Nirman Patel

Hyderabad, TG | +91 8200435368 | nirman0511@gmail.com

LinkedIn | Portfolio | GitHub

TECHNICAL SKILLS

Proficient: C/C++, Python(NumPy, Pandas, OpenCV, MatPlotLib, SciKit)
Exposure: MATLAB, HTML, CSS, SQLite3, Streamlit, LangChain, n8n

EDUCATION

Mahindra University, Hyderabad, Telangana 2023-Present
Bachelor of Technology in Computer Science and Engineering **8.67 CGPA**

- Relevant Coursework: Advanced Data Structures & Algorithms, Machine Learning, Optimization Techniques of AI, Discrete Mathematical Structures, Theory Of Computation, Digital Logic Design & Computer Architecture

Atmiya Vidya Mandir, Surat, Gujarat
12th Science - PCM, AISSCE: 94.8% 2023
10th Standard - AISSE: 95.8% 2021

PROJECT WORK

Hybrid Predictive Maintenance Pipeline using NASA C-MAPSS Dataset | Python, ML (XGBoost) 2025
ML pipeline predicting aircraft engine failures and remaining useful life

- Built hybrid pipeline for aircraft engine predictive maintenance achieving 97% accuracy, 98.9% F1-score with 20,631 samples
- Engineered 85+ features from 24 sensor measurements using Savitzky-Golay filtering, moving statistics and applied SMOTE to balance 68→7,724 samples per class
- Developed risk scoring system with 82.9% precision, optimizing maintenance for 99.8% of fleet operations
- Implemented ensemble models with hyperparameter tuning achieving R^2=0.159 for time-to-failure regression across 158 different engines
- Time series data through 4 phases: preprocessing, classification, regression, and risk assessment with model evaluation

Video Annotation AI Pipeline | PyTorch, BLIP Model, Transformers, OpenCV 2025
automated video analysis system that extracts keyframes and generates AI-powered captions

- Built AI video description pipeline for automated keyframe extraction and captioning
- Achieved 5-10x faster processing with GPU acceleration (2-5 seconds vs 30 seconds per frame)
- Supports 6+ video formats with configurable sampling and cross-platform GPU/CPU compatibility
- Reduced manual analysis time by 80% through automated video-to-text conversion system

Anomaly Detection Model using Isolation Forest | ML using Python 2024
Developed a credit card fraud detection system using anomaly detection

- Analyzed 284,807 transactions with 0.17% fraud rate from Kaggle's Credit Card Fraud Detection dataset
- Preprocessed data by scaling 30 features and applying PCA/t-SNE for dimensionality reduction
- Developed an Isolation Forest model (n_estimators=100, contamination=0.1) for anomaly detection
- Achieved 92% recall, 88% precision, and an F1-score of 0.90, outperforming baseline models
- Deployed fraud detection pipeline with real-time inference using joblib, reducing manual review by 40%

LEADERSHIP + AWARDS + VOLUNTEER WORK

Co-curricular
Technical Clubs & Competitions:

- Software developer at **AERO** (University Drone & RC Plane Club)
- Participated in the SAE Southern Section DDC Competition, Chennai 2024-Present

Student Leadership: Served as **Vice-Captain of Sundaram House**, led various student council initiatives 2019
Debate & Public Speaking: Represented house as a **Debate Club Member** in inter-house competitions 2016-2019
Event Coordination: Led the organization of large-scale school events 2021
Sports & Athletics:

- Inter-college Sports Fest: Secured **3rd position** in Long Jump and participated in the 4x200m relay event
- Member of the **School Football Team** (competed at the district level & clusters)