

EDUCATION

Master of Engineering, University of California, Los Angeles, Los Angeles CA September 2025
Concentration in Artificial Intelligence.

Bachelor of Science, University of California, Santa Barbara, Santa Barbara CA March 2024
Double major in Statistics and Data Science (BS) and Mathematics (BS).

EXPERIENCE

Data Science Collaborative UCSB RCO March 2023 – May 2024
Vice President

- Managed a group of over 10 staff while planning weekly community events and workshops.
- Guided more than 30 students in creating personal data science projects.
- Developed and presented five skill-building lectures for statistics undergraduates.

Campus Learning Assistive Services UCSB September 2023 – March 2024
Math Tutor

- Tutored dozens of math students; specialized in over eight classes including calculus and linear algebra.
- Devoted 8–10 hours weekly to support tutees' academic success.

PROJECTS

Agentic Data Sanitizer - iDox.ai Capstone Project May 2025 – August 2025
FastAPI, Azure OpenAI, Javascript - coltonrowe.com

- Developed a full stack data loss prevention framework through a Chrome extension with a FastAPI backend.
- LLM-based agents increased redaction scope and accuracy over traditional regex methods.

sEMG Signal Decoding using Deep Learning January 2025 – March 2025
Python, Pytorch, Stable-Baselines3 - coltonrowe.com

- Compared CNN, RNN, and LSTM hybrid models for keystroke decoding from sEMG using Stable-Baselines3.
- Found that the baseline CNN model outperformed the hybrid models, achieving a character error rate of 21.82.

Autonomous Driving RL with PPO in Metadrive January 2025 – March 2025
Python, Pytorch, Metadrive - coltonrowe.com

- Used proximal policy optimization to train autonomous driving agents in Metadrive environments.
- Maximized route completion while tuning hyperparameters like scenario count, clip range, and reward shaping.
- The best agent achieved 88% route completion and 70% success rate.

Neural Network Post-Pruning with Coreset Data Selection September 2024 – December 2024
Python, Pytorch, CIFAR Datasets - coltonrowe.com

- Investigated how coreset data selection effects lottery ticket one-shot neural network pruning.
- Trained ResNet and LeNet models on CIFAR-10 and CIFAR-100 datasets over hyperparameters including post-pruning epochs and prune-percent.
- The fine-tuned models maintained 2% higher accuracy after 10 epochs, suggesting coreset selection reveals structural patterns.

Predicting IMDb Ratings with Streamlit and Scikit-learn April 2023 – June 2023
Python, Streamlit — tv-popularity.netlify.app

- Built a predictive web app using Streamlit and Scikit-learn to estimate IMDb ratings, enabling users to input show attributes and receive a predicted popularity score.
- Scraped and parsed thousands of entries from Kaggle and IMDb, and engineered features to train a random forest, KNN, decision tree, and beta regression with an RMSE $\approx .197$.

SKILLS and COURSEWORK

Programming: Python, C++, R, JS, HTML, Lua. Pytorch, FastAPI, Scikit-Learn, Pandas, and Numpy. Git.

Deep Reinforcement Learning: Q-learning, policy gradients, actor-critic methods, DDPG, PPO, A3C.

Deep Learning: Neural networks, CNNs, LSTMs, backpropagation, and optimizers including Adam.

Generative Modeling: Text and image generation with GANs, VAEs, transformers, and diffusion models.

Large-Scale ML: Distributed training, federated learning, neural network pruning, submodularity.

Statistics and ML: Linear regression, decision trees, random forests, gradient boosted trees. Time series models such as SARIMA, TAR, GARCH models. Markov chains, MDPs, brownian motion, continuous-time processes.