

# 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.
- 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.**

**Portfolio Website**- A personal website to showcase skills.

- Developed and launched a personal portfolio website using HTML, CSS, and JavaScript, with enhanced user engagement through Framer Motion animations, including scaling and opacity effects.
- Deployed the website on Netlify, leveraging continuous integration for seamless updates and reliable performance.
- Ensured responsive design for optimal viewing across various devices and screen sizes, improving accessibility and user experience.
- Evaluated model accuracy using **Mean Squared Error (MSE)** and **R-squared metrics**.

Technologies Used: **HTML, CSS, Javascript, React, Tailwind CSS, Three.js.**

## 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, HTML, CSS, Javascript, React, 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.