Rohit Sharma

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Summary

Results-driven Machine Learning Engineer with proven expertise in algorithm development, model optimization, and data preprocessing. Demonstrated success in implementing production-ready ML solutions using TensorFlow, PyTorch, and cloud-based frameworks. Strong foundation in both theoretical ML concepts and practical implementation across computer vision, NLP, and predictive analytics projects.

Professional Experience

- **Research Intern** January 2026 – April 2026
  CFEES (DRDO), Delhi
  - Engineered end-to-end fine-tuning pipeline for FLAN-T5 language model utilizing LoRA (Low-Rank Adaptation) technique on Alpaca instruction dataset, achieving 81.71% BERTScore F1 and 32.11% ROUGE-L metrics on evaluation dataset
  - Optimized model training efficiency through parameter-efficient LoRA approach, reducing trainable parameters by 98.17% to 4.6M parameters while maintaining model performance, completing training cycle in under 100 minutes on T4 GPU infrastructure
  - Developed comprehensive model evaluation framework incorporating BLEU-4, ROUGE-L, BERTScore, and Exact Match metrics across 1,000 test samples, establishing robust performance assessment methodology
- **Summer Research Intern** June 2025 – July 2025
  Indian Institute of Technology Mandi, Himachal Pradesh
  - Contributed to advanced research on VLMaps unified embedding framework for Visual-Language Navigation, enhancing cross-modal understanding between vision and language modalities and improving navigation success rates by 18% in simulated robotic environments
  - Designed and optimized shared embedding space integrating vision and language features, resulting in 12% improvement in cross-modal retrieval accuracy through advanced fine-tuning techniques
  - Enhanced VLN pipeline by integrating VLMaps framework into existing navigation systems, achieving 22% reduction in navigation planning latency and 15% improvement in generalization to previously unseen environments
- **Machine Learning & AI Intern** June 2024 – July 2024
  Ingenx Technology Pvt. Ltd., Gurugram, Haryana
  - Architected and deployed AutoML regression application automating model selection and hyperparameter optimization workflows, improving prediction accuracy by 15% and increasing user engagement metrics by 30%
  - Leveraged SAP AI Business Technology Platform to develop intelligent enterprise applications, delivering production-ready prototype that reduced business process execution time by 20%
  - Built conversational AI chatbot utilizing OpenAI GPT models and Chainlit framework, achieving 25% improvement in user satisfaction scores and 50% reduction in average response time

Education

- **Jawahar Lal Nehru Government Engineering College** Sundernagar, India
  Bachelor of Technology in Computer Science (AI & ML) – CGPA: 7.67 *2022-2026*
- **Indian Institute of Technology Madras** India
  Bachelor of Science in Data Science and Applications (Diploma) – CGPA: 7.00 *2023-2027*

Technical Skills

- **Programming Languages**: Python, C++, SQL, Java
- **ML Frameworks**: TensorFlow, PyTorch, Keras, Scikit-learn, Hugging Face Transformers
- **Web & Deployment**: Flask, Streamlit, FastAPI, LangChain, LangGraph
- **Development Tools**: Git, Docker, VS Code, Jupyter Notebook, N8N, Google Colab
- **Core Competencies**: Natural Language Processing, Computer Vision, Deep Learning, Model Optimization, Data Analysis
- **Professional Skills**: Team Collaboration, Project Management, Technical Communication, Agile Methodology

Key Projects

- **SANJAY: AI-Powered Assistive Vision System**: Developed comprehensive wearable assistive system integrating real-time object detection, OCR-based text-to-speech conversion, intelligent navigation, and emergency SOS alert functionality. Implemented multi-camera computer vision architecture with LiDAR-based depth sensing for obstacle detection and avoidance. *Tech: Python, OpenCV, YOLO, Tesseract OCR, Raspberry Pi 4, LiDAR, Google TTS, LLMs (2025)*
- **QWACH: Malicious QR Code & URL Detection**: Engineered AI-powered hybrid stacking ensemble model achieving 91.30% classification accuracy on real-world cybersecurity dataset. Deployed production-ready Chrome extension processing 1,000+ QR codes and URLs during testing. *Tech: Scikit-learn, MLP, Random Forest, Stacking Logistic Regression, KNN, JavaScript (2025)*
- **Plant Disease Recognition with AI Diagnostic Assistant**: Constructed deep learning classification system achieving 91-94% accuracy across 38 disease classes using CNNs. Integrated intelligent chatbot providing real-time diagnosis and treatment recommendations. *Tech: TensorFlow, Keras, OpenCV, Streamlit, PIL, Transfer Learning (2024)*

Publications

- **HybridStack-MLP: Advanced Ensemble Learning for Malicious QR Code and URL Detection**: Published research demonstrating AI-powered hybrid stacking model achieving 91.30% accuracy in detecting malicious QR codes and phishing URLs, showcasing ensemble learning effectiveness in cybersecurity (2025)

Awards and Achievements

- **1st Place – State Level Smart Hackathon, Himachal Pradesh** 2025
  Secured first position presenting SANJAY assistive vision system
- **1st Place – Smart India Hackathon (College Level)** 2025
  Won first place twice in college-level SIH internal competition

Leadership and Volunteer Experience

- **Vice President, Coding Club** January 2024 – Present
  Computer Science Student Clubs, JNGEC
  - Led team in organizing coding competitions, hackathons, and technical workshops, fostering programming culture and skill development among 200+ students across multiple academic years
- **Event Organizer – Drama Festival** 2023 – 2025
  Annual College Fest, JNGEC
  - Coordinated drama events during annual college festival, managing rehearsal schedules, event logistics, and participant coordination for successful cultural program execution