BALAJI S

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Electronics and Communication Engineering graduate with hands-on experience in AI, machine learning, computer vision, and embedded systems. Built real-time facial emotion detection systems, fault-tolerant matrix computation modules, and AI chatbots. Proficient in Python, TensorFlow, PyTorch, CNNs, OpenCV, SQL, and embedded platforms. Completed multiple industry job simulations across ML, analytics, and GenAI. Enthusiastic about building scalable, ethical AI solutions across the full ML lifecycle, including data preprocessing, feature engineering, model training, and deployment in serverless environments.

Skills

- **Programming Languages:** Python, C, Verilog HDL
- **ML/AI Tools:** Scikit-learn, NumPy, Pandas, OpenCV, CNN, TensorFlow, PyTorch
- **Databases:** SQL, MySQL, InfluxDB, Vector DBs (familiar)
- **Tools & Platforms:** Git, Docker (learning), Android Studio, Vivado, Tableau, Excel, Linux CLI, AWS (familiar), GCP (familiar)
- **Concepts:** Feature Engineering, Data Preprocessing, ML Lifecycle, Model Training, Model Deployment, Computer Vision, NLP, REST APIs, Unit Testing (basic), Data Structures & Algorithms, MLOps (familiar)

Education

Bachelor of Engineering in Electronics and Communication Engineering **Aug 2021 - May 2025**

Sri Ramakrishna Engineering College

- Major in Electronics and Communication.
- CGPA : 7/10

Projects

Fault Tolerant Matrix Computation on Systolic Arrays **Feb 2025 - May 2025**

- Designed a matrix multiplier with integrated fault-tolerance using Hamming code and ABFT in Vivado. Tailored for AI workload simulations with error resilience and real-time data integrity.

OpenWISP Monitoring: Real-Time Network Health Insights **Dec 2023 - Jan 2024**

- Created a web-based network diagnostics tool with real-time visualization of Wi-Fi performance metrics. Automated data logging and visual alerts.

IoT-Based Smart Energy Meter for Energy Efficiency **Jun 2023 - Apr 2024**

- Developed a real-time power monitoring system using PIR for motion sensing and cloud-based dashboards for visualization. Integrated email alerts for usage anomalies.

Video Based Emotion Detection Using Deep Learning **Jun 2022 - May 2023**

- Built a real-time facial emotion classifier using CNN trained on FER2013. Integrated OpenCV for live camera feed analysis. Achieved 89% validation accuracy. Involved in data preprocessing, feature extraction, and real-time model inference.

Virtual Job Simulations

Software Engineering **Jun 2025**

- Developed scalable backend data models and validated system logic.

Quantitative Research **Jun 2025**

- Analyzed commodity pricing and credit risk; created FICO-based segmentation.

Data Analytics **Jun 2025**

- Visualized trends via Tableau; conducted Excel-based forensic data reviews.

GenAI **Jun 2025**

- Built a financial chatbot with AI-driven conversation logic and NLP preprocessing.

Additional Information

- **Certifications:** Python Programming, PLC Design, Forage Simulations (Deloitte Analytics, Software Engineering, Quantitative Research, GenAI)
- **Interests:** AI/ML, NLP, Computer Vision, MLOps, Embedded AI, Real-Time Data Systems, Cloud AI Deployments
- **Strengths:** Quick learner, collaborative, strong attention to system scalability and ethical AI
- **Languages:** English (Professional), Tamil (Native)