SOUNDARYA DUBE

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EDUCATION

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

SKILLS

Technical Skills: FastAPI, Flask, Django, WebSocket, TensorFlow, PyTorch, OpenCV, Keras, BERT, Google Cloud Platform (GCP) - Deployment and Monitoring, MongoDB (NoSQL), basic SQL, API Development.
Languages: Python, C++, Java

UNIVERSITY PROJECTS

Health Card System   May 2025
- A secure, centralized digital health record system to streamline patient data management, utilizing FastAPI for high performance backend services and MongoDB for efficient NoSQL data storage.
- Deployed on GCP with robust security measures, implementing a unique 14-digit ABHA-like ID for seamless patient/ doctor access, reducing duplicate tests and misdiagnosis.
- Enhances healthcare efficiency by providing instant access to medical history, lab reports, and prescriptions, aligning with India's Ayushman Bharat digital mission. GitHub Link

Deep Learning for Surgical Tumor Detection   Dec 2024
- An AI-driven diagnostic tool that processes MRI/CT scans using CNNs to detect tumors and abnormalities with high accuracy.
- Implemented image preprocessing pipelines with OpenCV and deployed the model as a real-time inference API using FastAPI on GCP.
- Assists surgeons in pre-operative planning by identifying critical regions, potentially improving surgical outcomes and patient survival rates. GitHub Link

ECG-Based Health Risk Stratification Platform   Jul 2024
- A complex data unification pipeline to integrate six public ECG datasets (MIT-BIH, PTB-XL, SCDH), resolving heterogeneities in lead configurations, sampling rates, and labeling schemas to create a unified ontology for +15 cardiac and systemic conditions.
- Implemented model explainability using Gradient-weighted Class Activation Mapping (Grad-CAM) to generate visual saliency maps, identifying clinically relevant features within the ECG waveform and validating decisions against cardiological principles.
- Deployed the system as an interactive web application using Gardio, providing a comprehensive health report to facilitate early intervention and scalable use in preventive cardiology screening. 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.