*
- Leveraged TensorFlow and Keras to evaluate multiple architectures, achieving 93% predictive accuracy with a ResNet50V2 transfer-learned model enhanced by four additional dense layers paired with a user interface.
- Preprocessed a dataset of 3,000+ images using OpenCV for image transformation, NumPy for array stacking and normalization, and Scikit-learn for splitting data into training, validation, and test sets.
- Designed and compared three distinct CNN architectures: a basic design, a tuned hyperparameter model, and a transfer-learned ResNet50V2, ensuring robust and reliable predictions.

SKILLS

Programming Languages: Python, R, SQL
Core Skills: Data Analysis, Statistical Modeling, Supervised & Unsupervised Machine Learning, Natural Language Processing
Tools & Frameworks: Pandas, Databricks, BigQuery, Apache Spark, Seaborn, LangChain, Hugging Face, OpenAI API
Cloud & Infrastructure: Google Cloud Platform (GCP), Git, Linux/Unix, Bash