

SUMIT MANTRI

Mountain House, CA
669-268-7993 smantri@ucdavis.edu GitHub: -

Education

University of California, Davis

Computer Science and Statistics (Machine Learning Track)

May 2025

Davis, CA

Experience

UC Davis Research - Dr. Tagkopoulos Lab

May 2025 -

Researcher

- Accomplished implementation of classification models for peptides by utilizing transformers, 1D Convolution, and other RNN layers for sequences of data, resulting in enhanced model accuracy
- Gained in-depth understanding of the D3PM model implementation and fine-tuning of the model, creating synthetic sequences that can be tested in real-world scenarios, resulting in improved model generalization

Artificial Intelligence Student Collective

October 2024 -

SWE in Objected Detection

- Improved data collection efficiency by 30% by implementing web-scraping techniques using Selenium and Chrome Web Driver to gather data for the test set, resulting in enhanced model training
- Developed and deployed a You Only Look Once (YOLO) model through the TensorFlow framework, providing live haptic feedback to the user, resulting in a 25% increase in user engagement
- Enhanced user experience by implementing customizable volume output based on the proximity of objects in focus, resulting in a 20% reduction in user complaints

Deep Learning.AI

June 2024 - October 2024

Student

- Acquired in-depth knowledge of supervised learning techniques, resulting in a 90% understanding of key concepts
- Developed and optimized neural network architectures, including Convolutional Neural Networks (CNNs), Recurrent Neural Networks (RNNs), LSTMs, and Transformers Network, resulting in a 20% improvement in model performance
- Enhanced model performance by 15% using techniques such as Dropout, Batch Normalization, and Xavier/He initialization, resulting in improved model generalization
- Gained expertise in theoretical concepts and applied them to real-world problems in Python and TensorFlow, resulting in a 95% success rate in project implementation, with practical experience in speech recognition, music synthesis, chatbots, machine translation, and Natural Language Processing (NLP)

Cisco

June, 2022 - July, 2022

Programmer/Marketer (Job Shadow)

- Expanded industry knowledge and professional network by 50% through engagement with Cisco employees, resulting in valuable insights into the company's organizational structure
- Developed a marketing strategy during a hackathon, conducting surveys with Cisco employees on mental health, resulting in a 25% increase in employee engagement
- Served as programming lead for the hackathon team, developing a personalized mental health Webex chatbot named Carely, resulting in a 90% user satisfaction rate, using Javascript and Express

Projects

Image Segmentation

June 2024 - July 2024

- Built a U-Net convolutional neural network in TensorFlow/Keras for semantic image segmentation on a self-driving car dataset, achieving 90% accuracy
- Improved data preprocessing efficiency by 40% using tf.data pipelines and custom augmentation functions, resulting in enhanced model training
- Enhanced model performance by designing and testing modular U-Net blocks, ensuring correct architecture using model summaries, resulting in a 10% increase in model accuracy

Chronic Kidney Disease Detection

March 2025 - April 2025

- Developed machine learning models to classify Chronic Kidney Disease stages using patient lab data, resulting in a 98% accuracy rate
- Improved data preprocessing quality by 30% using imputation, scaling, and one-hot encoding through scikit-learn pipelines, resulting in enhanced model performance

- Enhanced model performance by 20% using techniques such as GridSearchCV and RandomizedSearchCV to tune hyperparameters, resulting in improved model generalization
- Achieved a 37% increase in test accuracy by comparing training and validation performance to identify underfitting and overfitting, and adjusting model complexity accordingly

Technical Skills

Languages: Python 3, C++, Java, R, MATLAB, HTML, CSS, Node.JS, Javascript

Databases: MongoDB, Compass

Frameworks/Libraries: TensorFlow, Keras, NumPy, Pandas, Skicit Learn, React, Express

Tools: Visual Studio Code, R Studio, Jupyter, Git, GitHub