MAHAVIR CHANDALIYA

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EXPERIENCE

Research Assistant at SJSU (**Feb 2024 – Current)**

- Developing and integrating ML models for anomaly detection in AI Drone Surveillance systems, leveraging AWS for deployment, monitoring, and management. Collaborating with other research 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 a combined dashboard of data from IOT stations, drones and CCTV's.
- Authored and published a research paper based on real-time Powerline Fault Detection and Classification using Drones.

Software Developer at Remajin **(July 2021 – Dec 2021)**

- Developed a user-friendly retail app, a sales representative application, and an admin panel; used by 1000+ retailers and 13 sales representatives. Contributed to the digital platform to bridge the gap between MSME brands and retailers across India.
- Leveraging the enhanced digital platform and application, onboarded 32 manufacturers and 100+ retailers.

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

- Played a pivotal role in transitioning the company to an online presence by developing and hosting the website using Django, HTML, CSS, JavaScript, and optimizing data management with SQL. Utilized AWS services and third-party providers ensuring reliability and scalability.
- Engaged with customers to provide technical support, leveraging ticketing systems, remote assistance software, and diagnostic utilities.

PROJECTS

Generative AI Medical Chatbot (Generative AI, Natural Language Processing, Deep Learning) **(June 2024 - 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) **(June 2024 - 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) **(Oct 2022 - 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.

PUBLICATIONS

UAV-based Powerline Fault Detection and Classification (Link) **(Dec 2023 – July 2024)**

- Developed an advanced Powerline inspection system employing YOLOv8 and CNN-based 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 data augmentation and transfer learning techniques, applied progressive training approaches.
- Presented the research paper at 10th IEEE International Conference on Big Data Computing and Machine Learning Applications.

Social Distancing Detection using Computer Vision (Link) **(Dec 2020 - May 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.

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.

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.

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 (Link)