
KARTHIK BODDAPATI

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Education

Bharath University, Chennai

2017 – 2021

B.Tech in Computer Science & Engineering

8.3/10 CGPA

Work Experience

Virtusa Consulting Services Private Limited, Chennai

Jan 2022 – Present

Generative AI Engineer

- **Data Cleaning & Preparation:** Employed advanced techniques like tokenization, normalization, and removal of special characters.
- **LLM Solutions:** Designed AI-driven solutions using GPT-4.0, Llama3, and Gemini Pro, achieving superior accuracy in complex tasks.
- **Cloud Architecture:** Developed and deployed serverless systems in AWS and Azure for scalable, efficient solutions.
- **Frameworks Utilization:** Leveraged LangChain and Llama-Index to streamline the development of AI applications, enabling seamless integration with LLMs and diverse data sources.
- **Prompt Engineering & Guardrails:** Defined system prompts and implemented guardrails, ensuring adherence to domain constraints and reliable outputs in LLM-based solutions.
- **Optimization:** Employed techniques like chunking, embedding generation, and Top-K selection to optimize retrieval and enhance system performance.
- **Evaluation Frameworks:** Evaluated the performance of GenAI solutions using tools like RAGAS, focusing on accuracy, latency, and scalability metrics.
- **Monitoring & Debugging:** Used LangSmith for real-time performance tracking and debugging to ensure system reliability and integrity.

Cognifyz Technologies, Chennai

July 2021 – Dec 2021

Software Developer - Intern

- Assisted in the development and implementation of software solutions, contributing to various stages of the software development lifecycle.
- Collaborated with the development team to troubleshoot and resolve software defects, enhancing application performance and user experience.
- Participated in code reviews and contributed to documentation efforts to ensure code quality and maintainability.

Projects

Citi Intelli-Invoice | Python, Llama-Index, LangChain, GPT-4o, Azure Cloud, Azure Cognitive Search, SQL, Fast API, Angular

- Designed and implemented an AI-driven solution to automate the extraction of attributes from invoices and bills with varying templates.
- Leveraged GPT-4o and Llama-Index to extract and categorize data, ensuring accuracy across geographies and template variations.
- Developed a logging mechanism to capture ambiguities and flag exceptions for manual review.

- Automated the categorization of extracted data using predefined rules, ensuring scalability and adaptability for adding new categories.
- Structured the extracted and categorized data into two well-organized relational tables, ensuring referential integrity.
- Collaborated with the team to conduct extensive testing to ensure reliability and high performance of the system under increased invoice volumes.
- Implemented backup and recovery strategies to maintain data availability and system reliability.

MRI Sentinel | *Python, Langchain, Claude Sonnet-3.5, AWS Cloud, FAISS-CPU, SQL Scikit-Learn, Fast API, Angular*

- Developed a GenAI-powered predictive and preventive maintenance system for MRI devices, focusing on identifying and notifying potential issues to prevent maintenance delays.
- Built RAG-based chatbots for interactive MRI diagnostics, enhancing user engagement and assistance.
- Collaborated with Angular UI developers to ensure seamless integration of backend functionalities with the user interface.
- Played a key role in debugging and resolving system errors to maintain reliability and stability.

UpSkillBuddy TalentBot | *Python, LangChain, GPT-4, Azure Cloud, Chroma DB, Streamlit*

- Designed and implemented an AI-driven chatbot that analyzes user resumes and suggests relevant upskilling options based on company skill clusters and certifications.
- Enhanced user experience using GPT-4 and LangChain for accurate responses to resume-related queries.
- Recommended training programs from monthly training data after identifying required upskilling skills.
- Developed a certification recommendation engine to align user certifications with available courses.
- Implemented monitoring and logging for improved analysis and issue tracking.

DocuAssist | *Python, Langchain, Gemini Pro, Gemini-Vision-Pro, Pinecone, Tesseract-OCR, Streamlit*

- Developed a RAG Chatbot for personal datasets and documents such as PDFs, PPTs, Word files, Text files.
- Implemented multi-document parsing to extract content from various type of documents using PyMuPDF, Tesseract-OCR.
- Implemented the ability to answer out-of-box questions from Google websites using Serp API.
- Implemented chat history storage and reuse functionalities to minimize repeated queries to optimize LLM performance.
- Used Streamlit for user interface development and Pinecone to store text embedding.

DataInsight Pro | *Python, LangChain, GPT-4, Azure Cloud, Fast API, Angular, PandasAI, Pandas, PandasDataFrameAgent*

- Directed the development of a user-friendly data analysis solution to simplify tasks for data analysts.
- Enabled multi-file uploads and integrated various foundational models into a single application to enhance functionality.
- Applied effective debugging techniques to resolve errors and improve system performance.
- Monitored application performance, conducted quality assurance, and optimized output.

Technical Skills

Languages: Python, HTML, CSS, SQL, Core Java

Libraries: Numpy, Pandas, Matplotlib, Scikit-learn, PandasAI, Transformers

Frameworks: Langchain, Llama-Index, Huggingface, Ragas, Langsmith

Vector Databases: Pinecone, Chroma DB, FAISS-CPU, Azure Cognitive Search

Large Language Models: GPT, Gemini, Claude, Llama, Mistral, OpenAI-CLIP

Others: Azure Cloud, AWS Cloud, Prompt Engineering, Agents

Certifications & Achievements

- Received the **Team Award** as part of the winning team in the **IconIdea'24 competition** organized by Virtusa for the project titled "**Gen AI Powered Predictive & Preventive Maintenance for Medical Devices**"—illustrated through MRI technology.
- Honored with the **Young Innovator Award** in **IconIdea'24**, recognizing outstanding contributions to innovative solutions.
- Earned a certification in Python from SCALER University.
- Completed a certification in Foundational Generative AI from iNeuron.