

Ranjith Vutnoor

AI / Machine Learning Software Engineer

AI/ML Software Engineer with 2.5+ years of experience building production Retrieval-Augmented Generation (RAG) systems, prompt engineering, vector search, LLM evaluation, and Azure OpenAI. Experienced in migrating GPT-3.5 → GPT-4.1/4o → GPT-5.2 reasoning models while improving quality, latency, hallucination reduction, and production reliability.

Core Skills

Python • Azure OpenAI • GPT-5.2 • GPT-4.1 • GPT-4o • RAG • Prompt Engineering • Qdrant • Hybrid Search • Cohere Reranker • PostgreSQL • Azure App Service • Azure Key Vault • Application Insights • Playwright • Pytest • React • Git

Professional Experience

AI / Machine Learning Software Engineer – Teradyne (via HCL Technologies)

Jan 2024 – Present

- Built and maintained MyInfo Copilot, a production RAG chatbot for semiconductor engineers.
- Engineered query classification, query expansion, vector search, hybrid retrieval, and reranking.
- Reduced hallucinations through prompt engineering, citation validation, and guardrails.
- Led migration from GPT-3.5 to GPT-5.2 reasoning models using the Responses API.
- Designed incremental metadata-based ingestion pipeline for Qdrant.
- Built repeatability (RMSE) evaluation metrics and golden dataset regression testing.
- Added observability, retry logic, PostgreSQL migrations, and production reliability improvements.
- Delivered 240+ Jira work items (75 stories, 63 bug fixes, 97 subtasks).

Projects

MyInfo Copilot – Enterprise RAG chatbot for semiconductor documentation.

EvalStudio – LLM evaluation platform with RMSE repeatability and LLM-as-Judge.

Incremental Ingestion Pipeline – Metadata-based Qdrant updates replacing full index rebuilds.

NVIDIA Nemotron Kaggle Challenge – Fine-tuned Nemotron using LoRA and synthetic reasoning data; improved competition score from 0.53 to 0.67.

Master's Thesis (IIT Bhilai) – GPU-Accelerated Multivariate Time-Series Anomaly Detection using MSCRED, ConvLSTM, CUDA/GEMM optimization.

Education

M.Tech., Data Science & Artificial Intelligence, IIT Bhilai (2021–2023)

B.Tech., Mechanical Engineering