

AYUSH TIWARI

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PROFESSIONAL SUMMARY

Result-driven AI/ML engineer with 2+ years of experience across data science, computer vision, and LLM applications, seeking roles that apply analytical and technical skills to real-world challenges.

EXPERIENCE

Associate Engineer (Data Science)

Oct 2021 – Jul 2022

Collins Aerospace

Bengaluru, India

- Built a web-based Aircraft Connection Management System to test network connectivity across protocols.
- Engineered an ML pipeline (ensemble + time-series) to predict network failures: 92% recall, downtime cut 60%.
- Shipped a Power BI dashboard for real-time connection monitoring.

Graduate Engineer (Computer Vision)

Aug 2020 – Oct 2021

Collins Aerospace (Spot Award)

Bengaluru, India

- Built an aircraft cabin-assistance system for passenger-behavior monitoring with object tracking and motion analysis.
- Trained CNN activity-recognition models with pose estimation for passenger detection.
- Cut cabin-crew monitoring load by 40% with automated alerts and incident-reporting workflows.

Avionics Intern (Computer Vision)

Feb 2020 – Jul 2020

Collins Aerospace

Bengaluru, India

- Built a full-reference video-quality analyzer to detect defects in manufactured aircraft cameras.
- Reached 97% correlation with the Imatest industry benchmark.
- Automated the quality checks in a Jenkins CI/CD pipeline (Python, OpenCV, NumPy, scikit-image).

Project Intern

Jun 2019 – Jul 2019

VVDN Technologies

Gurgaon, India

- Built the data layer (relational schema + CRUD APIs) for an Android student-information system.
- Tuned queries with indexing strategies, cutting execution time by about 20%.

PROJECTS

Grounded RAG: Ask-My-Docs with Cited Answers | Python, RAG, hybrid retrieval

- Domain-specific retrieval-augmented generation with hybrid retrieval and source citations for grounded, verifiable answers.

CS2 RAG Assistant | Python, LangChain, ChromaDB

- RAG assistant with reranking and an evaluation harness; optimized chunk retrieval over a ChromaDB vector store.

Parameter-Efficient Fine-Tuning of a Vision Transformer (LoRA) | PyTorch, LoRA, Vision Transformer

- Parameter-efficient fine-tuning (LoRA) of a Vision Transformer for image classification, the technique at the center of my thesis.

EDUCATION

Brandenburg University of Technology (BTU) Cottbus-Senftenberg

Cottbus, Germany

M.Sc. Artificial Intelligence · CGPA: 2.3 (German scale, 1.0 best)

Apr 2023 – Present

Thesis: Parameter-Efficient Adaptation of Facial Expression Recognition Models for Driver Monitoring.

Manipal Institute of Technology (MIT), MAHE

Manipal, India

B.Tech Computer & Communication Engineering · CGPA: 8.09 / 10 (Indian scale, 10 best)

Jul 2016 – Nov 2020

TECHNICAL SKILLS

Programming: Python, C++, SQL, Bash

ML & Computer Vision: PyTorch, TensorFlow, scikit-learn, OpenCV, YOLO, Vision Transformers, LoRA, pose estimation

LLMs & RAG: LangChain, RAG, hybrid retrieval, reranking, Hugging Face, ChromaDB, Qdrant, Ollama

Agentic AI: AI agents, LangChain / LangGraph, tool use, MCP, multi-agent, n8n, RAGAS, Opik

Data & Databases: pandas, NumPy, Power BI, PostgreSQL, MySQL, MongoDB

Tools & MLOps: Git, Docker, FastAPI, Streamlit, Jenkins, CI/CD, Linux, LaTeX

Languages: English (Native), Hindi (Native), German (A2)