Sarmitha S

Machine Learning Engineer

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AI-Portfolio

EDUCATION

B.E Electronics and Instrumentation Engineering,
Sri Ramakrishna Engineering College
2021 – 2025 | Coimbatore, India
Specialization : Sensor Technology
CGPA : 9.15/10

HSC,
Vimal Jyothi Convent Matric Higher Sec School
2021 | Coimbatore, India
Grade : 91.5%

SKILLS

Programming Language:
Python (Intermediate, threading)

ML Libraries & Tools:
NumPy, Pandas, Scikit-learn, Keras, SHAP, SMOTE, Grad-CAM

Deployment & Frameworks:
Flask, Streamlit, Render, Git, Google Colab

AWARDS

Sri. P. Ramasamy Naidu Memorial Award,
Sri Ramakrishna Engineering College
Awarded for achieving the highest CGPA (9.1/10) across the department (2021–2023).

HACKATHONS

- **Top 50 Finalist** – Thryve Digital National Healthcare Hackathon
- Participated in Annual Innovation Expo – MVJ College of Engineering, Bangalore
- Built predictive model in **Humidity Prediction Challenge** – MachineHack

PROJECTS

Interactive Linear Algebra Toolkit
Tech Stack: Python, Streamlit, NumPy, Plotly, Matplotlib
Github Link | **Demo**

- Developed a web-based toolkit using Python and Streamlit to visualize linear algebra concepts
- Implemented Gaussian elimination, Guass Jordan Elimination, 2D/3D matrix transformations, and PCA using eigen decomposition and SVD
- Designed interactive interfaces to bridge theory with practical understanding

AI for Pneumonia Detection using Deep Learning
Tech Stack: TensorFlow, Keras, EfficientNetB0, MobileNetV2, Grad-CAM, Streamlit
Github Link | **Demo**

- Developed and deployed a deep learning app to classify chest X-rays as Pneumonia or Normal in real time
- Trained MobileNetV2 and EfficientNetB0 with data augmentation, early stopping, and ResNet50-based knowledge distillation
- Integrated Grad-CAM for visual explanation of predictions, enhancing interpretability in medical imaging
- Achieved 96% accuracy and 0.995 AUC using a dynamic confidence-weighted ensemble

Retrieval-Augmented Resume Chatbot
Tech Stack: Python, Flask, Gunicorn, rank_bm25, scikit-learn, deep-translator
Github Link | **Demo**

- Developed an intent-aware AI resume chatbot that classifies user queries and retrieves relevant resume content using a keyword-based BM25 retriever, ensuring precise and explainable context for each answer.
- Embedded core career and skills details directly into system prompts to provide fallback grounding and robust response handling, maintaining accuracy even for ambiguous or off-topic queries.
- Designed a hybrid Retrieval-Augmented Generation (RAG) system that balances efficiency and accuracy with a clear upgrade path to semantic or embedding-based retrieval enabling scalable, future-proof conversational AI

Monitoring of Prosthetic leg during Rehabilitation using IoT
Tech Stack: C, ESP-WROOM-32, MPU6050, FSR Sensors, Arduino IDE
Github Link

- Designed an IoT-enabled system to monitor gait and pressure of a prosthetic leg during rehabilitation. Used gyroscope and force sensors to gather real-time feedback, sent wirelessly to the dashboard
- Helped prosthetists remotely track patient progress, reducing physical visits and improving personalized rehabilitation

CERTIFICATES

Linear Algebra for Machine Learning and Data Science
Coursera

Artificial Intelligence Primer Certification
Infosys Springboard | Score : 82.5

Industrial IoT & Industry 4.0
NPTEL (Silver Certificate, Merit Holder)

HackerRank Verified Skill Certifications
Basic: Python, SQL

BEC Preliminary English Exam
Cambridge (Score: 152/170)

LANGUAGES

- Tamil (Native)
- English (Professional fluency)

INTERNSHIP

Open Source Engineering Cooperation
Bengaluru, India
Explored the concepts of C fundamentals and the working of sensors and Microcontrollers

PUBLICATIONS

ICAISS-2023 (scopus Indexed),
Care College of Engineering, Trichy
Paper: Monitoring of Prosthetic Leg During Rehabilitation Using IoT
Real-time movement tracking of prosthetic and normal legs using IoT sensors via ThingSpeak.

INTERESTS

- **Visual Arts :** Passionate about sketching and painting since childhood, enhancing creativity and visual problem-solving
- **Dance :** Practiced for several years, fostering discipline, rhythm, and stage confidence