

MUHAMMAD ALI

Full-Stack Software Engineer

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PROFESSIONAL SUMMARY

Full-Stack Software Engineer and final-year Computer Science student at Lahore Garrison University. Experienced in building and deploying full-stack web applications using **Next.js**, **FastAPI**, and the **MERN** stack. Strong technical background in relational database design, **Docker**, and integrating multi-agent AI systems via **LangGraph**.

EDUCATION

B.S. in Computer Science (Batch Topper / Expected Gold Medalist) Lahore Garrison University (LGU), CGPA 3.94 / 4.0	03/2023 - Present Lahore, Pakistan
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TECHNICAL SKILLS

Languages: JavaScript, TypeScript, Python, PHP, HTML/CSS, C++
Frontend: Next.js, React, Tailwind CSS, Zustand, TanStack Query, Shadcn/UI, SEO Optimization
Backend: FastAPI (Python), Node.js, Express (MERN), SQLAlchemy, Pydantic, RESTful APIs
Databases: PostgreSQL, MySQL, MongoDB, Relational Data Modeling
AI & Orchestration: LangGraph, LangChain, Multi-Agent Systems, OpenAI/Gemini SDKs
DevOps & Tools: Docker, Git/GitHub, Linux, WebSockets, Server-Sent Events (SSE), VPS Hosting
Architecture & Security: Stateful JWT Auth, Role-Based Access Control (RBAC), Modular Monoliths

PROFESSIONAL EXPERIENCE

Full-Stack Software Engineer Intern | Lahore Garrison University (LGU) April 2026 – July 2026 | Lahore, Pakistan

- Architected and developed the official LGU Support Portal (support.lgu.edu.pk) from scratch using Next.js and FastAPI to digitize campus facility and IT ticketing.
- Spearheaded the feature expansion of the newly launched LGU Research Portal (research.lgu.edu.pk) using PHP, enhancing the platform’s capacity to connect scholars and publish academic journals.

PROJECTS

LGU URP| Enterprise Campus App | (Next.js, FastAPI, PostgreSQL) | campus.m-ali-swe.tech

- Architected a modular campus super-app featuring 7 specialized subsystems, including Identity Access Management, Academic Scheduling, Cafe POS, OPAC Library, and a Digital Help Desk.
- Engineered a constraint-based Timetable Auto-Scheduler utilizing Recursive Backtracking and CP-SAT solvers to mathematically resolve room, faculty, and cohort conflicts.
- Developed a zero-trust financial execution engine for the Cafe POS, handling idempotency, bounded digital wallet deductions, and real-time Kitchen Display (KDS) synchronization.
- Implemented a Unified Library OPAC and digital Lost & Found mediation engine, utilizing finite state machines to securely manage cross-campus item claims, library check-outs, and multi-party verification.

Multimodal AI Chatbot | (Next.js, OpenAI/Gemini APIs) | github.com/m-ali-swe/multimodal-ai-assistant

- Engineered a multimodal conversational interface, architecting a PostgreSQL backend to securely manage dialog state and orchestrate LLM calls with low latency.
- Integrated Server-Sent Events (SSE) for real-time LLM token streaming and implemented stateful chat history retrieval to maintain persistent conversational memory across sessions.

VisionTrack | AI Attendance System | (Python, OpenCV, YOLOv8, SQLite) | github.com/m-ali-swe/visiontrack-cv

- Developed a live analytics GUI dashboard and optimized an OpenCV/YOLOv8 image processing pipeline for automated multi-face batch attendance with confidence scoring.

CERTIFICATIONS: PIAIC Agentic AI Professional (Level 2) | PIAIC Model Context Protocol (Level 2)