MAHAVIR CHANDALIYA

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TECHNICAL SKILLS

Programming languages: Python, C++, SQL, C, R, HTML, CSS, JavaScript, Typescript.
Data Engineering: PySpark, BI, dbt, Terraform, Pytest, Airflow, AWS CDK, AWS Cloud Services, GCP.
AI and Machine Learning: Pandas, NumPy, Pytorch, OpenCV, Jupyter, Colab, TensorFlow, NLTK, LLM, Keras, RoboFlow, RStudio.
Data Viz Tools: Tableau, Streamlit, Power BI, Matplotlib, Seaborn, Looker, Quarto.
Other Tools: React, Redux, JIRA, Omni CMS, Django, Docker, Git and GitHub (CI/CD), SQL and NoSQL databases.

EDUCATION

Master of Science in Computer Engineering, Machine Learning Engineering **(Jan 2022 - Dec 2023)**
San Jose State University, San Jose, CA
Relevant Courses: Machine Learning, Data Mining, Math & Statistics for Data Science, Advance computer design, Algorithms and DS in C++.

Bachelor of Engineering in Computer Science and Engineering **(Aug 2016 - Nov 2020)**
D.J. Sanghvi College of Engineering, University of Mumbai, Mumbai, India
Relevant Courses: Applied Math, Linux scripting lab, Advance Algorithms, DSIP, NLP, Database Mgmt., Big Data Analytics, Distributed Computing.

EXPERIENCE

Research Assistant at Computer Engineering department, San Jose State University, San Jose, CA **(Feb 2024 – Present)**

- Developing and integrating ML models for anomaly detection in AI Drone Surveillance systems, leveraging AWS for deployment, monitoring, and management. Collaborating with cross-functional teams to create data pipelines and deploy real-time surveillance systems with advanced UI.
- Parallelly working towards developing an optimized model for anomaly detection from Drone-data collected live across the bay area for traffic analysis and accident detection to integrate with the AI cloud with IOT, Drone as well as Camera sources into a Single Dashboard.
- Authored a research paper on UAV-based powerline inspection using Deep Learning, submitted to IEEE BigDataService 2024 conference.

Software Engineer Intern at Reckon Energy, Wardha, India **(July 2019 – Sept 2020)**

- Implemented impactful website enhancements by resolving bugs, adding new interactive features, and optimizing data management with SQL.
- Collaborated with development team, participated in quality, code reviews. Engaged with customers to provide technical support, leveraging various technologies such as ticketing systems, remote assistance software, and diagnostic utilities to diagnose and resolve issues.

PROJECTS

Generative AI Medical Chatbot (Generative AI, Natural Language Processing, Deep Learning) **(July 2024)**

- Engineered a generative AI medical chatbot using Meta's Llama2 LLM model, integrated with Langchain and PyTorch. Deployed a Flask web app for user interaction, utilizing Pinecone for data storage. Processed data from medical encyclopedias to ensure accurate responses.

Cloud File Manager (AWS Cloud Development, Full-stack Engineering, Restful API's) **(July 2024)**

- Developed a full-stack application using React and AWS services, featuring a file and description uploader. Utilized AWS S3 for file storage, DynamoDB for data management, and AWS Lambda for serverless CRUD operations. Managed and deployed infrastructure with AWS CDK.
- Incorporated API Gateway for Restful API interactions. Hosted on AWS Amplify with secure authentication via AWS Cognito User Pool service.

Book Genre Prediction (Natural Language Processing, Data Mining, Data Visualization, Machine Learning) **(Dec 2022)**

- Implemented and deployed a web application utilizing deep neural networks to predict literature genres from book summaries, utilizing CMU book summary and Blurb genre datasets. Conducted data cleaning, EDA, feature extraction, data augmentation, and cross-validation for multilabel classification. Explored decision tree and Naive Bayes classifiers, implemented text preprocessing, and evaluated word embeddings for improved classification. Developed a web app to display high accuracy results using flask.

Blood Analyzer, Image Processing and Computer Vision (Computer Vision, Machine Learning) **(May 2020)**

- Conceptualized and executed using Blob and Contour Detection, achieving 90% accuracy in cell counts. Implemented real-time RBC, WBC, platelet estimation, and highly accurate hemoglobin level estimation using Hb color scale.
- Further applied RandomForest and Decision Trees models on a WBC dataset, accurately classifying WBCs into four types. (~87% accuracy)

PUBLICATIONS

UAV-based Powerline Fault Detection and Classification (Link) **(Dec 2023)**

- Developed an advanced deep learning system employing YOLOv8 and CNN models, achieving 87% accuracy in real-time detection and classification of powerline faults. Managed end-to-end technical workflows, including data acquisition via drones, annotation, preprocessing with Roboflow, and implemented transfer learning techniques, progressive training approaches and data augmentations.
- Designed and deployed a user-friendly interface using Streamlit for efficient data upload, component detection, and anomaly reporting. Presented the project at the SJSU Engineering Expo 2023 and authored a research paper submitted to IEEE BigDataService 2024 conference.

Social Distancing Detection using Computer Vision (Link) **(April 2021)**

- Developed a Computer Vision application using TensorFlow, OpenCV, and Python to enforce social distancing by analyzing live video from CCTV cameras in public spaces. Utilized computer vision techniques and COCO dataset. Presented the paper at ICCMC 2021, published in IEEE.

OTHER ACHIEVEMENTS

- Secured first place in Machine Learning Track at Intel's AI for Social Good Hackathon during annual Intel Innovation event. Utilized models like RandomForest, XGBoost for an ML prediction problem, building entire model pipeline during 9-hour event, applying various data analysis techniques.
- Completed various online professional certification courses from OpenCV University CV/DL Professional, LinkedIn Learning, FreeCodeCamp etc. (Link)