

Akilesh Jayakumar

(+65) 90126409 | [Email](#) | [linkedin.com/in/akileshjayakumar](https://www.linkedin.com/in/akileshjayakumar) | github.com/akileshjayakumar | akileshjayakumar.com

Education

University of Wollongong (SIM Campus)

Bachelor's degree, Computer Science, Big Data and Cyber Security

Singapore

Oct 2022 – Jun 2026 (Expected)

Singapore Institute of Management (SIM Campus)

Diploma, Information Technology

Singapore

Oct 2021 – Sep 2022

Experience

HTX (Home Team Science & Technology Agency) - Internship

Software Engineer Intern

Singapore

Apr 2024 – Oct 2024

Leveraged these tools: Python, FastAPI, Gradio, LangChain, Docker, Celery, Redis, Qdrant, CUDA, PyTorch, Azure ML Studio

- 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 architecture to enable custom prompts and few-shot learning, delivering more tailored LLM outputs.
- Configured a microservice architecture using Docker to containerise and integrate services across the GenAI tech stack.
- Curated benchmarking datasets by automating YouTube scraping and transcription, supporting STT model training efforts.

CPF (Central Provident Fund Board) - Internship

Automation Intern

Singapore

Dec 2023 – Apr 2024

Leveraged these tools: Python, OpenAI, LangChain, Microsoft Power Automate, Microsoft Excel

- Developed a Sentiment Analysis app to automate HR processes, reducing manual workload.
- Researched and fine-tuned GPT-3.5 models, optimising context window sizes to improve sentiment analysis accuracy.
- Automated test case generation by utilising pair.gov.sg with zero-shot and few-shot prompting techniques.
- Automated report generation for HR insights, providing quick access to key metrics and trends.

Projects

Personalised RAG Chatbot | [HuggingFace Repo](#) | [Live Site](#)

Tech Stack: Python, Gradio, LangChain, Qdrant, OpenAI

Singapore

Jul 2024 – Jul 2024

- Built a personalised RAG Chatbot for question-answering tasks that return context-rich answers to users about myself.

Next.js14 Chatbot | [GitHub Repo](#) | [Live Site](#)

Tech Stack: Next.js14, TypeScript, Tailwind CSS, Vercel AI SDK

Singapore

Apr 2024 – Apr 2024

- Built a ChatGPT clone to explore and experiment with the new Vercel AI SDK.

Hackathons

Catalyst X 2024 | [GitHub Repo](#) | [Live Site](#)

Tech Stack: Python, Streamlit, LlamaIndex, NVIDIA NIM Microservice, Milvus

Singapore

Oct 2024 – Oct 2024

- Developed a GenAI tutor application to support students, particularly those with dyslexia, by providing personalised, context-rich explanations.
- The app accepts multimodal inputs, such as images and PDFs, and includes speech-to-speech functionality to enhance accessibility and learning support.

Skills

Frameworks & Languages: LangChain, LlamaIndex, Next.js, Python, SQL, JavaScript/TypeScript, HTML/CSS

Databases: Neo4j, MongoDB, Qdrant, Oracle

DevTools: Docker, Git, GitHub, LangSmith