Rohan Borse

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Professional Summary

Python AI/ML Developer with 2+ years of experience designing and deploying end-to-end machine learning solutions using Python, SQL, and production-grade data pipelines. Delivered 25% improvement in forecasting reliability and 30% increase in predictive model accuracy through feature engineering, model optimization, and real-time analytics. Proven expertise in computer vision, NLP, time-series forecasting, and industrial ML — consistently converting large-scale industrial data into automated, decision-ready intelligence for high-impact business outcomes.

Technical Skills

Programming Languages: Python (Pandas, NumPy, Scikit-learn, Matplotlib, Seaborn), SQL (PostgreSQL), Git

Machine Learning & AI: Supervised Learning, Unsupervised Learning, Feature Engineering, Model Optimization, Time-Series Forecasting, Computer Vision (YOLO, OCR, Image Processing), NLP, Generative AI, LLM Integration

Deep Learning & Frameworks: Neural Networks, Anomaly Detection, Model Drift Monitoring, Model Retraining Pipelines

MLOps & AI Engineering: Model Deployment, Real-Time Data Pipelines, ETL Development, API Integration (FastAPI, Flask), Model Validation, Performance Monitoring, Edge Deployment

Data Analysis & Visualization: Exploratory Data Analysis (EDA), Statistical Modeling, Hypothesis Testing, Regression Analysis, Power BI, Excel

Databases & Cloud: PostgreSQL, SQL Query Optimization, REST API Development, Data Architecture Design

Professional Experience

Python AI/ML Developer **Jan 2024 – Present**
Digineous Technologies Pvt. Ltd. *Pune, Maharashtra*

Computer Vision & Real-Time Surveillance System

- Led end-to-end development and deployment of a Smart Vehicle Detection System (SVDS) for BSP industrial premises, integrating Automatic Number Plate Recognition (ANPR) and helmet detection models across **5+ surveillance zones** to automate vehicle monitoring and safety compliance.
- Designed and fine-tuned YOLO-based object detection pipelines for vehicle detection and license plate localization, achieving **92%+ detection accuracy** via OCR-based character extraction under challenging conditions (variable lighting, motion blur, dust, and occlusion).
- Engineered real-time inference architecture covering frame capture, preprocessing, model inference, NMS-based post-processing, confidence filtering, rule-based violation detection, and structured event logging — delivering **sub-100ms end-to-end latency** at **25+ FPS** throughput.
- Integrated radar-based speed detection with computer vision models to enable speed-aware vehicle tracking across **3+ entry/exit checkpoints**, automating **100%** of violation capture workflows.
- Deployed scalable backend services using Python and FastAPI for real-time violation recording, vehicle entry logging, and SQL-based storage of plate numbers, timestamps, speed data, and compliance status — supporting **500+ daily vehicle transactions**.
- Executed performance optimization strategies (threshold tuning, inference batching, pipeline restructuring) reducing processing overhead by **35%** and achieving stable real-time performance for edge and industrial deployment.
- Automated alert generation for helmet non-compliance and unauthorized vehicle entry, cutting manual surveillance workload by **60%** and improving operational safety enforcement response time.

Industrial ML & Predictive Analytics

- Spearheaded end-to-end delivery of predictive maintenance models for CNC and manufacturing equipment at SKH, analyzing high-volume multi-sensor data (vibration, temperature, current) to improve early fault detection accuracy by **30%** and reduce unplanned downtime by **20%**.
- Created real-time anomaly detection pipelines using statistical modeling and machine learning to monitor machine health across **8+ production lines**, achieving **95%+ anomaly detection sensitivity** continuously.
- Built robust ETL and data validation frameworks to process **10GB+ daily industrial data**, implementing automated quality checks, feature engineering workflows, and model retraining strategies — reducing data errors by **45%**.
- Architected scalable SQL data pipelines and optimized large operational datasets, achieving **40% query performance improvement** and enabling real-time dashboards and ML-driven risk scoring for **10+ stakeholders**.
- Established model drift monitoring and retraining pipelines, reducing model degradation incidents by **50%** and maintaining prediction accuracy above **90%** in rapidly evolving manufacturing environments.
- Collaborated with process engineering and quality teams to align ML model outputs with PFMEA risk drivers, contributing to a **12% reduction in scrap rate** and measurable cost savings across production lines.

Projects

AI-Powered Healthcare Chatbot | ***NLP, Machine Learning, SQL, Python*** CDAC Bangalore

- Developed an AI-powered healthcare chatbot using NLP and ML to provide personalized medical advice, appointment scheduling, and symptom analysis for **10,000+ patients**, enhancing engagement and response accuracy.
- Formulated an NLP pipeline achieving **90% accuracy** in processing medical inquiries, enabling timely interventions and handling **500+ daily patient queries**.
- Streamlined backend SQL database management, reducing response times by **30%** and ensuring quick access to critical medical data across devices.
- Ensured HIPAA compliance by implementing robust privacy and security measures, safeguarding **50,000+ patient records** while meeting regulatory standards.
- Incorporated continuous learning ML algorithms trained on **1,000+ interactions**, improving chatbot response accuracy, efficiency, and user satisfaction iteratively.

ML-Based Financial Fraud Detection System | ***Machine Learning, Neural Networks, SQL, Python*** CDAC Bangalore

- Built a real-time financial fraud detection system analyzing **1 million+ transactions daily**, identifying fraud with **25% higher accuracy** compared to traditional rule-based methods.
- Deployed ML classification algorithms for transaction analysis, reducing fraud-related financial losses by **15%** and enabling early identification of fraudulent activities.
- Consolidated multi-source fraud databases, reducing false positive rates by **20%** and streamlining transaction verification processes for improved system reliability.
- Spearheaded an advanced neural network-based anomaly detection component, boosting fraud detection speed by **40%** and handling complex, evolving fraud patterns.
- Generated detailed fraud analytics reports, reducing investigation time by **30%** and providing actionable risk insights to financial stakeholders.

Education

Post Graduate Diploma in Big Data Analytics | Score: 66% **2023**
CDAC (Centre for Development of Advanced Computing) *Bangalore, India*

Bachelor of Engineering in Mechanical Engineering | CGPA: 8.08 / 10.0 **2021**
Dr. Babasaheb Ambedkar Technological University *Lonere, Raigad, Maharashtra*

Certifications & Training

- **Google Data Analytics Professional Certificate** – Grow with Google on Coursera, 2024
- **National Workshop on Natural Language Processing** – Punjab University, 2024
- **Software Engineer Intern Certificate** – HackerRank, 2023

Core Competencies

- End-to-End AI/ML Solution Development
- Production-Grade Model Deployment (MLOps)
- Real-Time Data Pipeline Engineering
- Computer Vision & Object Detection
- Natural Language Processing (NLP)
- Predictive Maintenance & Anomaly Detection
- Industrial Data Intelligence & Automation
- Statistical Modeling & Data Analysis