

Hassan Ahmed Mahmoud

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Agentic AI & Software Engineer

PROFESSIONAL SUMMARY

Agentic AI and software engineer with 6+ months of hands-on experience using AI coding agents and LLM tools to accelerate development, debugging, documentation, and research. Experienced in building AI-powered applications with Retrieval-Augmented Generation (RAG), LangGraph, Pydantic AI, FastAPI, Streamlit, n8n, and Python, on a strong foundation in APIs, databases, security, and full-stack development. Gaining production exposure to cards systems and infrastructure at the National Bank of Egypt while finishing a dual degree in Computer Science / Software Engineering.

TECHNICAL SKILLS

Languages & Web: Python, SQL, C#, C++, Java, JavaScript, HTML, CSS, Bootstrap, GSAP

Agentic AI & LLMs: Agentic AI Workflows, Large Language Models (LLMs), Retrieval-Augmented Generation (RAG), LangGraph, Pydantic AI, Prompt Engineering, Structured Outputs, OCR & Document Intelligence, Local LLMs, Hugging Face

AI Coding & Automation: Antigravity, AI Coding Agents, Claude Code, Codex, n8n, AI-assisted Software Engineering, Agentic Output QA

Backend, Databases & Security: FastAPI, Uvicorn, Streamlit, REST APIs, Pydantic, Supabase, Firebase, Row-Level Security (RLS), Rate Limiting, Idempotency, Semaphore-Based Concurrency, Data Privacy & Encryption, Ubuntu, Docker, CI/CD.

Software Engineering: OOP, Algorithms, Design Patterns, Structured Programming, Operating Systems, RTOS, Markdown Documentation

PROFESSIONAL EXPERIENCE

Cards Systems & Infrastructure

Current

National Bank of Egypt

- Work within the Cards systems and infrastructure function, gaining direct exposure to production-grade workflows in a regulated fintech environment.
- Build practical understanding of core banking and cards infrastructure, operational processes, and systems at scale.

QA / QC Intern

Previous Internship

Digital Blocks

- Carried out quality assurance and quality control activities as part of the internship.

Independent Agentic AI & AI-Assisted Software Engineering

6+ months

- Built software projects using AI coding agents and LLM tools (Antigravity, Claude Code, Codex) for implementation, debugging, documentation, and research, reviewing generated output to catch hallucinations and implementation issues.
- Developed practical knowledge of RAG systems, LangGraph, Pydantic AI, FastAPI, Streamlit, n8n automation, structured outputs, prompt engineering, and local/open-source LLM workflows.

SELECTED PROJECTS

Academic Vault — Agentic Document Routing & Privacy-Aware Student Portal

Ongoing

- Built a full-stack platform for Ain Shams University's UEL Credit Hours Program, replacing the manual splitting and sharing of hundreds of students' academic papers across chats and Google Drive folders.
- Architected student and admin portals: admins bulk-upload hundreds of PDFs and an agentic pipeline classify and assigns each paper to the right student using a passive student-roster RAG and OCR-based dual verification (ID and name).

- Designed automatic separation and encryption of privacy-sensitive ("filtered") students' papers from the public dataset, with notifications sent when their papers are processed.
- Enabled students to filter papers by document type (quizzes, midterms, practical exams, assignments) and download them as a clean ZIP file.
- Deployed with the head professor's approval; currently serving approximately 47 active users. Phase 2: automated UEL portfolio assembler.

Applicant Tracking System (ATS)

- Built an Applicant Tracking System using Python and agentic AI workflows, applying LLM-based processing to turn unstructured applicant information into screening outputs.

RAG Knowledge Retrieval Application

- Built a RAG application for retrieving knowledge from custom data sources, with system prompts designed to keep responses grounded and reduce unsupported generation.

Nayashop — E-Commerce Platform for g_glow

- Developed and maintain a production-grade online store covering the frontend, database, payment flow, and backend security end-to-end.
- Implemented Cloudflare protection, Supabase RLS, server-side rate limiting, semaphore-based concurrency control, bot detection, and IP banning.

Personal Portfolio

- Designed and built a personal portfolio site showcasing projects and skills, using AI-assisted development workflows.

TRAINING & CERTIFICATIONS

- Agentic AI — Kaya Academy: Intensive 1-month training in Agentic AI, RAG, LangGraph, FastAPI, n8n, Streamlit, and Pydantic AI.
- ISTQB Fundamentals — ITI Maharatech
- SQL Advanced — HackerRank
- Android Development Using Java — Ain Shams University (Internal Summer Training)

EDUCATION

Dual Degree Program (CHP)

Current GPA: 3.77

Ain Shams University & University of East London (UEL) — Senior Year, CS Software Engineering Dept. | Expected 2027

INTERESTS

Agentic AI, LLMs, Local LLMs & Fine-tuning, Hugging Face, AI Coding Agents, Developer Automation, Servers, IoTs, Embedding systems.