Sarmitha S

Machine Learning Engineer

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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)

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

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

PUBLICATIONS

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

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

LANGUAGES

- Tamil
- English

INTERESTS

Painting, Sketching, Dancing

PROJECTS

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

- Built and deployed a deep learning-based pneumonia classification system using X-ray images.
- Trained 3 models (Simple CNN, MobileNetV2, EfficientNetB0) with augmentation, fine-tuning, and early stopping.
- Integrated Grad-CAM visualizations to enhance explainability of AI predictions.
- Achieved 96% accuracy and 0.995 AUC via ensemble learning with Dynamic Confidence-Based Voting to avoid misleading prediction.
- Deployed real-time app using Streamlit for user-friendly diagnosis support.

Customer Churn Prediction
Tech Stack: *Python, Scikit-learn, LightGBM, SHAP, SMOTE + Tomek, Pandas, Streamlit, Matplotlib*
Github Link | **Demo**

- Built a telecom churn prediction model using multiple linear models; finalized Logistic Regression with L1 regularization (Accuracy: 74%, Recall: 77%, ROC-AUC: 0.82).
- Applied feature engineering, SMOTE, and SHAP for explainability and interpretability.
- Compared with tree-based models (Random Forest, LightGBM); LightGBM alone yielded ROC-AUC of ~0.82.
- Stacked Logistic Regression + LightGBM, deployed via Streamlit with user-defined threshold and CSV batch prediction.

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

- Developed a web-based toolkit using Python and Streamlit to visualize and solve linear algebra problems.
- Implemented modules for Gaussian elimination, 2D/3D matrix transformation visualization, and Principal Component Analysis (PCA) from scratch using eigen decomposition.
- Designed interactive interfaces to help users bridge theoretical concepts with practical applications.

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)

Python Basics
HackerRank Skill certification Test

SQL Basics
HackerRank Skill Certification Test

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

INTERNSHIP

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