Mohamed Konswa

Software Engineer — Backend, Cloud, and Distributed Systems
mkonma647@gmail.com · (502) 546-2608 · Louisville, KY
github.com/MohamedAKonsowa · linkedin.com/in/mohamed-konsowa-947709261 · Portfolio

Summary

Software Engineer graduating with a B.S. in Computer Science & Engineering, with internship experience building backend services, cloud infrastructure, distributed systems, and AI-integrated applications. Strong foundation in **C++**, **Python**, **Java**, data structures and algorithms, object-oriented design, REST APIs, PostgreSQL, and microservice architecture on **GCP** and **AWS**. Experienced with production-oriented systems, authentication, CI/CD, and Agile engineering teams. Available for full-time Software Development Engineer roles starting **2026**.

Education

B.S. in Computer Science & Engineering, University of Louisville, Louisville, KY — Aug 2026
GPA: **3.94 / 4.00**

Technical Skills

Languages: C++, Python, Java, JavaScript, SQL, HTML/CSS
Core CS: Data Structures & Algorithms, Object-Oriented Design, Distributed Systems, Operating Systems
Backend & APIs: FastAPI, Flask, Node.js, Express, REST APIs, Microservices, JWT, MCP
Cloud & DevOps: AWS, GCP, Cloud Run, Cloud SQL, Terraform, Docker, GitHub Actions, CI/CD, Git
Databases: PostgreSQL, MongoDB, MySQL, SQL & NoSQL
AI/ML: PyTorch, TensorFlow, Hugging Face, scikit-learn, LangChain, RAG, FAISS, Vector Databases
Monitoring, Security & Tools: GCP Monitoring, Cloud Logging, Alert Policies, API Governance, MuleSoft Flex Gateway, OPA, React, Agile/Scrum

Experience

Software Engineering Intern — Agentic AI Platform, HIVE AI Innovation Center — Jan 2026 – Present
University of Louisville · Industry Collaboration with GE Appliances

- Contributed to a **microservice-based agentic AI platform** on **GCP**, using Cloud Run, Cloud SQL/PostgreSQL, REST APIs, and modular, fault-tolerant service architecture to support enterprise AI automation workflows at scale.
- Implemented **JWT authentication and authorization** for the platform's **Model Context Protocol (MCP)** template, including endpoint validation, secure request handling, and token verification.
- Built **Terraform-based monitoring infrastructure** across DEV, QA, and PROD cloud environments, configuring uptime checks, 4xx/5xx and error-log alerting, SQL health checks, saturation/latency metrics, and dashboards for operational excellence and production issue troubleshooting.
- Evaluated **MuleSoft Flex Gateway** and API governance patterns for securing MCP servers, enforcing gateway-level policies and enterprise authorization controls.
- Collaborated with engineers and stakeholders in an **Agile/Scrum** environment through sprint planning, code reviews, pull requests, and architecture design discussions.

Software Engineering Intern, UofL Center for Human Systems Engineering — Jul 2024 – Dec 2025
Full-time Summer · Part-time Academic Year

- Designed and implemented **data pipelines** in Python for multi-sensor human-computer interaction datasets, supporting ingestion, preprocessing, labeling, and feature extraction across 50+ participants.
- Developed a **multimodal classification pipeline** combining NLP and computer vision models, achieving **90%+ accuracy**, and improved model recall by **15%** through hyperparameter tuning and ensemble-based evaluation.
- Mentored **5 undergraduate developers** by defining technical scope, reviewing code, and guiding implementation from data processing to model evaluation.

Projects

RagyVerse — Conversational Knowledge Platform

- Built a **RAG-based document Q&A platform** using FastAPI, FAISS, vector search, and LLM-based response generation, with backend services for ingestion, chunking, embedding generation, and retrieval.

MCP Tool Integration Service

- Designed and implemented an **MCP server** exposing tools such as calendar, filesystem, and external API operations to LLM-based systems, focused on interface standardization and secure integration patterns.

Age-Related Macular Degeneration Detection — Capstone

- Fine-tuned **ResNet50** on retinal fundus images for AMD classification, improving precision by **15%** via augmentation and threshold calibration.

Certifications

Embedded Systems (156 hrs), ITI — Aug – Oct 2022
C Programming, Embedded Systems Interfacing, RTOS, Communication Protocols, Automotive Bus Technology
Cyber Security (120 hrs), ITI — Aug – Sep 2023
Computer Networking, Advanced Networking, Ethical Hacking, Cyber Security Essentials
Building AI Agents with Multimodal Models, NVIDIA — Apr 2026

Awards & Recognition

- **ECPC Finalist** — National competitive programming finalist in 2022 and 2023, solving algorithmic problems in **C++** under contest constraints.
- **2nd Place, AI Hackathon** — Built a PDF Q&A system using Hugging Face Transformers.
- **AI Olympiad Judge** — Evaluated student projects in computer vision, NLP, **embedded systems**, and software design.