Dhruvinkumar Patel

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Summary

AI Engineer with hands-on experience building, fine-tuning, and deploying machine learning systems across computer vision and LLM-based applications. Strong in end-to-end pipelines including data preparation, model evaluation, and Dockerized REST deployments. Experienced with RAG architectures, transformer models, and performance optimization, with a focus on production-ready, measurable ML systems. **Smart India Hackathon 2025 Grand Finalist.**

Education

MIT World Peace University — Pune, Maharashtra
B.Tech in Computer Science (AI & Data Science); CGPA: 8.40/10 — *Aug 2023 – Present*

Experience

Alchemyte Data Solutions LLP — *On-Site — Jun 2025 – Jul 2025 —* ***Live Demo***
AI Engineer Intern

- **Retrieval-Augmented Generation (RAG) System**: Designed and implemented a Retrieval-Augmented Generation (RAG) pipeline using vector databases FAISS and transformer-based LLMs for enterprise document search and question answering.
- **Performance Optimization & Deployment**: Optimized retrieval and response generation latency from 1.8s to 1.1s through improved chunking and indexing strategies, and deployed the pipeline as a Dockerized REST API.

Ahir Infotech — *Remote — Apr 2025 – Jun 2025 —* ***Certificate***
AI/ML Engineer Intern

- **Disease Prediction Model**: Built and trained a disease prediction model using symptom disease datasets, implementing data preprocessing, feature encoding, and supervised learning pipelines.
- **Model Fine-Tuning & Evaluation**: Fine-tuned a Gradient Boosting model through hyperparameter optimization, improving predictive performance and increasing F1-score from 0.71 to 0.83 on a held-out validation set.

Skills

Programming Languages:: Python, C++, SQL
ML / DL Frameworks:: PyTorch, TensorFlow, scikit-learn, Hugging Face Transformers, OpenCV
LLM & AI Systems:: Retrieval-Augmented Generation (RAG), FAISS, LLM Fine-Tuning, NLP, Multi-Agent AI Systems
Computer Vision:: Object Detection (YOLOv3), Image Segmentation (SAM), Deepfake Detection
Data & ML Engineering:: Pandas, NumPy, Feature Engineering, Model Evaluation, Hyperparameter Tuning
Tools & Platforms:: Git, GitHub, Docker, Flask (REST APIs), Jupyter Notebook, Google Colab, Postman

Projects

Synexor AI Suite – Multi-Agent AI System — *Sep 2025 – Present*

- Engineered a **multi-agent AI system** using **Python (Flask, Socket.IO)** with tool-using agents powered by **Google Gemini**.
- Implemented agent orchestration for planning, tool execution, and result aggregation to generate runnable **Python applications** with real-time logs and packaged ZIP outputs.
- Designed task-specific agents for document generation, data analysis, and adaptive learning workflows, focusing on response reliability and consistency.

Deepfake Detection System — *Jan 2025 —* ***Live Demo***

- Fine-tuned **MobileNetV2** on a dataset of **190,000 facial images** for binary deepfake detection, achieving **92.4% accuracy** and **0.91 AUC** on a held-out test set.
- Evaluated robustness under image compression and resolution degradation to simulate real-world social media conditions.
- Deployed the model as a **Flask-based REST API** with optional visual anomaly inspection using point cloud rendering.

AI4Image – Object Detection & Image Editing Tool — *Jan 2025 —* ***Live Demo***

- Built an end-to-end computer vision pipeline integrating **YOLOv3** for object detection and **Segment Anything Model (SAM)** for pixel-accurate segmentation.
- Achieved **mAP@0.5: 0.76** with average inference time of **120 ms** per image on GPU and **310 ms** on CPU.
- Implemented a **Flask-based backend** for image processing, extraction, and editing workflows.

Leadership & Extracurricular

Smart India Hackathon 2025 — Grand Finalist

MumbaiHacks Agentic AI Hackathon 2025 — Grand Finalist (Top 25)

Completed **AI/ML for Geodata Analysis — ISRO (IIRS, Dehradun)** **[Certificate]**

Attended **Winter Consulting Program 2024**, **IIT Guwahati** **[Certificate]**

Volunteered at **RIDE'23**, MIT World Peace University