Appau Gideon Kofi Amo

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Research Interests

Agentic AI Systems, Retrieval-Augmented Generation (RAG), Multimodal Learning, Memory-Augmented Models, Long-Tailed Learning, Transformer Architectures

I am interested in building intelligent systems that integrate retrieval, reasoning, and adaptive memory. My current work focuses on personalized agentic RAG systems, extending traditional retrieval pipelines with autonomous decision-making, iterative self-correction, and user-aware retrieval strategies.

Education

University of Science and Technology of China (USTC), Suzhou, China
M.S. in Software Engineering (AI/ML) — Expected July 2027
CGPA: 3.06/4.3

University of Education, Winneba, Ghana
B.Sc. in Information Technology Education — 2018 – 2022
CGPA: 3.61/4.0 (First Class Honors, Top 10%)

Selected Research & Projects

Personalized Agentic RAG System — 2025 – Present
LangGraph, LangChain, FAISS, LLMs

- Designing a memory-augmented agentic RAG system with adaptive retrieval and iterative reasoning.
- Incorporating user modeling, confidence estimation, and self-correction loops in LLM pipelines.
- Investigating long-context reasoning and uncertainty handling in autonomous AI systems.

Campus Knowledge Base RAG Chatbot — 2025
LangChain, Ollama, Chroma

- Built a semantic retrieval system using vector databases for domain-specific question answering.
- Designed evaluation pipelines for assessing embedding quality and retrieval performance.

Machine Learning Projects (Future Interns Program) — 2026
Python, scikit-learn, Transformers — FUTURE_ML_01 — FUTURE_ML_02 — FUTURE_ML_03

- Developed end-to-end machine learning pipelines for time-series forecasting and NLP tasks.
- Applied transformer-based models (BERT/DistilBERT) for classification and sentiment analysis.
- Built candidate ranking and resume screening systems using NLP and LLM-based approaches.

AI Study Coach (Multi-Agent System) — 2025
AutoGen, multi-agent systems

- Developed a multi-agent AI system with specialized roles for personalized learning assistance.
- Designed real-time interaction pipelines using LLM-based agents.

CNN for Fashion-MNIST Classification — 2025
PyTorch

- Implemented a convolutional neural network achieving ∼90% classification accuracy.

Research Direction

- Exploring agent-based learning systems under uncertainty and long-tailed distributions.
- Investigating the integration of reinforcement learning with retrieval-augmented systems.

Experience

Machine Learning Intern, Future Interns (Remote) — March 2026 – April 2026

- Developed machine learning pipelines for forecasting and NLP-based classification tasks.
- Applied transformer-based models for real-world text analysis and predictive modeling.

IT Assistant, Akenten Appiah Menkah University, Ghana November 2022 – August 2023

- Automated data workflows using Python, reducing processing time by 40%.
- Managed SQL databases (5,000+ records) and optimized query performance.

Technical Skills

Languages: Python, JavaScript, SQL, Java, Bash
Machine Learning: PyTorch, scikit-learn, Transformers
LLM Systems: LangChain, LangGraph, AutoGen, FAISS, Chroma, RAG
NLP: BERT, DistilBERT, spaCy, NLTK
Tools: Git, Docker, Linux, Gradio

Certifications

NVIDIA – LLM RAG Agent Fundamentals (2025)
DeepLearning.AI – Advanced Learning Algorithms (2025)
DeepLearning.AI – Supervised Machine Learning (2025)