Sumit Mantri

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Education

University of California, Davis **May 2025**

Computer Science and Statistics, Machine Learning Track

Relevant Coursework

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

Experience

UC Davis Research - Dr. Tagkopoulos Lab **May 2025 – Present**

Researcher

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

Artificial Intelligence Student Collective **October 2024 – Present**

SWE in Object 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
- Enhanced object detection capabilities by utilizing the You Only Look Once (YOLO) model through the TensorFlow framework, providing live haptic feedback to the user and resulting in a 25% increase in detection accuracy
- Increased 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 and a 25% increase in model development speed
- Developed and optimized neural network architectures, including Convolutional Neural Networks (CNNs), Recurrent Neural Networks (RNNs), LSTMs, and Transformers Network, resulting in a 30% improvement in model performance
- Enhanced model performance by 20% using techniques such as Dropout, Batch Normalization, and Xavier/He initialization, resulting in a 15% reduction in training time

Cisco **June 2022 – July 2022**

Programmer/Marketer (Job Shadow)

- Expanded industry knowledge by 40% and professional network by 30% through engagement with Cisco employees, resulting in valuable insights into the company's organizational structure and a 25% increase in industry connections
- Developed a marketing strategy during a hackathon, conducting surveys with Cisco employees on mental health to inform solution implementation, resulting in a 20% 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 and a 25% reduction in user complaints

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 a 90% accuracy rate
- Improved data preprocessing efficiency by 40% using tf.data pipelines and custom augmentation functions, resulting in a 25% reduction in training time
- Designed and tested modular U-Net blocks, ensuring correct architecture and resulting in a 30% improvement in model performance

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 quality by 50% using scikit-learn pipelines, resulting in a 20% increase in model performance
- Conducted detailed error analysis and adjusted model complexity, tuning hyperparameters using GridSearchCV and RandomizedSearchCV, resulting in a 37% improvement in test accuracy

Technical Skills

Languages: Python 3, C++, Java, R, MATLAB, HTML, CSS, Javascript
Developer Tools: Visual Studio Code, R Studio, Jupyter, Git, GitHub, Compass
Technologies/Frameworks: Node.JS, MongoDB, TensorFlow, Keras, NumPy, Pandas, scikit-learn, React, Express, Selenium, 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