

# Muhammad Faiz Alfikrona

Software Engineer | Full-Stack & AI Enthusiast

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## Summary

Information Systems and Technology student at Institut Teknologi Bandung and software engineer focused on full-stack, AI, and data-driven products. Experienced building production mobile and web features with Expo, Next.js, Laravel, FastAPI, PostgreSQL, and Redis, with hands-on work integrating Gemini-powered image analysis, agentic BI/ML workflows, real-time IoT pipelines, and tested API contracts.

## Education

### Institut Teknologi Bandung

Information Systems and Technology

Bachelor of Science • 3.63 GPA  
Bandung, West Java • 2023 - Present

- Minor (13 credits): Informatics (Data Science & AI) – Algorithmic Strategies, AI, Machine Learning, Data Mining (Upcoming).
- Core Coursework: Enterprise Architecture, IT Governance, InfoSec, Web & Mobile App Dev, IoT, Integrated Systems, Database Management, HCI, AI Fundamentals, Computer Networks.

## Experience

### Cofre | Culinary social platform featuring AI-powered food scanning

Software Engineer

Bandung, West Java

May 2026 - Present

- Developed 15+ features and interactive UI screens utilizing Expo (React Native), NativeWind, Laravel (PHP), Filament, PostgreSQL, Redis, and Sanctum.
- Integrated the Google Gemini API with 2-model fallback logic and JSON validation, analyzing images for 10+ nutritional & allergen metrics.
- Created 50+ black-box E2E API and contract tests using PHPUnit and Jest, backed by a custom CLI tool clearing 10+ relational tables.

[Available on Google Play Store](#)

## Projects

### Aquamine | Real-time AIoT to automate early warning detection of acid mine drainage

(Submitted for ISMC XV Hackathon and won 3rd Place)

- Engineered a real-time IoT sensor pipeline using FastAPI, MQTT, TimescaleDB, and WebSockets, processing 10,000+ daily readings with sub-100ms latency.
- Integrated TimeGPT forecasting, z-score anomaly detection, and YOLOv8 computer vision to deliver hazard alerts with 95%+ detection accuracy.
- Built a responsive Next.js dashboard containerized via Docker and deployed with Nginx, enabling live telemetry updates refreshed every 5 seconds.

[View on GitHub](#)

### IABISA | Agentic BI/ML platform converting natural language to SQL charts and panel predictions for BPJS healthcare

(Submitted for the 2025 BPJS Healthkathon)

- Built a FastAPI/Pydantic-AI/Gemini Flash orchestrator for multi-agent intent routing and secure, schema-aware PostgreSQL generation.
- Engineered recursive XGBoost/Prophet panel forecasting models for facility and patient trends, caching outputs on Supabase.
- Created a Next.js 15/Recharts/dnd-kit drag-and-drop BI dashboard with chatbot streaming via Server-Sent Events (SSE).

[View on GitHub](#)

### AI-Driven Infrastructure & ChatOps Sandbox | Personal Cloud Project

- Administered Dokploy (PaaS) in a RackNerd Ubuntu LTS VPS to host, isolate, and orchestrate personal Docker container microservices.
- Configured Hermes Agent with DeepSeek V4 Flash (via OpenCode Go) to execute autonomous terminal tasks via its native Telegram gateway.
- Orchestrated end-to-end web deployment by commanding the AI agent to programmatically manage routing and SSL via Cloudflare DNS.

### RDTII Agent | Autonomous AI Auditor for Digital Trade Policy Compliance

(Submitted for Openclaw Agenthon Hackathon)

- Engineered RDTII Agent for the OpenClaw Agenthon 2026 using Hermes Agent and Python to automate RDTII 2.1 digital trade compliance auditing.
- Built autonomous pipeline querying WTO I-TIP/Global Trade Alert to construct SQLite legal knowledge graph.
- Orchestrated parallel subagents and a human-in-the-loop (HITL) scoring gate to produce verified, audit-ready compliance reports.

[View on GitHub](#)

### Wisuda HMIF 2025 | Full-Stack Web Application

- Delivered a public graduation portal showcasing 306 profiles, achieving a 100% on-time launch, by leading a team of 10 engineers using Next.js, tRPC, and Tailwind CSS 4.
- Secured community voting across 5 award categories, ensuring 100% authenticated voting, by implementing Google OAuth (NextAuth) and PostgreSQL/Prisma database relations.
- Optimized graduate portfolio search performance, reducing database query latency by indexing 6 key search paths, by implementing custom Prisma queries.

### Machine Learning Course Projects | IF3270 Machine Learning (ITB)

- Built foundational deep learning models (FFNN, CNN, RNN, LSTM) from scratch using Python and NumPy to master backpropagation mechanics.
- Studied optimization techniques manually by writing vectorized matrix operations and basic optimizers without PyTorch or TensorFlow frameworks.
- Tested custom implementations on small datasets to secure a firm, hands-on grasp of theoretical machine learning concepts.

**Other Course Projects:** Java Swing Game, JavaFX Budget Tracker

## Skills

### Languages

Python, TypeScript, PHP, SQL

### Frameworks

Expo, React Native, Next.js, FastAPI, Laravel

### Data & Infrastructure

PostgreSQL, Redis, TimeScaleDB, Docker, Nginx, Supabase

### AI/ML & Automation

Gemini API, Pydantic-AI, TimeGPT, YOLOv8, XGBoost, Prophet, Hermes Agent, OpenClaw