




## NITHISHKUMAR.M

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### PROFESSIONAL SUMMARY

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*Final-year B.Tech student specializing in Agentic AI and Generative AI with hands-on experience building production-ready AI agents, RAG systems, and multi-agent workflows. Deployed 5+ scalable AI solutions on AWS using LangChain, LangGraph, CrewAI, and LlamaIndex. Strong foundation in LLM fine-tuning, vector databases, and autonomous agent orchestration. Seeking Agentic AI Engineer roles to leverage expertise in building intelligent, production-grade AI systems.*

### TECHNICAL SKILLS

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**Agentic AI & LLM Frameworks:** LangChain, LangGraph, CrewAI, Autogen, Agno, LlamaIndex, LangFlow, n8n, Google ADK

**Generative AI & LLMs:** Groq API, OpenRouter API, LangSmith, Fine-tuning, Prompt Engineering, RAG Systems

**Vector Databases:** FAISS, Pinecone, Chroma, AstraDB

**ML/DL Frameworks:** TensorFlow, PyTorch, Scikit-Learn, NLP, OpenCV, ANN

**ComputerVision:** Object Detection, Image Segmentation

**Backend & APIs:** FastAPI, Flask, RESTful APIs, Streamlit, Pydantic

**Cloud & DevOps:** AWS (Lambda, S3, ECR, Bedrock, SageMaker, Fargate), Docker, Git, GCP, CI/CD

**Programming :** Python, Java, C, Data Structures

**Databases :** MySQL, PostgreSQL, MongoDB, SQLite

### EDUCATION

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**University College Of Engineering, Tiruchirappalli**      Nov 2022 - Apr 2026

B.Tech Information Technology - **CGPA: 7.09**

### PROJECTS

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#### 1. AI-Powered School Management Automation System

- Developed multi-agent AI system using CrewAI framework automating student performance analysis, parent communication, and management reporting; reduced manual work by 95%
- Engineered 4 specialized agents with custom Python tools for data processing (Pandas), automated email delivery (SMTP), and context-aware report generation

- *Implemented intelligent orchestration where Agent 4 synthesizes insights from upstream agents to generate comprehensive reports with actionable recommendations*
- *Built Streamlit dashboard achieving 100% parent notification coverage for 100+ students with real-time monitoring and zero missed interventions*

**Tech Stack:** CrewAI, Python, Pandas, Streamlit, SMTP, Multi-Agent AI, LLMs (Groq/Mistral)

## **2. Intelligent Diabetes Risk Assessment Agent (ML + Agentic AI Integration)**

- *Trained RandomForestRegressor model on diabetes dataset achieving predictive accuracy for risk assessment based on glucose levels, blood pressure, and lifestyle factors*
- *Trained RandomForestRegressor model on diabetes dataset achieving 87% predictive accuracy for risk assessment based on glucose levels, blood pressure, and lifestyle factors*
- *Architected hybrid AI system integrating traditional ML models with CrewAI agents to provide contextual health insights beyond raw predictions*
- *Developed intelligent agent workflow that interprets ML predictions and generates personalized health recommendations, explaining glucose level ranges (20-30 mg/dL variations) and blood pressure correlations in patient-friendly language*
- *Exposed ML model via FastAPI endpoints with Joblib serialization for efficient model loading, integrated with Groq-powered agents for real-time inference and explanation generation*
- *Built interactive Streamlit interface allowing users to input health metrics and receive both risk predictions and AI-generated actionable health guidance*

**Tech Stack:** CrewAI, Groq API, Scikit-Learn (RandomForestRegressor), FastAPI, Streamlit, Joblib, Git

## **3. Medical RAG Chatbot with Vector Search( AWS Deployed)**

- *Built Retrieval-Augmented Generation (RAG) system using Pinecone vector database to deliver accurate medical query responses with contextual understanding*
- *Integrated Groq API for fast LLM inference, reducing query response time by 70% compared to traditional API endpoints*
- *Implemented security-first deployment with AquaTrivy vulnerability scanning and automated CI/CD pipeline via Jenkins*
- *Containerized application with Docker and deployed on AWS ECR with auto-scaling capabilities to handle concurrent user queries*

**Tech Stack:** Groq API, Pinecone, LangChain, Flask,pydantic, Docker, AWS (ECR, EC2), Jenkins

## **CERTIFICATION**

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*Complete Generative AI Course With Langchain And HuggingFace – Udemy*

*Mathematics Basics to Advanced for Data Science and GenAI - Udemy*

*Building Agentic RAG For VectorDB – KrishAI Technologies*