



T R Aromal

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PROFILE

As a Junior Data Scientist with a strong academic background in Artificial Intelligence and a focus on machine learning and natural language processing, I have developed innovative AI solutions that optimize user interactions and automate complex tasks. My expertise lies in building multi-agent systems and enhancing models through fine-tuning techniques. I am dedicated to leveraging technology for impactful outcomes.

EDUCATION

MSc Artificial Intelligence <i>Department of Computer Science, University of Kerala</i>	2021 - 2023
BSc Computer Science <i>University Institute of Technology - Mulamkadam, Kollam</i>	2018 - 2021

PROFESSIONAL EXPERIENCE

GAUDE Business and Infrastructure Solutions <i>Junior Data Scientist</i>	Nov 2023 - Present
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- Developed HELPYBO, a no-code AI Assistant framework that integrates with websites, WhatsApp, Telegram, and APIs, utilizing RAG technology for personalized knowledge bases and query processing. Implemented comprehensive analytics with session-based chat history tracking, providing administrators with detailed metrics on user interactions and message volume.
- Engineered AICCL, a multi-agent AI system enabling users to build customized agents with specific behaviors and tools for complex task completion, featuring Manager and Delegation agents for work assignment and output validation.

TECHNICAL PROJECTS

LLM Finetuning

- Finetuned llama-3.2-3b and mistral-7b models using unsloth library for Malayalam language adaptation based on Alpaca Malayalam instruct dataset, published on HuggingFace for public access.

Multilingual LLAMA using Bhashini

- Implemented a translation-based multilingual Llama-2 7b local LLM supporting 13 Indian languages by integrating the Bhashini machine translation API (Ai4Bharath) for seamless input/output text translation.

Fine-tuned BERT for Text Classification

- Fine-tuned a BERT model for text classification using TensorFlow, optimizing performance for spam detection and authentication-based text classification with improved accuracy and response time.

Document QA Systems

- Developed a Retrieval Augmented Generation (RAG) question-answering system using Langchain, OpenAI, and vector databases to accurately process document-based queries.
- Created a multi-agent framework for specialized task execution, including web scraping agents for content summarization and debate simulations between AI agents.
- Built an open-source user interface for Ollama that transforms terminal-based interactions into an intuitive dashboard for accessing local LLM models.
- Designed a multi-agent RAG-based document interaction system using LlamaIndex Agents with ChromaDB collections for enhanced information retrieval precision.

TECHNICAL SKILLS

Programming:	Python, R, SQL, HTML, CSS, JavaScript
AI/ML Technologies:	Large Language Models (LLMs), Natural Language Processing (NLP), Deep Learning, Machine Learning
Frameworks & Libraries:	Langchain, Hugging Face, LlamaIndex, TensorFlow, Django, RASA
Data Tools:	Vector Databases, MySQL, Power BI, Git, GitHub
Specialized Concepts:	Retrieval Augmented Generation (RAG), Multi-agent Systems, CrewAI, Model Fine-tuning

CERTIFICATIONS

- Natural Language Processing and Applications - ICFOSS
- Pre-training of Large Language Models - DeepLearning.AI
- Multi-agent Systems using CrewAI - DeepLearning.AI
- Fine-Tuning Large Language Models - DeepLearning.AI
- Python for Data Science, AI & Development - IBM (Coursera)
- Foundations: Data, Data, Everywhere - Google (Coursera)