SHYAM RANASARA

Machine Learning Engineer

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Professional Summary

Machine Learning Engineer with hands-on experience in building and deploying AI-driven systems across Computer Vision and NLP domains. Skilled in developing real-time applications, implementing LLM-based solutions, and optimizing models using techniques like PEFT (QLoRA, LoRA). Proven ability to design end-to-end ML pipelines, from data processing to deployment, with a focus on scalable and efficient solutions.

Work Experience

Machine Learning Intern | INDSAC SOFTECH | Feb2026 - Present

- **Engineered AI surveillance system** across 4 CCTV feeds, automating visitor tracking and reducing manual security checks by ~60%.
- **Built face recognition pipeline** using Hugging Face FaceNet embeddings and FAISS vector indexing, achieving sub-100ms matching for 500+ profiles.
- **Developed OpenCV real-time video pipeline** processing concurrent streams at 25 fps with zero frame drops for continuous detection and tracking.
- **Designed automated alert engine** notifying admins via SMS/email within 3 seconds of detecting unauthorized individuals.
- **Built and containerized Flask web platform** using Docker for visitor approvals, real-time access logging, and system monitoring.

Machine Learning Research Intern | Suvidha Foundation | Dec2025 - Feb2026 | Link

- **Researched multi-document summarization** for Indian English using LLMs, benchmarking 15+ architectures (T5, BART, PEGASUS, LLaMA).
- **Fine-tuned Llama 3-3B with 4-bit QLoRA** using Hugging Face PEFT, achieving a 49.06 ROUGE-1 score—outperforming the PEGASUS baseline by 6.2 points.
- **Designed 4-bit quantization pipeline** enabling large-model fine-tuning on a single T4 GPU, cutting memory usage by ~40% vs full fine-tuning.
- **Benchmarked LoRA vs. QLoRA performance** across speed, memory, and accuracy, achieving 3x lower compute consumption while tracking experiments in MLflow.

SKILLS

- **Languages & Core Frameworks:** Python, SQL, PyTorch, TensorFlow, Scikit-learn, OpenCV
- **NLP & Large Language Models:** LLMs, Generative AI, RAG, LangChain, PEFT (LoRA, QLoRA), Transformers, Fine-Tuning
- **ML & Computer Vision:** Object Detection (YOLO), Swin Transformer, Face Recognition, Image Processing, Video Analytics, Transfer Learning
- **MLOps & Software Engineering:** Docker, CI/CD Pipelines, MLflow, Vector Databases (FAISS), FastAPI, Flask, Django, REST APIs, Git, GitHub
- **Data & Foundations:** Feature Engineering, Model Evaluation, Hyperparameter Tuning, Structured & Unstructured Data Processing

Technical Projects

SOYFIB: Soybean Leaf Disease Detection Platform

- *Developed a scalable computer vision pipeline utilizing a custom hybrid CNN-Swin Transformer architecture to extract 512-D visual disease fingerprints.*
- *Engineered a dynamic zero-shot detection backend by indexing extracted deep features into a FAISS vector database, enabling real-time matching.*
- *Designed Flask web server and interactive UI with geolocated crop imagery uploads, and admin Researcher Portal for dynamic vector registry expansion.*
- *Designed a custom data pipeline to process 225x225x3 image inputs and parse YOLO .txt annotation formats, optimizing the training data feed for the hybrid CNN-Swin Transformer.*

Real-Time Analogue Gauge Reading System (Python, TensorFlow, OpenCV)

- Built a real-time computer vision system to extract readings from analogue gauges using video input, achieving 93% mAP.
- Trained YOLOv8 keypoint detector on Synthetic-Gauges (10k images) & Real-Gauges datasets to locate pointer center and tip.
- Designed custom geometric mapping algorithm to correct parallax and gauge tilt, exporting logs to cloud-based sheets.

AI-Powered Resume Tailoring System | Sample Blogs

- Developed an AI-driven system to generate ATS-friendly resumes based on job descriptions using LLMs and LaTeX compilation.
- Implemented semantic similarity-based ranking (Scikit-learn NLP) to select top 3 matching projects from a project bank.
- Integrated web scraping and APIs to extract and process job descriptions, outputting tailored profiles.

EDUCATION DETAILS

Master of Computer Application | Devi Ahilya Vishwavidyalaya | Indore, Madhya Pradesh | Sept 2024- March-2026

Bachelor of Computer Applications | Devi Ahilya Vishwavidyalaya | Indore, Madhya Pradesh | Oct 2021 - May 2024

12th(PCM) | Kolping Convent High Sec. School | Kanasiya, Maksi, M.P.| July 2020- June 2021

10th | Kolping Convent High Sec. School | Kanasiya, Maksi, M.P. | July 2019- June 2020