Twisha Patel

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Summary

Passionate and versatile Software Engineer with hands-on experience in AI/ML, object detection, large language models, and speech-to-text technologies. Skilled in Python and open-source frameworks, with a strong track record in building real-world solutions—ranging from finance-specific LLMs and real-time object detection to machine data integration and speech transcription pipelines. Eager to leverage cutting-edge AI methods to solve impactful problems.

Education

ITM SLS Baroda University, Vadodara, Gujarat *Aug 2021 – May 2025*
Bachelor's Degree in Computer Science — CGPA: 8.6/10

Shri J.R Shah Bright English Medium School, Vadodara, Gujarat *June 2020 – July 2021*
Higher Secondary School — Grade: B2

Bright School, Vadodara, Gujarat *June 2019 – March 2020*
Secondary School — Grade: B1

Experience

AI/ML Intern *Jan 2025 – July 2025*
Artem Health Tech, Ahmedabad, India

- Developed a machine integration solution to sync machine data directly with the company portal, streamlining data flow and automation.
- Implemented real-time object detection using MMDetection's RTMDet-tiny model on live webcam feeds.
- Built a speech-to-text pipeline leveraging open source models with agentic behaviour.
- Fine-tuned a finance-specific LLM using Flan-T5, curated financial datasets, and optimized prompt engineering for precise responses.

Skills

Programming Languages: Python, JavaScript, PHP
Web Technologies: HTML, CSS, Bootstrap, jQuery
Databases: MySQL
Frameworks/Libraries: TensorFlow, OpenCV, Hugging Face, Sklearn, PyTorch, Transformers
Large Language Models: Fine-tuning, Prompt Engineering, Deployment
Tools/Platforms: Git, Docker, FastAPI, Github Actions, CI/CD Pipeline
Machine Learning/AI: NLP, Computer Vision

Projects

AutoML Pipeline Service

- Designed and deployed an end-to-end AutoML pipeline service using Streamlit and FastAPI for dynamic model training, inference, and benchmarking via web interface.
- Automated dataset profiling, model selection, versioning, and performance logging with configurable settings and retention policies.

Object Detection with MMDetection RTMDet-tiny

- Implemented a real-time object detection system using MMDetection's RTMDet-tiny model and OpenCV to process webcam video.
- Displayed live bounding boxes and class labels on detected objects using pretrained COCO weights.

Traffic Sign Recognition

- Developed and trained a deep learning model in Python to accurately classify German traffic signs using the GTSRB dataset.
- Utilized OpenCV for advanced image preprocessing and data augmentation to enhance model robustness.
- Built and fine-tuned a convolutional neural network (CNN) using TensorFlow and Keras, achieving high classification accuracy on the test set.

Voice Assistant

- Developed a desktop voice assistant in Python capable of recognizing and executing user voice commands for tasks like setting reminders, playing music, and web searches.
- Integrated speech recognition and text-to-speech (TTS) libraries to enable seamless two-way human-computer interaction.
- Enhanced natural language understanding for more accurate and flexible command processing.

Finance Based Small LLM

- Fine-tuned Flan-T5 on curated financial datasets for enhanced finance-specific Q&A.
- Applied prompt engineering and optimization to improve query accuracy and contextual relevance.