S. SRINIVASA ARAVINDH

Machine Learning Engineer — Applied AI & Research

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PROFESSIONAL SUMMARY

Machine Learning Engineer with hands-on research and applied experience in computer vision, explainable AI, cybersecurity analytics, and reinforcement learning. Strong background in building end-to-end ML pipelines, rigorous model evaluation, and reproducible research workflows. Experienced in translating experimental models into deployable and publication-ready systems.

EDUCATION

M. Kumarasamy College of Engineering, Karur — Aug 2021 – Jun 2025
Bachelor of Technology in Artificial Intelligence and Machine Learning — CGPA: 8.21

EXPERIENCE

Data Conquest Research Hub — Coimbatore, India
Machine Learning Research Analyst — Mar 2024 – Present

- Designed and implemented end-to-end ML pipelines for healthcare imaging and cybersecurity datasets.
- Applied explainable AI techniques (SHAP, LIME) for model interpretability and failure analysis.
- Conducted feature engineering, ablation studies, Bayesian hyperparameter optimization, and class imbalance handling.
- Evaluated models using precision, recall, F1-score, ROC-AUC, and threshold tuning.
- Maintained reproducible research workflows and publication-ready documentation.

PROJECTS

Malware Detection via Dynamic Algorithmic Configuration — IEEE IDCIoT 2025

- Designed a federated learning-based malware detection framework with adaptive algorithm configuration.
- Reduced false positives using ensemble classifiers and dynamic hyperparameter tuning.
- Achieved approximately 98% detection accuracy.
- DOI: 10.1109/IDCIOT64235.2025.10914737

Skin Cancer Prediction using Explainable AI — National Conference

- Built multi-class CNN models for dermoscopic image classification.
- Integrated SHAP and LIME for pixel-level and feature-level explanations.
- Achieved approximately 91% accuracy with improved malignant recall.

Additional Mini Projects: CAPTCHA recognition using OpenCV and deep learning; House price prediction with REST API deployment; Reinforcement Learning: Tic Tac Toe Agent (DQN); Spotify analytics dashboard using API integration and MySQL.

RESEARCH, PUBLICATIONS & TECHNICAL ENGAGEMENTS

- **Paper:** Skin Cancer Prediction using Explainable AI — National Conference, Journal Publication.
- **Paper:** Malware Detection via Algorithmic Configuration — IEEE Conference, REVA University.
- **Speaker:** Machine Learning at Google DevFest 2023, Madurai.
- **Participant:** E-Summit 2023, IIT Madras.
- **Co-organiser:** ARTIFEST 2023, AI Symposium, MKCE.
- Solved 90+ LeetCode problems and completed 728 Skillrack programming challenges.

SKILLS

Deep Learning & AI: CNN, Transfer Learning, DQN, Federated Learning, BERT, LLM Finetuning, Prompt Engineering, Gen AI, Ensemble Methods, Architecture Optimisation
Advanced ML: Exploratory Data Analysis, Data Augmentation, Feature Engineering, Bayesian Hyperparameter Optimisation, Ablation Studies, Model Robustness, Explainable AI (SHAP, LIME), NLP (Transformers, Text Classification)
Computer Vision & NLP: Medical Image Analysis, Dermoscopic Imaging, OpenCV, Navigation Systems, Text Classification
Frameworks: PyTorch, TensorFlow, Keras, Scikit-learn, NumPy, Pandas, Hugging Face, Streamlit, Flask
Deployment & MLOps: REST APIs, Docker (basics), MLflow, Git/GitHub, Linux
Programming: Python, SQL, C, Java (basic)

CERTIFICATIONS

Google Cloud Associate Cloud Engineer · AWS Cloud Fundamentals · Oracle Cloud Infrastructure AI Foundations Associate · Machine Learning (ICT Learnathon) · Data Analytics with Python (NPTEL)