

# DIVYA KHUNT

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🐙 [github.com/divyakhunt](https://github.com/divyakhunt) 🌐 [divyakhunt-portfolio.vercel.app](https://divyakhunt-portfolio.vercel.app)

## SUMMARY

Machine Learning Engineer with strong foundations in deep learning, computer vision, NLP, and audio processing. Skilled in Python and building scalable, intelligent systems with clean, research-driven implementation. Passionate about ethical AI and solving real-world problems through data-driven innovation.

## TECHNICAL SKILLS

**Languages:** Python, Java, HTML, CSS, and JavaScript

**Machine Learning:** scikit-learn, LightGBM, XGBoost; Hyperparameter Tuning (GridSearchCV, RandomizedSearchCV), Cross-Validation; Model Evaluation Metrics (Precision, Recall, F1-score, ROC-AUC)

**Data Analysis & Visualization:** NumPy, Pandas, Matplotlib, Seaborn; Data Cleaning, Feature Engineering, Data Augmentation

**Deep Learning:** TensorFlow, Keras, and PyTorch; CNNs, RNNs (LSTM, BiLSTM, GRU), Encoder-Decoder, Transformers, Transfer Learning, and Text Generation

**Computer Vision:** OpenCV, MediaPipe; Image Captioning, Facial Emotion Detection, Gesture & Sign Recognition

**Natural Language Processing:** NLTK, spaCy, and Word2Vec; Tokenization and Embeddings

**Speech & Audio Processing:** Librosa, SoundFile, pyAudioAnalysis, and pytttsx3; MFCC, Chroma, ZCR, Spectrograms

**Tools & Frameworks:** Jupyter Notebook, Google Colab, VS Code, and Git/GitHub; TensorBoard, Streamlit, and Flask

**Databases & APIs:** MySQL; Google Drive API, and Kaggle Datasets

## EDUCATION

**Sarvajani College of Engineering and Technology (SCET)**

B.Tech in Computer Engineering — CGPA: 9.35 / 10

Aug 2022 – May 2026

Surat, Gujarat

**P.P. Savani Vidhyabhavan**

Higher Secondary Certificate (HSC), GSEB — Percentage: 77.54%

Mar 2022

Surat, Gujarat

## PROJECTS

**Speech Emotion Recognition (CNN-BiLSTM)** 🔗 | TensorFlow, Keras, Librosa, SoundFile

- Designed a CNN-BiLSTM model for speech emotion recognition using MFCC, Chroma, ZCR, and RMS features.
- Balanced distribution with data augmentation and trained on RAVDESS, TESS, CREMA-D, and SAVEE datasets.
- Optimized with early stopping, ReduceLROnPlateau, and batch normalization to prevent overfitting.

**Sign Language to Speech Translator** 🔗 | TensorFlow, MediaPipe, OpenCV, pytttsx3

- Built a DNN system to recognize both-hand gestures using MediaPipe and convert them to speech via pytttsx3.
- Wrote modular scripts for data capture, model training, and OpenCV-based inference with sub-2s response.
- Enabled gesture updates via CSV and retraining; visualized training metrics for performance tracking.

**Next Word Prediction Web App** 🔗 | TensorFlow, Flask, Bi-LSTM, NLP

- Built a Flask app that predicts the next word in real-time using a Bi-LSTM model trained on Sherlock Holmes text.
- Processed and tokenized text data; trained the model for next-word prediction with smooth frontend integration.
- Enabled keyboard interaction for fast word insertion by pressing Tab; deployed the app live using Render.
- Optimized model and code for real-time inference with low latency.

**Image Captioning (DenseNet201 + LSTM)** 🔗 | TensorFlow, Keras, NLP, Flickr8k

- Generated image descriptions using DenseNet201 as encoder and LSTM as decoder.
- Preprocessed captions, extracted features, and trained on Flickr8k with 5 captions per image.
- Built a custom data generator and used greedy search to generate coherent captions.
- Serialized features and tokenizer for efficient inference and deployment.

**Facial Emotion Recognition (ResNet50)** 🔗 | TensorFlow, Keras, OpenCV, FER Dataset

- Built a facial emotion classifier using ResNet50 trained on the FER dataset.
- Converted grayscale to RGB, normalized inputs, and applied real-time augmentation.
- Added GAP, Dense, and Softmax layers for multi-class emotion prediction.
- Used early stopping; visualized confusion matrix and accuracy/loss plots.