RITIK KAMBOJ

Machine Learning Engineer

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PROFESSIONAL SUMMARY

- **Machine learning engineer** with 1.8 years of experience building scalable backend systems and AI-driven applications. Strong foundation in Python programming, API development using FastAPI, data manipulation with Pandas, and automation scripts. Proven ability to deliver production-ready solutions for clients like NHAI and NTPC. Experienced in end-to-end system design, including data preprocessing, API integration, and deployment of Python-based tools for computer vision and document automation projects.

API TECHNICAL SKILL

- **Programming & Frameworks:**
  - Python, FastAPI, Rest API, SQL, MongoDB, DSA.
  - Generative AI, Large Language Models (LLMs), Deep Learning, Machine Learning.
  - Object Detection, Object Segmentation, Image Analysis, YOLO.
- **Tools & Software:**
  - Visual Studio, Postman, MS Word, PowerPoint, Excel, Visio.

EXPERIENCE

Python Developer | Garuda UAV Soft Solutions Private Limited – A Trentar company (Noida) Sept 2023 - Present

Responsibilities:

- Developed custom Python scripts and FastAPI services for ML model deployment and image data processing.
- Built data pipelines to preprocess large-scale images using NumPy, Pandas, and OpenCV.
- Delivered Python-based tools for extracting insights from structured and unstructured data.
- Implemented automated solutions for geospatial data extraction and mapping from TIFF imagery.
- Contributed to robust backend logic for document summarization chatbot and interactive QA systems.

PROJECT

1. **Automate Road Quality Inspection - NHAI.**
   - Built Python scripts to classify and analyze road imagery for detecting potholes, cracks, etc.
   - Automated detection pipeline improved efficiency by 80%+, using FastAPI for inference endpoints.
   - Created FastAPI endpoints to serve model predictions for integration with web dashboards.
   - Automated generation of JSON reports for defect localization, reducing manual inspection time by 60%.

2. **Solar Panel Defect DetectionNTPC (National Thermal Power Corporation).**
   - Developed object detection pipeline using YOLOv8 in Python to identify defects from satellite images.
   - Extracted geolocation (lat-long) and integrated into maintenance dashboards for real-time tracking.

3. **Document Classification, processing and Summarization Chatbot.**
   - Created a Python-based Streamlit chatbot using LangChain + Huggingface API.
   - Implemented RAG-based PDF QA system with context preservation and fast retrieval from embeddings.
   - Engineered PDF chunking and memory optimization for handling 200+ page technical documents.

EDUCATION

- **Ch. Devi Lal State Institute of Engineering and Technology, Sirsa**
  B.tech (Computer Science Engineering)
  2019 – 2023