

Akilesh Jayakumar

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Education

University of Wollongong (SIM Campus) <i>Bachelor's Degree, Computer Science, Big Data and Cyber Security</i>	Oct 2022 – Jun 2026 Singapore
Singapore Institute of Management (SIM Campus) <i>Diploma, Information Technology</i>	Oct 2021 – Sep 2022 Singapore

Experience

AI Engineer Intern <i>HTX (Home Team Science & Technology Agency)</i>	Apr 2024 – Oct 2024 Singapore
Tech Stack: Python (FastAPI), Gradio, LangChain, Docker, Celery, Redis, Odrant, CUDA, PyTorch, Azure ML Studio	
<ul style="list-style-type: none">Engineered and containerised RAG and RAGAS pipelines with open-source LLMs from HuggingFace.Improved context recall and precision by 90% by integrating the HyDE retriever, enhancing document retrieval relevance.Refactored system code to enable custom prompts and few-shot learning, delivering more tailored LLM outputs.Configured a microservice architecture to containerise and integrate services across the GenAI tech stack.Curated benchmarking datasets by automating YouTube scraping and transcription, supporting STT model training efforts.	
AI Engineer Intern <i>CPFB (Central Provident Fund Board)</i>	Dec 2023 – Apr 2024 Singapore
Tech Stack: Python, Streamlit, OpenAI, LangChain, Microsoft Power Automate, Microsoft Excel	
<ul style="list-style-type: none">Developed a GenAI application to analyse employee comments, posts, and reviews, delivering sentiment insights for HR.Researched and fine-tuned GPT models, optimising context window sizes to enhance sentiment analysis accuracy.Automated test case generation using zero-shot and few-shot prompting techniques to evaluate sentiment analysis.Automated report generation for HR, providing quick access to key metrics and trends.	

Projects

LangGraph Agentic Chatbot Source Code Live Site	Oct 2024 – Oct 2024
Tech Stack: Python, Gradio, LangGraph, Tavily, OpenAI	
<ul style="list-style-type: none">Developed an LLM Agent capable of answering user queries by searching and retrieving real-time information from the web.	
Personal RAG Chatbot Source Code Live Site	Jul 2024 – Jul 2024
Tech Stack: Python, Gradio, LangChain, Odrant, OpenAI	
<ul style="list-style-type: none">Built a personalised RAG chatbot for question-answering tasks that deliver context-rich answers about my background.	
Next.js LLM Chatbot Source Code Live Site	Apr 2024 – Apr 2024
Tech Stack: Next.js, TypeScript, Tailwind CSS, Vercel AI SDK	
<ul style="list-style-type: none">Created a ChatGPT-style chatbot to explore and experiment with Vercel's AI SDK.	

Competitions

NES CatalystX Hackathon 2024 Source Code Live Site	Oct 2024 – Oct 2024
Tech Stack: Python, Streamlit, LlamaIndex, Milvus, NVIDIA NIM Microservice	
<ul style="list-style-type: none">Our team pitched and showcased a GenAI tutoring application that supports dyslexic students with context-rich explanations.Allows multimodal inputs and incorporates TTS, STT & STS functionalities to enhance accessibility and learning support.	

Skills

Frameworks:	LangGraph, LangChain, LlamaIndex, Next.js
Languages:	Python, SQL, JavaScript/TypeScript, HTML/CSS
Databases:	Neo4j, MongoDB, Qdrant, Oracle
DevTools:	LangSmith, Docker, Git, GitHub