Jainil Kotak

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Summary

Senior Machine Learning Engineer with 4+ years of experience designing and deploying ML and LLM systems. Strong expertise in **LLM agents, multi-agent workflows, predictive modeling, and computer vision**, with proven ability to create AI powered solutions for business problems. Experienced across the full ML lifecycle—data understanding, model development to evaluation and iteration.

Work Experience

Machine Learning Engineer-2 Oct 2021 — Present

Infocusp Innovations LLP *Pune*

- Designed and developed a **LLM agent builder platform** that **reduces workflow setup time from 4 hours to under 30 minutes**. It enables users to visually and conversationally compose and evolve complex multi-agent workflows, starting from core agent building blocks and extending to reusable user-defined agents and tools. It also enables users to publish and share their agents and workflows.
- Developed a **Python-based LLM planning agent** for geospatial analytics that **cuts query / analysis time from 20 minutes to under 30 seconds** by enabling users to query, analyze, and visualize multiple geospatial datasets via natural language, dynamically loading relevant data, performing spatial joins and filters, and rendering results on interactive maps.
- Trained a **Vision Transformer–based semantic segmentation model** on hyperspectral satellite imagery for **methane plume detection**, achieving a **F1 Score of 0.82** on challenging real world scenes for environmental monitoring use cases.
- Built an **indoor location prediction system** using regression models on BLE sensor data, improving floor prediction accuracy by **5%** and reducing RMSE by **8%**, enabling users to easily locate shared critical assets in huge facilities.
- Built a **pipe failure prediction system** using Logistic Regression, Random Forests, and XGBoost on weather and geospatial data, achieving **33% performance improvement** and enabling proactive infrastructure maintenance.
- **Built Search and Indexing APIs** for an intranet search engine using FastAPI and Typesense, **with a modular backend design** that supports interchangeable retrieval strategies, enabling easy extension from keyword search to semantic and hybrid retrieval methods.
- Explored and demonstrated **prompt-based visual anomaly detection** using vision-language models, showing how complex inspection workflows can be decomposed into structured prompt stages for defect identification and reasoning without labeled data or custom CV pipelines.

Machine Learning Intern Jan 2021 — Sept 2021

Matrix Comsec Pvt. Ltd. *Vadodara*

- Optimized an Automatic License Plate Recognition pipeline via model quantization and lightweight CNN architectures, significantly reducing inference latency on edge devices with minimal accuracy loss.

Machine Learning Summer Intern May 2020 — Jul 2020

Infivolve Inc. *Ahmedabad*

- Developed a full-body pose estimation system for an AI-driven virtual fitness trainer, enabling real-time exercise tracking and form correction.

Technical Skills

- **Programming Languages:** Python, SQL, Java, C++.
- **Frameworks and Libraries:** Google ADK, Langchain, TensorFlow, PyTorch, Scikit-learn, XGBoost, MMSegmentation, NumPy, Pandas.
- **Data Visualization and Geospatial:** Matplotlib, Seaborn, Plotly, Geopandas, Rasterio, Folium, KeplerGl, QGIS.
- **Experiment Tracking and Evaluation:** Tensorboard, MLFlow, Weight and Biases, Voxel51
- **Backend & Technologies:** FastAPI, Flask, REST APIs, Git, GCP, Docker.

Education

Institute of Technology, Nirma University Ahmedabad

Bachelor's of Technology, Computer Science and Engineering *Aug 2017 — May 2021*

- Relevant Coursework: Machine Learning, Deep Learning, Linear Algebra, Calculus, Computer Programming, Data Structures and Algorithms, Database Management Systems, Discrete Mathematics, Cloud Computing.