Amanda Chan

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EDUCATION

University of Pennsylvania   Aug 2023 - May 2025

M.S. in Engineering in Data Science (Department of Computer and Information Science)

GPA: 3.83/4.00

Courses: Machine Learning, Natural Language Processing, Deep Learning, Data Structures & Algorithms, Database Management

Hong Kong University of Science and Technology   Sep 2019 - Jul 2023

B.S. in Physics

Honors: HKSAR Government Scholarship Fund, Lee Hysan Overseas Scholarship, Dean's List

SKILLS

Programming Languages: Python (LangChain, LlamaIndex, PyTorch, TensorFlow, Pandas, PySpark), JavaScript (React), SQL

AI Agent & ML Skills: AI Agents (LangChain, RAG pipeline, Multi-tool orchestration), LLM(ChatGPT, LLaMA, Gemini)

Platforms & Tools: GitHub, Docker, Google Cloud, Amazon Web Services, Streamlit, OpenAI API, MySQL, NoSQL

PROJECTS

Multi-Tool AI Agent Platform   Ongoing

GitHub Repository: repo link | Demo Video: demo link

[AI Agent | LangChain | RAG | OpenAI API | Streamlit | Python Modular Design]

A modular AI agent supporting Chat, PDF QA, and CSV analytics with automated tool routing.

- Built modular architecture for scalable reasoning, context-aware retrieval, and visualization.
- Deployed interactive Streamlit UI with multi-provider LLM backend.

Three-layer architecture AI Customer Support Assistant

GitHub Repository: repo link | Demo Video: demo link

[FastAPI | OpenAI API | RAG | Vector Retrieval | Multi-Provider LLM]

A domain-specific RAG assistant

- Designed and implemented a **Three-layer architecture:** a rules layer, RAG layer (embeddings + retrieval), and fallback LLM layer.
- Ensured dataset-grounded answers with flexible backend deployment.

Image-Based Recipe Generation and Optimization

[Multimodal | Vision-Language Model | Computer Vision | Natural Language Processing | Model Fine-Tuning]

A multimodal system that generates structured recipes from food images

- Enhanced baseline recipe generation (InverseCooking) with vision–language model fine-tuning and prompt engineering, improving recipe fluency and structure.
- Developed an LLM-based evaluation framework assessing similarity, clarity, and usability, achieving a 28% improvement over baseline quality.

EXPERIENCE

AI Engineer Intern   Aug 2024 – May 2025

Wharton Research Data Services

[LLM | RAG | Langchain | OpenAI API | Chatbot]

Optimizing Retrieval-Augmented Generation (RAG) for Financial Document Analysis

- Built RAG system for financial document QA, improving retrieval accuracy from 21%→50% and answer accuracy from 16%→42%.
- Designed experiments comparing embedding models (BCEmbedding vs. OpenAI Embeddings) and retrieval methods (BCEReranking vs. Reciprocal Rank Fusion) to optimize system performance.
- Enhanced table QA accuracy from 32%→97% using TableRAG and text2SQL.

Machine Learning Engineer Intern   Jun 2023 – Aug 2023

Cyberport

[Machine Learning | Sentiment Analysis | Natural Language Processing | Data-Driven User Retention | Data Engineering]

- Designed a machine learning pipeline to forecast dropout risks among users.