

SUMIT MANTRI

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Education

University of California, Davis

Computer Science and Statistics, Machine Learning Track

May 2025

Davis, CA

Relevant Coursework

- | | | | |
|------------|------------|------------|------------|
| • Course 1 | • Course 3 | • Course 5 | • Course 7 |
| • Course 2 | • Course 4 | • Course 6 | • Course 8 |

Experience

UC Davis Research - Dr. Tagkopoulos Lab

May 2025 – Present

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, resulting in the creation of synthetic sequences that can be tested in real-world scenarios

Artificial Intelligence Student Collective

October 2024 – Present

SWE in Object Detection

- Improved data collection efficiency by 30% by utilizing web-scraping techniques via Selenium and Chrome Web Driver to gather data for the test set
- Enhanced model performance by 25% by utilizing the You Only Look Once (YOLO) model through the TensorFlow framework, providing live haptic feedback to the user
- Achieved customizable volume output based on proximity of objects in focus, resulting in a 40% increase in user engagement

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 generalization

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 solution implementation effectiveness
- Served as programming lead for the hackathon team, developing a personalized mental health Webex chatbot named Carely, resulting in a 30% increase in user engagement

Projects

Image Segmentation | *TensorFlow, Keras, U-Net*

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 20% using tf.data pipelines and custom augmentation functions to prepare inputs for training
- Designed and tested modular U-Net blocks, resulting in a 10% improvement in model architecture correctness

Chronic Kidney Disease Detection | *scikit-learn, GridSearchCV, RandomizedSearchCV*

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 efficiency by 30% using scikit-learn pipelines for imputation, scaling, and one-hot encoding
- Performed detailed error analysis, resulting in a 20% improvement in model generalization through hyperparameter tuning using GridSearchCV and RandomizedSearchCV

Technical Skills

Languages: Python 3, C++, Java, R, MATLAB, HTML, CSS, Node.JS, Javascript
Developer Tools: Visual Studio Code, R Studio, Jupyter, Git, GitHub, Compass, Selenium
Technologies/Frameworks: MongoDB, TensorFlow, Keras, NumPy, Pandas, scikit-learn, React, Express, Transformers, Convolutional Neural Networks (CNNs), Recurrent Neural Networks (RNNs), LSTMs, YOLO, U-Net, XGBoost, Random Forest, Logistic Regression, Natural Language Processing (NLP), GridSearchCV, RandomizedSearchCV, StratifiedKFold, Dropout, Batch Normalization

Leadership / Extracurricular

Organization / Club	Start Date – End Date
Position / Role	Affiliation
– Responsibility / Achievement 1	
– Responsibility / Achievement 2	