SOUNDARYA DUBE

Udaipur, Rajasthan | Ph: +91 7737190027 | soundaryadube981@gmail.com|LinkedIn | GitHub | Codeforces | LeetCode

EDUCATION

Vellore Institute of Technology (VIT), Bhopal **2022 - 2026**
B.Tech in Computer Science Engineering, Specialization in Health Informatics. 8.25

SKILLS

Technical Skills: TensorFlow, Keras, PyTorch, Scikit-Learn, LightGBM, Pandas, NumPy, OpenCV, spaCy, Streamlit, Flask, React, SQL
Languages: Python, C++, Java

UNIVERSITY PROJECTS

Healthcare Prescription Decoding May 2025

- Developed an NLP system to decode prescription photos, converting them into structured, usable text. This tool reduces manual data entry errors and streamlines medication management.
- **Image Processing:** Utilized OpenCV for image preprocessing and thresholding to enhance text visibility from raw photos.
- **NLP Extraction:** Employed spaCy for tokenization and classification models to recognize and extract critical entities such as drug names, dosages, and instructions from the processed text.
- **Impact:** Streamlined the information extraction process, enabling healthcare providers to quickly access patient medication details and enhance safety. **Key Tech:** Python, OpenCV, spaCy, Scikit-learn.GitHub Link

Surgical Tumor Detection Dec 2024

- Developed a deep learning application to perform real-time, pixel-perfect segmentation of surgical instruments from operative images. This tool is designed to assist in surgical navigation and autonomous robotic systems.
- **Architecture:** Implemented a U-Net model, a powerful encoder-decoder architecture with skip-connections, ideal for precise biomedical image segmentation. Training: Trained the model in TensorFlow/Keras on the CholecSeg8k dataset, a specialized dataset of surgical video frames. **Deployment:** Built an interactive web application using Streamlit, allowing users to upload an image and receive a side-by-side comparison of the original image and the predicted segmentation mask.
- **Key Tech:** Python, TensorFlow, Keras, U-Net, OpenCV, Streamlit, NumPy, Dice Loss, IoU. GitHub Link

ECG-Based Health Risk Predictive Analysis Jul 2024

- Developed a high-performance machine learning pipeline for the automatic classification of ECG heartbeats into five distinct arrhythmia types based on AAMI standards (N, SVEB, VEB, F, Q).
- **Advanced Feature Engineering:** Extracted from a comprehensive 118-feature set per beat, including Wavelet Transforms, Higher-Order Statistics (HOS), RR intervals, and morphological features.
- **ML Pipeline:** Trained, tested, and evaluated multiple classifiers, including Random Forest, SVM, and an Advanced Ensemble model (LightGBM) that achieved 94.22% accuracy. **Deployment:** Created a Streamlit web application for real-time analysis and visualization of ECG signals.
- **Key Tech:** Python, Scikit-learn, LightGBM, Pandas, NumPy, Wavelets, SMOTE, Streamlit. GitHub Link

EXTRACURRICULAR ACTIVITIES

Metaversity Club VIT Bhopal, Feb 2025

- Increased club's digital footprint and online engagement through targeted content on social media.
- Utilized analytics-driven performance tracking to optimize outreach campaigns and engagement rates.

Industrial Conclave VIT Bhopal, Aug 2024

- Managed a cross-functional team to design and implement a medical image analysis project, from concept to deployment.
- Fostered collaboration between technical and non-technical members, ensuring project alignment with industry standards and timely delivery.