SHESHA SIMHA N M

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Shesha Simha

Summary

AI-ML Engineer with 7 months of hands-on experience in developing and deploying robust machine learning pipelines, automation workflows, and deep learning solutions. Skilled in Python, TensorFlow, PyTorch, and data engineering tools for end-to-end model lifecycle management. Experienced in building intelligent systems that integrate vision, NLP, and reinforcement learning for real-world applications. Passionate about scalable AI design, data-driven decision systems, and continuous optimization of model performance.

Experience

AquaAirX Autonomous Systems **August 2025 - Present**
AI-ML Engineer → AI Team Lead Bengaluru, India

- Leading AI team developing advanced ML pipelines for government and defense-focused autonomous systems under the **NCIIPC Grand Challenge (Startup India Initiative)**.
- **PS-12 (Underwater Domain Awareness, Acoustic, Stage-1):** Designed a fully offline, Dockerized sound classification pipeline for underwater acoustic data; implemented DSP-based preprocessing (resampling, pre-emphasis, mel-spectrograms) and multi-class modeling (Vessel, Marine Animal, Natural, Anthropogenic). Integrated MLflow/W&B for experiment tracking and produced JSON outputs aligned to IER evaluation rules, optimizing penalty metrics for false alarms and class confusion.
- **PS-09 (Maritime Domain Awareness, EO/SAR, Stage-1):** Built vessel detection models using Sentinel-1 (SAR) and Sentinel-2 (EO) imagery with land masking and AIS correlation; generated GeoJSON/Shapefiles for detections and CSV outputs for correlation/interpolation. Achieved strong AP50, F1, and RMSE benchmarks for fully reproducible offline evaluation.

AquaAirX Autonomous Systems **March 2025 – July 2025**
AI-ML Engineer (Autonomy & Analytics)

- **Automated Bathymetric Survey Report Generation:** Built compact LLM-driven pipelines to convert sonar maps, telemetry logs, and underwater imagery into structured, client-ready reports — improving turnaround and consistency across surveys.
- **Amphibious/Underwater Drone – Perception & Navigation:** Developed a sensor fusion stack integrating camera, sonar, DVL, and IMU data for GPS-denied localization. Combined vision-based segmentation with classical path planning and reinforcement learning control for efficient and energy-aware navigation.
- **Bathymetry Change Forecasting & Analytics:** Trained deep image models to forecast seabed elevation changes; standardized tiling, missing-data handling, and evaluation workflows, with results visualized via Cesium and WMS for geospatial collaboration.
- **Underwater Image Enhancement (FUnIE-GAN + Post-Processing):** Enhanced underwater imagery using GAN-based restoration; improved contrast and color realism without introducing artifacts, strengthening both human review and downstream vision model performance.

PRDC Infotech Pvt Ltd. **October 2024 - November 2024**
AI-ML Intern Bengaluru, India

- Developed a hybrid fault-detection prototype for power-grid signals using **Random Forest, SVM, and CNN**, enabling near real-time anomaly alerts and reducing triage effort.
- Built data pipelines for proprietary formats (.OSG, .BWF) — automated extraction, cleaning, and EDA with **Python, NumPy, and pandas** for reproducible analytics.
- Delivered a deployable **PoC integrated into PRDC's monitoring systems**, contributing to their first **AI-powered fault-analysis capability** adopted by clients like **BESCOM** and **Tata Power**.

Education

Global Academy of Technology **2021 - 2025**
Artificial Intelligence and Machine Learning Engineering
CGPA - 8.1

Projects

Research paper on VEHICLE MAINTENANCE using PREDICTIVE MAINTENANCE **2023**

Developed a predictive maintenance system for vehicle health monitoring using **K-Means, XGBoost, SVM, and Random Forest** to forecast failures and optimize maintenance schedules. Improved fault detection accuracy through real-time data preprocessing and model tuning in **Python**.

Streamlit LangChain Chatbot for EDA Using LSTM **2024**

Built an interactive chatbot for **EDA** powered by **LSTM** and **LangChain**, allowing users to upload datasets and receive insights, summaries, and visualizations through natural language queries using **Python, TensorFlow, and Streamlit**.

Secure E-Voting System Using Ethereum Blockchain **2025**

Designed a decentralized **e-voting DApp** with **smart contract-based authentication** using **Ethereum, MetaMask, Hardhat, and React**, ensuring transparent, tamper-proof, and auditable elections on blockchain infrastructure.

Skills

Programming

Python (Advanced), C++, Git, Docker

Data Analysis

NumPy, pandas, Matplotlib, Seaborn, Data Cleaning & Preprocessing, Exploratory Data Analysis (EDA)

Machine Learning & AI

Supervised & Unsupervised Learning, Model Deployment, LLMs, Reinforcement Learning, Feature Engineering, Scikit-learn, MLflow, Weights & Biases (W&B), MLOps Concepts

Soft Skills

Teamwork, Communication, Team Leadership, Team Building

Deep Learning

PyTorch, TensorFlow, OpenCV, Computer Vision, Neural Networks, CNNs, LSTMs

Certifications

The Complete Python Bootcamp
UDEMY

The Complete 2023 Web – Development Bootcamp
UDEMY

The Language of DevOps: DevOps Principles & Practices
Infosys Springboard

Volunteering

National Service Scheme (NSS) India

Participated in various community service activities through college, including health camps, blood donation drives, and environmental conservation programs.