

JANESH THANGAVEL

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PROFESSIONAL SUMMARY

AI-focused Python developer building Retrieval-Augmented Generation (RAG) applications with LangChain, LLM APIs, embeddings, vector databases, and Streamlit. Hands-on experience with document ingestion, semantic retrieval, multimodal search, and context-grounded question answering. Strong foundation in Python, machine learning concepts, data processing, and AI application development, with a focus on RAG, LangChain, LangGraph, and LLM workflows.

TECHNICAL SKILLS

Programming: Python, SQL

AI/LLM: RAG, LangChain, LangGraph, Prompt Engineering, Agents, Multi-Agent Workflows, Tool/Function Calling, Structured Outputs, LLM Evaluation

RAG & Retrieval: Document Ingestion, Chunking, Embeddings, Semantic Search, Similarity Search, Vector Retrieval, Metadata Filtering, Reranking, Hybrid Search, Context Grounding

LangGraph Concepts: Nodes, Edges, State, Conditional Routing, Stateful Workflows, Agent Orchestration, Conversation Memory, Error Handling

Workflow & Low-Code Automation: n8n, Make.com, Flowise, LangFlow, Webhooks, REST API Integration, JSON Payload Transformation, Error Handling & Fallbacks, Asynchronous Queueing

Extended Vector Databases & Search: Qdrant, Supabase (pgvector), Pinecone, Hybrid Search (BM25 + Dense Embeddings)

Libraries / Models: Hugging Face, Sentence Transformers, Pandas, NumPy, Scikit-learn, Llama, Groq API

Vector Databases: ChromaDB, FAISS

Application/Tools: Streamlit, FastAPI Fundamentals, Git, GitHub, REST APIs

Cloud/Data: AWS S3, AWS EC2, CUDA Fundamentals, MySQL, PostgreSQL, Power BI, Excel

PROJECTS

College AI FAQ Assistant

RAG Application

[Python](#), [LangChain](#), [ChromaDB](#), [Hugging Face Embeddings](#), [Groq](#), [Llama](#), [Streamlit](#)

- Built a RAG-based college FAQ assistant that retrieves relevant information from a college knowledge base and generates context-grounded answers using an LLM.
- Developed document ingestion using LangChain loaders and RecursiveCharacterTextSplitter, generated normalized Hugging Face embeddings, and persisted vectors in ChromaDB.
- Implemented similarity retrieval to return relevant FAQ chunks, inject them into a prompt, and generate responses using Llama through Groq.
- Built a Streamlit chat interface with persistent vector storage, knowledge-base re-indexing, and source-aware responses.

AI Ask My Folder - Multimodal RAG Assistant

Multimodal RAG

[Python](#), [LangChain](#), [Groq](#), [Llama](#), [Hugging Face](#), [ChromaDB](#), [CUDA](#), [Streamlit](#)

- Built a multimodal RAG application that searches and answers questions across files stored in user-selected folders.
- Developed an ingestion pipeline supporting PDF, DOCX, PPTX, CSV, TXT, and image files with semantic chunking and embedding generation.
- Implemented vector-based semantic retrieval using Hugging Face embeddings and ChromaDB for cross-document search.
- Integrated Llama through Groq to generate context-grounded responses with document source references.
- Added folder-level search, document re-indexing, cross-document question answering, and conversational queries.
- Integrated CUDA-accelerated embedding processing to improve indexing performance for larger document and image collections.

EDUCATION

Bachelor of Technology - Biotechnology

SASTRA Deemed University, Thanjavur

2019–2023

CGPA: 6.5

Biotechnology foundation with exposure to data analysis, computational methods, laboratory data interpretation, and quantitative problem-solving.

CERTIFICATIONS

Soft Skills – NPTEL	Machine Learning – Internshala
Intro to Machine Learning – Kaggle	Artificial Intelligence Fundamentals – IBM SkillsBuild
Generative AI Essentials: Using LLMs to Work with Data – IBM SkillsBuild	

ADDITIONAL ACHIEVEMENTS & INFORMATION

- Represented at District Level Arm Wrestling Championship.
- Languages:** English, Tamil, Hindi