

Aditya Dasika

AI/ML Engineer | Conversational AI · LLM Fine-Tuning · Graph RAG · Agentic Systems
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EXPERIENCE

AI/LLM Engineer

Phenom People

April 2025 – Present

Hyderabad, Telangana

- Architected **chatbotCXAgent**, a production **agentic conversational AI platform** using **LangGraph** with 12 orchestrated LLM nodes handling **intent recognition**, **dialogue management**, and **natural language generation** across enterprise customer workflows.
- Fine-tuned a **multi-task BERT model** (Intent Classification + NER on ModernBERT) using **PyTorch**, improving NLU accuracy from **87% to 97%** with differential learning rates, label smoothing, and uncertainty-weighted multi-task loss.
- Executed **LLM fine-tuning at scale** — QLoRA (Unsloth, NF4) fine-tuning of **Qwen 3.5 models** (0.8B–4B) deployed to **production** via **vLLM** on **AWS EC2 g5.xlarge** (A10G GPU); built a custom **eval framework** (pass@k, LLM-judge rubric) benchmarking accuracy across all 12 pipeline nodes, achieving **5.72 RPS** at 98.6% success rate under load.
- Built **Graph RAG pipelines** and **RESTful APIs** (FastAPI) integrating conversational AI services with **PostgreSQL**, **Redis**, and downstream ML models for production chatbot delivery across multiple enterprise clients.
- Developed an **AI-driven testing framework** in CI/CD pipelines, increasing automated test coverage from **7% to 78%**, ensuring quality across conversational AI releases.

Full Stack Engineer

Blueleaves Farms

September 2022 – February 2025

Hyderabad, Telangana

- Owned end-to-end architecture and delivery of production systems across **POS, CRM, inventory, procurement, and e-commerce workflows**, serving 5+ locations and processing **10,000+ monthly transactions**.
- Designed scalable backend workflows using **Firebase Cloud Functions**, **Node.js**, and **RESTful APIs** for invoicing, inventory synchronization, order lifecycle management, procurement tracking, and role-based access control, reducing manual operational errors by **90%**.
- Built data-driven dashboards and traditional **ML/analytics prototypes** for sales trend analysis, demand estimation, and inventory planning using transaction and stock movement data, enabling better procurement and replenishment decisions.

PROJECTS

IndexNotes — AI Knowledge Graph for Scientific Papers | Neo4j, Ollama, PyMuPDF, Python, Docker

- Built an automated **knowledge graph** pipeline ingesting scientific papers: PDF → local LLM extraction → structured JSON → **Neo4j**, creating ~40 concepts and 17+ typed relationships across 3 research papers.
- Engineered **entity and relationship extraction** using quantized local models via **Ollama**, parsing papers into concepts, methods, datasets, and cross-paper connections — enabling **multi-hop graph traversal** for research discovery.
- Designed the Neo4j schema to support **Graph RAG queries** across scientific domains, connecting papers on PINNs, Hamiltonian GNNs, and topological materials.

Physics-Informed Neural Networks (PINNs) | PyTorch, Autograd, L-BFGS, Latin Hypercube Sampling

- Implemented PINNs from scratch in **PyTorch** solving 3 PDEs: **Heat equation** (~3% error), **Burgers' equation** (two-phase Adam + L-BFGS matching Raissi et al.), and **Schrödinger equation** (complex-valued, periodic BCs, final loss 0.000083).
- Leveraged PyTorch **autograd** (create_graph, retain_graph) for PDE residual computation with **Latin Hypercube collocation sampling** and differential loss weighting.

TECHNICAL SKILLS

Languages: Python, JavaScript, TypeScript, SQL, Bash

GenAI & NLP: LLM Fine-Tuning (QLoRA, SFT), RAG, Graph RAG, Intent Recognition, NLU, NER, Dialogue Management, Conversational AI

ML & Frameworks: PyTorch, Transformers (BERT/ModernBERT), HuggingFace PEFT, Unsloth, LangGraph, LangChain, vLLM, FAISS, Neo4j, Ollama

Backend & APIs: FastAPI, Node.js, Express.js, RESTful APIs, Microservices Architecture

Databases: PostgreSQL, Neo4j, MongoDB, Redis (Caching/Queues), Firebase

Frontend: React.js, Next.js, Vite, Tailwind CSS

Infrastructure: Docker, AWS (EC2/S3/SageMaker), GitHub Actions, CI/CD, Linux

EDUCATION

Andhra Loyola Institute of Engineering and Technology

Bachelor of Technology in Mechanical Engineering

Vijayawada, Andhra Pradesh

Aug. 2018 – May 2022