Jacob Poschl

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Education

University of California, Santa Cruz — Santa Cruz, CA
Computer Science / B.S. — *2023 – 2026*

- Relevant Courses: Probability and Statistics, Introduction to Data Structures and Algorithms, Introduction to Analysis of Algorithms, Machine Learning Basics: Data Analysis and Empirical Methods
- Certifications: IBM Machine Learning Professional Certificate — Supervised Learning, Unsupervised Learning, Deep Learning (2025)

Employment

ML & Backend Intern – mocha. — *Santa Cruz, CA* — *03/2024 – 03/2025*

- Integrated an AI assistant using the **OpenAI API** to support scheduling, summarization, and task planning used by all team members to improve project coordination.
- Developed a scalable serverless backend with **AWS Amplify + S3**, reducing API latency by **40%** and enabling real-time updates across clients.
- Engineered endpoints and data flows to track user interactions and assistant metrics, laying groundwork for future fine-tuning and personalization.

Projects

FormAI – AI-Powered Basketball Form Analyzer — *01/2025*

- Developed a basketball form analysis app, building a full computer vision pipeline for a planned public launch.
- Built a **GCP-based** pipeline (**Pub/Sub, Firebase, Cloud Storage**) for ingesting, cleaning, and deploying LSTM models in Docker; extracted biomechanical features using **MediaPipe and YOLOv8** for shot classification.
- Achieved **AUC = 0.60** on the LSTM classifier; filed a provisional patent and deployed to a **mobile app** with real-time feedback, leaderboards, and shot tracking.

Stock Movement Prediction with LSTM & FinBERT — *05/2025*

- Built a stock prediction model using a two-layer LSTM trained on 7 years of Apple OHLCV data and Reddit sentiment.
- Engineered technical indicators and integrated **FinBERT** sentiment scores, improving up-class F1 score from **0.25 to 0.45**.
- Outperformed buy-and-hold baseline by **1.2% (53.96% vs. 52.8%)**, showing potential for alpha generation.

Customer Segmentation with Unsupervised Learning — *03/2025*

- Applied **KMeans**, **Agglomerative Clustering**, and **DBSCAN** on demographic and spending data; used PCA for dimensionality reduction and elbow method to pick $k = 10$.
- Achieved a **Silhouette Score of 0.42** with KMeans and Agglomerative Clustering; interpreted clusters to recommend targeting strategies.

GAN for Fashion Image Generation — *11/2024*

- Built a **GAN** from scratch on the MNIST Fashion dataset; applied Batch Normalization and LeakyReLU for stable training.
- Trained on 60,000 images, achieving a **30% faster convergence rate**.
- Saved and reviewed generated samples every 100 epochs, observing a **∼15% loss reduction.**

Skills

- **Programming Languages:** Python, SQL, C, Java
- **Data Analysis:** NumPy, Pandas, Matplotlib, Seaborn, Scikit-learn
- **Machine Learning:** Supervised Unsupervised Learning, Feature Engineering, Model Evaluation, Cross-Validation
- **Deep Learning:** LSTM, CNN, GANs, YOLOv5, TensorFlow, PyTorch
- **Statistical Techniques:** Linear Regression, Logistic Regression, Clustering (KMeans, Hierarchical, DBSCAN), PCA, Time Series Modeling
- **Tools & Platforms:** Google Cloud (GCS, Pub/Sub, Cloud Functions, Compute Engine), Docker, Jupyter, Google Colab