BALAJI S

Data Analyst

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Profile Summary

Electronics and Communication Engineering graduate with hands-on experience in Data Science and Embedded Systems. Proficient in Python, C, Verilog HDL, and MySQL with a strong foundation in AI/ML, IoT, and Data Analytics. Completed industry-relevant simulations in Software Engineering, Quantitative Research, GenAI, and Data Analytics through Forage. Passionate about building intelligent, sustainable systems by integrating hardware and software technologies.

Technical Skills

- **Languages:** Python, C, Verilog HDL, MySQL
- **Data Analysis & Visualization:** Pandas, NumPy, Excel, Tableau, Matplotlib
- **Machine Learning:** CNN, TensorFlow, Scikit-learn, OpenCV
- **Web Technologies:** Streamlit
- **Embedded & IoT:** ESP32, PIR Sensors, Arduino IDE, Ubidots
- **Tools:** Vivado, Git, Linux, I2C LCD

Internship

Data Science Intern – VCodez **Jul 2025 - Present**

- Cleaned and processed real-world datasets for exploratory analysis and insight extraction.
- Collaborated on ML model prototyping and automated workflow tasks.

Education

B.E. Electronics and Communication Engineering **Aug 2021 – May 2025**

- Sri Ramakrishna Engineering College, Coimbatore
- CGPA: 7.0 / 10.0

Projects

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

- Built a Verilog HDL-based systolic array with embedded Light ABFT, Hamming, and parity codes for matrix multiplication.
- Simulated on Vivado to verify fault tolerance in AI accelerators and embedded computing platforms.
- Tools: Verilog HDL, Vivado.

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

- Built a Python-Django based network health monitor with real-time ping/Iperf3/WiFi client checks.
- Integrated with InfluxDB for performance data logging and Redis for high-speed access.
- Tools: Python, Django, InfluxDB.

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

- Created a smart meter using ESP32 and PIR sensor to track live energy consumption and occupancy-based control.
- Pushed data to Ubidots cloud and triggered automated alerts when usage exceeded threshold.
- Tools: ESP32, Ubidots, Arduino IDE, I2C LCD.

Video-Based Emotion Detection Using Deep Learning **Sep 2022 – Apr 2023**

- Developed a facial emotion recognition model using CNN and FER2013 dataset for real-time applications.
- Integrated OpenCV for live webcam feed, grayscale conversion, and histogram equalization for performance boost.
- Tools: TensorFlow, OpenCV, Python.

Certifications

- Data Analytics Essentials – Cisco
- Python Programming
- MySQL and PHP

Virtual Job Simulations

Deloitte Data Analytics Simulation **Jun 2025**

- Conducted forensic data analysis, created interactive Tableau dashboards, and presented insights.

Quantitative Research Simulation **Jun 2025**

- Modeled natural gas prices, designed credit risk scoring mechanisms, and bucketed FICO scores.

GenAI Simulation **Jun 2025**

- Built an AI-powered financial chatbot; performed data preprocessing, NLP, and interactive Q&A logic

Software Engineering Simulation **Jul 2025**

- Implemented schema-based backend logic and translated business needs into scalable data models.

Interests

- AI/ML
- Data Visualization
- Embedded Systems
- Computer Vision
- IoT
- Real-Time Systems