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Summary

As an AI-ML engineer, I build practical autonomy and analytics for water-based missions. I automate bathymetric reporting using compact LLMs that turn sonar maps, telemetry logs, and images into clear client summaries through a hands-free ingestion pipeline. I'm developing an amphibious/underwater drone stack that fuses camera, sonar, DVL, and IMU, segments safe areas, plans paths, and runs an energy-aware RL controller validated in simulation. I forecast depth with U-Nets and enhance underwater imagery using FUnIE-GAN.

Experience

AquaAirX Autonomous Systems   March 2025 - Present
AI-ML Engineer   Bengaluru, India

• **Automated Bathymetric Survey Report Generation (LLM + Pipelines)**

  - I trained small AI text models to turn sonar maps, telemetry logs, and images into clean client reports.

  - I built a hands-free pipeline that reads files, extracts key numbers, runs checks, and fills report templates—so reports are faster and consistent.

• **Amphibious / Underwater Drone — Perception & Navigation (developing)**

  - I fused camera, sonar, DVL, and IMU data to locate the drone when GPS doesn't work underwater.

  - A simple vision model marks safe/unsafe areas; a classic planner picks paths; a learned controller follows them while saving energy.

  - In simulation, the stack stays stable and recovers quickly from brief sensor dropouts—safer behavior with clearer debugging.

• **Bathymetry Change Forecasting & Analytics (developing)**

  - I train an image model to predict future depth or the change since the last survey.

  - I split big maps into tiles, handle missing data the same way each time, and compare results to new ground truth with clear tolerances.

  - Outputs appear on our Cesium globe and as WMS layers, so teams can inspect and share them easily.

• **Underwater Image Enhancement — FUnIE-GAN + Post-Processing (developed)**

  - I improved an existing GAN so underwater photos look clearer without fake colors or dot artifacts.

  - A light script fixes color cast, improves contrast, and sharpens edges—helpful for human review and downstream detection.

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

• Built a hybrid fault-detection prototype for power-grid signals that ensembles Random Forest, SVM, and a compact CNN; cut anomaly triage time and enabled near-real-time alerts.

• Engineered data pipelines for proprietary formats (.OSG, .BWF): extraction, cleaning, and EDA using Python/NumPy/pandas with reproducible notebooks and plots for operations teams.

• Packaged a deployable PoC integrated into PRDC's monitoring workflow; contributed to the firm's first AI/ML-powered fault analysis capability used by utility clients (e.g., BESCOM, Tata Power).

Projects

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

Technology used: Python, Artificial Intelligence, Machine Learning Algorithms such as K-Means Clustering, XGBoost, SVM, Random Forest.

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

Developed a chatbot for exploratory data analysis (EDA) using LSTM, enabling users to input data in any format and interactively analyse it. The system provides insights, summaries, and visualizations through natural language queries. Technology used: Python, Streamlit, LangChain, Tensor Flow, Neural network, NLP, Long-short-term memory (LSTM)

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

Developed a secure e-voting system using blockchain, featuring a decentralized application (DApp) with smart contract-based voting. Integrated MetaMask for authentication and transactions, utilizing Hardhat for development and React for the frontend. Ensured transparency and tamper-proof voting through blockchain technology

Skills

Programming

Advanced proficiency in Python for data pipelines, C++

Machine Learning & AI

Reinforcement Learning, Random Forest, XGBoost, Neural Networks, Time-Series Forecasting, NLP, LLMs, Time Series Forecasting

Deep Learning

PyTorch, TensorFlow, Keras, OpenCV, Roboflow

Data Analysis

Pandas, NumPy, Matplotlib, EDA

Soft Skills

Teamwork, Communication, Team Leadership, Team Building

Education

Global Academy of Technology **2021 - 2025**

Artificial Intelligence and Machine Learning Engineering

CGPA - 8.1

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.