Divy Patel

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Education

Arizona State University (ASU), Tempe, AZ — Aug. 2022 - Dec. 2023
Master of Science in Computer Science (MSCS) (GPA: 3.55/4)

Pandit Deendayal Energy University (PDEU), India — Apr. 2018 - May 2022
B.Tech in Information and Communication Technology (GPA: 9.22/10)

Technical Knowledge

Programming Languages: Python, R, Java, JSON, C++, C#, HTML5, CSS, JavaScript, SQL (MySQL, PortgreSQL), GraphQL
Frameworks: Pandas, Seaborn, Matplotlib, Numpy, TensorFlow, PyTorch, OpenCV, Scikit-learn, LangChain, RESTful APIs
Tool and Technologies: LLM, NLP, Version Control , Amazon Web Services (AWS), Docker, Jira, Agile, Scrum

Work Experience

PetSmart, Phoenix, Arizona — ***Software Developer*** — May 2023 - Present
- Developed and deployed 25+ Python and Django-based microservices using Docker & AWS and implemented CI/CD pipelines.
- Built and deployed an AI chatbot for customer interactions using LangChain, enhancing user engagement.
- Utilized RAG and CRAG implementations to improve the output of the LLM.

Quartic.ai, Remote (San Jose, CA) — ***Data Engineer*** — Jul. 2021 - Jun. 2022
- Implemented a data pipeline for pre-processing live data feeds using Python, GraphQL, and Redis.
- Optimized the pipeline to enhance predictive analytics and real-time risk monitoring.
- Developed a live dashboard for risk monitoring using Grafana and ReactJS.

HOPS Healthcare, India — ***Artificial Intelligence Intern*** — Apr. 2021 - Dec. 2021
- Achieved 85% accuracy in mobile-based skin disease detection by implementing OpenCV, TensorFlow and CNNs.
- Developed noise reduction algorithm in Python, aiding for detection of heart conditions from smartphone-recorded stethoscope sound.

Projects

LLM for Document Based Question Answering — ***Project***
- Developed Large Language Model (LLM) using RAG implementation to interpret PDFs, CSV, and JSON files, with **98%** accuracy.
- Used LangChain for efficient storage and retrieval, ensuring accurate responses by implementing Prompt Engineering.
- Enhanced chat automation processes by testing model performance on diverse and complex queries.

Skin Disease Detector App — ***Google DSC Hackathon***
- Led the development of skin disease detector app during a 24-hour hackathon, using TensorFlow Lite for real-time classification.
- Preprocessed and augmented Harvard skin disease images using OpenCV and did model tuning to achieve **82%** accuracy.
- Developed and integrated the model into an Android app for disease classification via smartphone camera and to find nearest dermatologist.

Student Drowsiness Detection System — ***Project***
- Extracted 57,488 images from ultraLDD dataset, applied masking using dlib, faceutils along-with OpenCV to focus on eyes and mouth.
- Optimized data handling with a custom TensorFlow data generator for memory-efficient CNN training, achieving **93%** accuracy.
- Implemented real-time prediction from live camera feeds or saved videos, displaying drowsiness detection results with overlay on the screen.

Twitter Sentiment Analysis — ***Project***
- Developed Twitter Sentiment Analysis framework, utilizing TweePy and incorporating Natural Language Processing (NLP) techniques.
- Engineered data pipelines to analyze over 30,000 tweets, revealing sentiment trends through word clouds, pie chart and scatterplots.
- Applied K-Nearest Neighbors (KNN) classifier, enhancing the analysis of sentiment distributions across different political groups.

Smart Campus Human Detection — ***Project***
- Annotated a dataset used for a smart campus project involving human detection with a 3D LiDAR camera.
- Developed and tested a Neural Network AI model using 2D and 3D CNNs to detect human presence, achieving **98%** accuracy.
- Contributed to the development of a smart campus solution aimed at monitoring and managing crowd density in campus areas.

Bus Number Recognition System — ***Project***
- Developed a bus number detection app using OpenCV and EasyOCR to identify and announce bus numbers for visually impaired users.
- Set up a Google Cloud Compute server and integrated it with an Arduino client to capture and process images.
- Integrated Arduino with Singapore government systems to fetch real-time bus arrival data and provide announcements.

Temporal Hyperlink Prediction — ***Project***
- Conducted research on temporal hyperlink prediction in hypergraph using a bibliometric dataset of 50,000 neuroblastoma publications.
- Enhanced existing mathematical, machine learning, and deep learning techniques of graph link prediction for hypergraph link prediction.
- Developed predictive models with **77%** accuracy to forecast emerging research branches and predict recipes from available ingredients.

Recent Achivements

- Publication in "MaterialsToday: Proceedings" on "Artificial intelligence powered material search engine" — Apr. 2022
- Led the team securing 2nd Prize in hackathon organized by Google's Developer Student Committee — Mar. 2021
- Led the team securing 2nd Prize in hackathon organized by Nirma University — Mar. 2021