Duranjai Venkatachalapathi

AI Engineer

Chennai, India | Linkedin | +919444432922 | jaij6309@gmail.com

Results-driven AI Engineer focused on bridging the gap between cutting-edge machine learning research and scalable product development. Expert in architecting end-to-end intelligent systems, specializing in Large Language Model (LLM) integration, Retrieval-Augmented Generation (RAG) pipelines, and real-time computer vision applications. Committed to building robust, evaluable AI solutions that prioritize accuracy, performance, and seamless user experiences.

EDUCATION

B.E in Computer Science & Engineering (Artificial Intelligence & Machine Learning)
Easwari Engineering College, Sep 2023 - Apr 2027 | CGPA: 8.76

PROFESSIONAL EXPERIENCE

Machine Learning Intern, OEG DEFENCE & AEROSPACE Pvt. Ltd. June 2025

- Gained practical experience through an internship at OEG Defence and Aerospace Pvt Ltd, where I actively contributed to the development of intelligent drone systems by integrating machine learning and computer vision techniques. Key contributions included assisting in the creation of a drone-based object detection system using YOLOv8, supporting dataset preparation, annotation, and augmentation through RoboFlow, and collaborating on Python-based model deployment workflows, including real-time camera inference, OpenCV integration, and model fine-tuning. Committed to continuous learning and contributing to innovative AI solutions. Seeking opportunities to gain further practical experience and develop skills in a dynamic environment.

AREA OF EXPERTISE (TECHNICAL SKILLS)

AI & Machine Learning

- Core Concepts: Retrieval-Augmented Generation (RAG), Hybrid Search (Vector + BM25), Reranking, Computer Vision
- LLMs & NLP: Large Language Models (LLMs), Prompt Engineering, Vector Embeddings (e.g., BGE, MiniLM), Cross-Encoders
- ML Evaluation: RAGAS

Programming, Data & Backend

- Languages: Python, SQL
- Data Libraries: Pandas, NumPy
- Databases: Vector Databases (pgvector, Redis), SQLite

MLOps, Web & Tools

- Version Control: Git, GitHub
- App Frameworks: Streamlit
- Containerization: Docker
- Web Basics: HTML, CSS

PROJECTS

- **AUTONOMOUS DRONE PERSON TRACKING USING YOLO AND PID CONTROL WITH LIVE GPS UPDATE RATE MANAGEMENT**
  - GitHubLink : https://github.com/durancodes/Projects/blob/main/drone.py
- **CoursePack-QA:**
  - Developed an end-to-end Retrieval-Augmented Generation (RAG) system to answer student questions from course documents. The system provides grounded, citable answers by implementing a hybrid search (vector + BM25) and reranking pipeline.
- **GROCERY TO RECIPE**
  - Co-developed a web-based application that utilises computer vision to identify grocery items through image input and generates a list of recipes that can be prepared using the detected ingredients.

CERTIFICATIONS

- **Oracle Cloud Infrastructure 2025 Certified Generative AI Professional**
- **Oracle Cloud Infrastructure 2025 Certified AI Foundations Associate**

ADDITIONAL INFORMATION

Languages: English, Tamil.
Soft Skills: Communication, Team Collaboration, Problem Solving, Leadership, Decision Making, Critical Thinking