ANERI BHAVSAR

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Hands-on AI/ML Engineer experienced in Computer Vision and Deep Learning, as well as Retrieval-Augmented Generation (RAG) systems. Skilled in Python, SQL, PyTorch, TensorFlow, and latest machine learning frameworks, empowered with a robust knowledge of data and model optimization.

Experience in the development, training, and deployment of complete AI solutions such as object detection, segmentation, real-time vision systems, and intelligent document-based RAG pipelines. Adept in automation, model optimization, and creating scalable AI systems suitable for real-world applications. Open to an AI/ML or Data Science position where AI/ML and computer vision capabilities can be leveraged to develop impactful, production-ready solutions.

EXPERIENCE

Maharshi Industries Pvt.Ltd **June 2025 –Present**
AI/ML Engineer

Role Summary

AI/ML Engineer specializing in Computer Vision, Deep Learning, Vision-Language Models (VLMs), and retrieval-augmented generation (RAG) systems with hands-on experience in developing and deploying AI solutions for defense, surveillance, and industrial inspection applications. Skilled in building scalable real-time inference pipelines, multi-camera AI systems, and high-performance deep learning models using PyTorch, TensorFlow, and AWS for edge and production environments. Experienced in object detection, segmentation, thermal imaging, intelligent monitoring systems, and low-latency GPU-based deployment optimization for real-time AI applications.

- **AI-Based Remote Quality Inspection & Monitoring System**
  - Developed an AI-powered remote quality inspection system for industrial and defense applications.
  - Worked on detection and analysis of 50+ defect parameters using computer vision and deep learning.
  - Built real-time defect detection pipelines using RF-DETR for accurate object and anomaly detection.
  - Integrated Qwen 3 8B Vision-Language Model for intelligent visual inspection and defect analysis.
  - Designed low-latency inference pipelines for industrial camera streams using OpenCV and PyTorch.
  - Implemented automated defect classification, monitoring, and alert systems for quality validation.
- **AI Surveillance & Security System – Indian Army**
  - Contributed to the development of a real-time **AI-based surveillance** and security system for Indian Army defense and campus operations.
  - Implemented human, vehicle, helicopter, and animal detection for border surveillance, enemy road monitoring near PoK, and campus security.
  - Built **Facial Recognition** and **ANPR (Automatic Number Plate Recognition)** systems for personnel identification, access control, and blacklist monitoring.
  - Developed Human–Animal detection pipelines on HHTI thermal cameras, enabling accurate night-time and low-light detection.
  - Utilized **RF-DETR** (Detection Transformer) for robust object detection across IR (thermal) and IP cameras.
  - Designed low-latency real-time inference pipelines using RTSP video streams from multiple cameras.
  - Optimized models for high accuracy, performance, and mission-critical deployment.
- **Color Change Detection System – DRDE Gwalior (Defense Research Project)**
  - Contributed to a **robot-operated AI vision system** for **chemical resistance testing of Indian Army protective clothing** inside a **chemical test chamber**.
  - Developed an **automated color change detection model** to identify **Congo Red paper color transitions**, indicating chemical exposure and material degradation.
  - Designed a **computer vision pipeline using OpenCV** for **camera calibration, illumination correction, and noise reduction** to ensure consistent analysis.
  - Performed **camera calibration and geometric correction** to achieve accurate color measurement under controlled chamber conditions.

- Trained and validated a **custom deep learning model** for **precise color change classification** in **real-time video streams**.
- Integrated the AI model with a **robotic inspection workflow**, enabling **remote, contactless chemical testing** for enhanced operator safety.

BISAG-N **January 2025 – April 2025**

Data Science Intern

Worked on developing and optimizing deep learning models for geospatial AI applications, focusing on object detection and segmentation. Gained hands-on experience with several deep learning models, leveraging Python, TensorFlow, PyTorch, and OpenCV for model training and evaluation. Applied key metrics like Accuracy, Precision, Recall, IoU, and mAP to assess performance while utilizing QGIS, SNAP Desktop, and Roboflow for geospatial data processing.

kyszTech Pvt.Ltd, Gandhi Nagar **May 2023-June 2023**

Java Developer Intern

Completed a comprehensive training program on Java, gaining a strong foundation in core Java concepts and backend development. Developed an e-commerce website using Java Servlets, enhancing skills in web development, server-side programming, and database integration.

EDUCATION

Bachelor of Technology: Computer Science-BDA **2021-2025**

Course: Specialization in Big Data Analytics, 8.59

Higher Secondary Education (HSC) **2021**

Kendriya Vidyalaya Sabarmati, 88%

Senior Secondary Education (SSC) **2019**

Kendriya Vidyalaya Sabarmati, 85%

PROJECT WORK

Tree Detection using Deep Learning Models and Perform Spatial Temporal Analysis: Built a tree detection and instance segmentation tool using YOLOv8-seg, YOLOv11-seg, and Mask R-CNN on UAV and satellite imagery. Annotated data in Roboflow (COCO & YOLO formats) for exact tree mapping. QGIS was incorporated for geospatial analysis, also enabling the canopy-based tree counting.

Rooftop Detection with Light Weight & Other Deep Learning Models on Satellite Imagery: Developed a rooftop detection system using YOLOv8s-seg, YOLOv11s-seg, DeepLabV3+ (ResNet50), and U-Net (ResNet50) on satellite imagery. Annotated data in Roboflow (COCO & YOLO formats) for exact roof Segmentation. Integrated geospatial analysis to enhance mapping accuracy and support urban planning.

Collaborative Filtering Recommendation System: Developed a user-based collaborative filtering recommendation model, leveraging model training techniques to enhance personalized recommendations. Designed and implemented a user-friendly system to improve accessibility and usability.

MediASK : Build a system that can predict Trauma, cancer using brain and cell images respectively and via patient symptoms will tell which disease particular patient has. This system also has chatbot which can answer questions related to medical problems.

TOOLS & TECHNOLOGIES

Python, SQL, PyTorch, TensorFlow, OpenCV, RF-DETR, YOLO, Faster R-CNN, RT-DETR, U-Net, DeepFace, Computer Vision, Real-Time AI Systems, Retrieval-Augmented Generation (RAG), Ollama, LLM, Facial Recognition, ANPR, Thermal Imaging, RTSP Video Streaming, Edge AI Optimization, QGIS (Geospatial Analysis.AWS

CERTIFIATIONS

- Learn Python: The Complete Python Programming Course 2023 Udemy
- Introduction to Gen AI 2024 Google Cloud – badge
- Predictive Analytics using IBM spss modeler 2024 IBM
- Data Analysis With Python 2022 IBM
- AWS Academy Graduate - AWS Academy Cloud Foundations 2022

- AWS Academy Graduate—AWS Academy Cloud Architecting, AWS (2024)
- Deep Learning Fundamentals, IBM (2024)
- Deep Learning with TensorFlow, IBM (2024)