

Taitil Chheda

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Education

Dwarkadas J. Sanghvi College of Engineering
B.Tech Artificial Intelligence & Machine Learning
1st Year CGPA - 8.74

Batch - 2027

Internships

Eccomix - AI ML Developer April 2024 - Present(August 2024)
○ Used **PyMuPDF** to scan and extract the pages of pdf to image for further image processing.
○ Compared multiple different OPEN SOURCE **LLMs** and found one that balances speed/CPU utilization.
○ Improved the previous prompts and made the **RAG model** robust.

Robokart - Robotics Trainer June 2024 - August 2024
○ Provided insights on **emerging technologies**, including **AI, IoT, and robotics**, enhancing students' technological proficiency.
○ Led robotics-based projects across institutes in Gujarat under the **Gujarat government, GUJCOST, DST and KCG**.
○ **Recognized in media** for impactful work in science and technology education with the Gujarat government.

Projects

Emotion Recognition - An AI-based Emotion Detection Tool

- Developed a custom emotion recognition system using (**CNN**) and **Computer Vision** techniques.
 - Trained model to accurately detect emotions like happiness, sadness, and surprise from facial expressions.
 - Integrated custom **CNN** model for efficient face **feature extraction** and emotion classification.
 - Achieved high accuracy through meticulous **fine-tuning** and experimentation.
- Technologies Used: **Python, TensorFlow, OpenCV, Convolutional Neural Networks (CNN), Computer Vision.**

QueryGenius- A Machine Learning RAG/ chat bot that Answers Questions

- Led the development of an advanced **Language Model (LLM)** based Question Answering (QA) system using Hugging Face's **llama-index** library within the field of **Natural Language Processing (NLP)**.
- Engineered a state-of-the-art embedding model using **FastEmbed** to represent documents in a high-dimensional **semantic** space, enhancing the system's ability to understand and retrieve relevant information.
- Configured and optimized the **Gemma** variant of the GPT architecture from **Google's "google/gemma-7b-it" model**, specializing in language comprehension for improved accuracy.
- Implemented a robust query engine to efficiently process user queries and retrieve pertinent information from the indexed document corpus.
- Developed a **user-friendly** chat interface using **Gradio**, facilitating seamless interaction with the **LLM-based QA system**.

Technologies Used: **Hugging Face, llama-index, FastEmbed, Transformers, Gradio, PyTorch, Gemma language model.**

Stock Market Prediction- A Machine Learning Model that predicts stock prices

- Developed a ML model to predict NIFTY ('**^NSEI**') Index & stock prices, enhancing insight into market trends.
 - Utilized Python and the **yfinance** library to gather and preprocess historical stock data.
 - Engineered features and trained a **linear regression model** to forecast next day's closing price.
 - Evaluated model accuracy using **Mean Squared Error (MSE)** and **R-squared metrics**.
 - Visualized historical and predicted prices, leveraging **matplotlib** for impactful data storytelling.
- Technologies Used: **Machine Learning, Python, finance, pandas, scikit-learn, matplotlib.**

Skills

- **Tech Stack:** Python, Machine Learning, Deep Learning, LLM (large language model), NLP (Natural Language Processing), Data Modeling and evaluation, Tensorflow, Numpy, OpenCV,SkLearn, Matplotlib, PyTorch, Pandas, Keras, Transformers, Image Processing, Time Series Analysis & Forecasting, Java, C, C++, DSA.
- **Non Tech Skills:** Creative Problem-Solving, Critical & Analytical Thinking, Leadership, Excellent Communication skills, Decision-making, Adaptability, Playing Keyboard, Photography, Gaming, Chess, Table tennis, Painting.