

MUHAMMAD AHSAN AFTAB

AI Engineer

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Summary

Software Engineer with experience building AI-powered applications, backend systems, and full-stack products. Skilled in machine learning, computer vision, multi-agent systems, API development, workflow orchestration, and scalable backend architecture using Python, FastAPI, Vertex AI, React.js, Node.js, Flutter, and PostgreSQL. Passionate about applying AI to solve real-world problems through production-ready systems and intelligent automation.

Technical Skills

Languages: Python, JavaScript, Dart, C++

AI / ML: Generative AI, LLMs, Agentic AI, Multi-Agent Systems, Prompt Engineering, Vertex AI, Gemini, Google ADK, PyTorch, TensorFlow, OpenCV, CNNs, SegFormer, U-Net

Backend & APIs: FastAPI, Flask, Node.js, Express.js, REST APIs, WebSockets, API Design, Workflow Orchestration

Automation & Tools: n8n, Git, Docker, Render, Vercel

Frontend & Mobile: React.js, Material UI, Flutter, Firebase

Databases: PostgreSQL, Supabase, MongoDB, MySQL, Cloud Firestore

Experience

Full Stack Web Development Intern

Jul 2025 – Aug 2025

Octathorn

Rawalpindi, Pakistan

- Built real-time communication features using WebSockets to support live messaging and multi-user interaction.
- Developed responsive React.js and Material UI components while integrating frontend workflows with backend APIs.

App Development Intern

Jul 2025 – Sep 2025

AKSA-SDS

Hybrid – Islamabad, Pakistan

- Developed cross-platform Flutter applications with Firebase integration, API connectivity, and responsive UI workflows.
- Implemented state management, reusable screens, and scalable app structure under hybrid team supervision.

Projects

CIRO — Crisis Intelligence & Response Orchestrator | *FastAPI, Google ADK, Gemini, Flutter, Supabase*

- Developed a multi-agent crisis intelligence platform that transforms emergency reports into prioritized response plans, enabling faster assessment and coordination during disaster scenarios.
- Designed agent workflows for crisis detection, severity analysis, response planning, and simulation using Google ADK and Gemini.
- Integrated FastAPI, Supabase, weather APIs, mapping services, and a Flutter client to provide crisis visualization and emergency response recommendations.

AI-Powered Hiring Automation System | *n8n, Vertex AI, Supabase, Gmail, Google Calendar*

- Built an automated hiring pipeline for SWE and BDM roles covering form intake, resume extraction, AI screening, and status tracking.
- Used Vertex AI Gemini with role-specific prompts to score candidates and generate structured hiring recommendations.
- Implemented deduplication, scheduled communication, HTML emails, calendar invites, and Supabase-based workflow state management.

PDME — Pakistan Disaster Management Ecosystem | *Node.js, MongoDB, Machine Learning*

- Developed disaster prediction and emergency coordination systems to support proactive response to flood and wildfire risks.
- Built backend APIs and machine learning workflows for environmental risk analysis and forecasting.
- Awarded 1st Position at the NDMA Pakistan DEWTE Hackathon for delivering an innovative disaster management solution.

AI-Driven Digital Artifact Restoration | *PyTorch, SegFormer, U-Net, OpenCV*

- Developed a computer vision pipeline to restore damaged cultural artifact imagery and improve preservation quality.
- Applied semantic segmentation and deep learning models including SegFormer-B2 and U-Net for image reconstruction and enhancement.

Miras: Digital Archiving & NFT Marketplace | *Node.js, Express.js, MongoDB, AI, Blockchain*

- Developed backend services and ownership-tracking mechanisms for a cultural heritage preservation platform.
- Designed REST APIs and database workflows supporting AI-powered artifact management and blockchain-based provenance tracking.

Achievements

- **1st Position — DEWTE Hackathon 2025:** Won 1st place at the Disaster Early Warning Tech Expo hosted by NDMA Pakistan for PDME.

Certifications

- **IBM JavaScript Programming Essentials** — IBM SkillsBuild
- **Version Control** — Meta

Education

Air University Islamabad

BS Computer Science

2022 – 2026

CGPA: 3.13