SACHIN MAURYA

AI Engineer | Machine Learning Engineer | Time-Series | Computer Vision

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Professional Summary

Machine Learning Engineer with experience designing and deploying end-to-end ML pipelines across predictive maintenance and medical imaging domains. Specialized in time-series analysis, signal processing, deep learning, and scalable model deployment using FastAPI, Docker, and AWS. Proven ability to build real-time monitoring solutions and optimize model performance through feature engineering and experimentation.

Core Technical Skills

- **Programming:** Python, R, SQL
- **Machine Learning:** Classification, Regression, Ensemble Models, Model Selection, Cross-Validation, Hyperparameter Optimization (Optuna, GridSearchCV)
- **Deep Learning:** PyTorch, TensorFlow, CNN, LSTM, Transfer Learning, Neural Networks
- **Time-Series & Signal Processing:** FFT, Wavelets, Statistical Feature Extraction, Predictive Maintenance, Anomaly Detection
- **MLOps & Deployment:** FastAPI, REST APIs, MLflow, Docker, AWS (EC2, S3), Streamlit, CI/CD Basics
- **Tools:** Git, GitHub, Linux, Jupyter, Data Pipelines, Experiment Tracking

Experience

Machine Learning Engineer Intern — Predictive Maintenance Jan 2025 – Dec 2025
NSTL–DRDO | IIT Roorkee Collaboration

- Designed and implemented an end-to-end predictive maintenance pipeline using vibration time-series data, integrating signal processing and feature engineering workflows.
- Developed and evaluated ML/DL models (XGBoost, Random Forest, CNN, LSTM) for fault detection and Remaining Useful Life prediction.
- Built real-time anomaly detection dashboards using Streamlit to support continuous equipment health monitoring and decision-making.

Data Science Engineer Intern — Medical Imaging Feb 2025 – Aug 2025
QuickCURD (Remote)

- Developed deep learning pipelines for CT and X-ray image classification including preprocessing, augmentation, and training.
- Applied transfer learning using CNN architectures and evaluated models using ROC-AUC and F1-score metrics.
- Improved model robustness through optimized preprocessing and augmentation strategies.

Projects

Predictive Maintenance — Centrifugal Pump Analysis GitHub

- Built machine learning workflow for vibration-based condition monitoring with feature engineering and multi-model comparison.
- Developed Streamlit dashboard to visualize degradation trends, anomaly scores, and prediction insights.

Human Activity Recognition — UCI Dataset GitHub

- Implemented classification models on accelerometer sensor data with feature scaling and cross-validation.
- Achieved **96.7% accuracy** using Linear SVC.

Publications

Performance Analysis of Machine Learning Models for Vibration-Based Fault Classification in Centrifugal Pump 2025
International Conference on Vibration Engineering & Technology of Machinery (VETOMAC 2025) — Accepted
GitHub

- Co-authored research on vibration-based fault diagnosis using machine learning and signal processing techniques for predictive maintenance.
- Performed feature extraction and comparative evaluation of classification models including Random Forest and SVM.

Education

B.Tech (Hons.) Computer Science & Engineering (Artificial Intelligence) 2022 – 2026
Chhattisgarh Swami Vivekanand Technical University CGPA: 7.6/10
Relevant Coursework: Machine Learning, Deep Learning, Cloud Computing, DBMS

Achievements

- Two Letters of Recommendation from IIT Roorkee faculty for research contribution in predictive maintenance.
- HackerRank 5 in Python and SQL.
- NPTEL Elite Certifications in Computer Vision and MIS.