

Akmal Aufa Alim

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Professional Summary

I am Informatics Engineering graduate (S.Kom) specializing in AI and Software Engineering. Proven capability in building end-to-end applications, from developing robust backends to designing AI-driven solutions like Retrieval-Augmented Generation (RAG) pipelines. Strong problem-solver focused on delivering scalable, real-world technical solutions.

Technical Skills

- **Languages:** Python, TypeScript, JavaScript, SQL
- **AI & Machine Learning:** RAG Architecture, LLMs (Google Gemini), Vector Processing (SPLADE), Machine Learning (Scikit-Learn, XGBoost), Computer Vision (MediaPipe, OpenCV), Data Processing (Pandas, NumPy)
- **Backend & API:** FastAPI, Pydantic, SQLAlchemy, Streamlit
- **Databases:** PostgreSQL (Supabase), Vector DB (Pinecone), Redis
- **Frontend & UI:** Next.js, React.js, Tailwind CSS
- **Tools & Infrastructure:** Docker, Docker Compose, Git, GitHub Actions (CI/CD), Web Scraping (Playwright, BeautifulSoup)

Technical Projects

HaloITI – Autonomous Hybrid RAG Agent | Live: <https://haloiti.akmalaufa.my.id/> | Repo: <https://github.com/akmalaufa/HaloITI>

Python, FastAPI, Gemini, Pinecone, PostgreSQL, Redis, Next.js, Docker, Linux VPS

- Engineered a zero-bloatware Autonomous RAG Agent in Pure Python (bypassing LangChain) with a Pydantic-based 4-Pillars Tooling ecosystem, enabling dynamic intent routing across Slot-Filling, Guardrails, Hybrid Vector Search, and native Text-to-SQL.
- Slashed LLM latency and API costs by architecting a Double-Layer Global Cache combining a Pinecone Semantic Cache with dual-vector injection and a deterministic Tool-Level Redis Cache, secured by strict poison-prevention validation.
- Containerized the entire architecture via Docker and deployed on a self-managed VPS, building a resilient infrastructure with a regex-driven Redis Circuit Breaker to intercept HTTP-429 rate limits and ensure 100% frontend uptime.
- Eradicated context-window overflow and reduced token costs by >70% via a Redis-backed Sliding Window Memory algorithm, while asynchronously logging 100% of unbounded raw chat lineages into PostgreSQL for offline data audits.

Student Early Warning System (Predictive ML Pipeline) | Live: <https://prediksi-kelulusan.akmalaufa.my.id/> | Repo: <https://github.com/akmalaufa/prediksi-kelulusan-mahasiswa>

Python, XGBoost, Scikit-Learn, Pandas, Streamlit

- Architected a multi-scenario Machine Learning pipeline to classify university dropout risks across 7 academic semesters, achieving up to 81.3% peak accuracy and 75.0% recall using XGBoost and Random Forest.
- Engineered an automated data pipeline to process 3,000+ raw records and extract 7 time-series predictive indicators, optimizing an 80:20 imbalanced dataset via strategic threshold calibration (0.42).
- Deployed the inference engine as an interactive web application using Streamlit, enabling dynamic state management and sub-second evaluation across 7 dynamically loaded models (.pkl).

Posebrina (Real-Time Posture Detection System) | Live: <https://posture-detection-akmalaufa-posebrina.streamlit.app/> | Repo: <https://github.com/akmalaufa/posture-detection>

Python, MediaPipe, OpenCV, Scikit-Learn, WebRTC

- Engineered a real-time posture detection application achieving 87% accuracy by integrating MediaPipe (BlazePose) for spatial feature extraction with a lightweight MLP Classifier.
- Curated a custom dataset of 1,300+ structural pose keypoints and deployed the model to provide continuous, automated posture monitoring with a 30-minute warning threshold.
- Implemented asynchronous, low-latency video streaming using Streamlit-WebRTC, enabling seamless client-to-server AI inference without heavy GPU dependencies.

Working Experience

Internship Ai & Data Science, Kampus Gratis, PT Menara Indonesia February, 2025 – July 2025

- Engineered an NLP-driven AI Virtual Assistant using FastAPI and LangChain, integrating GPT-4o with regex pattern matching and ML fallbacks to achieve >95% intent detection accuracy.
- Architected a dual-frontend ecosystem (Native Web & Streamlit) backed by SQLite and SQLAlchemy, developing 16 REST API endpoints with <500ms latency and validating the pipeline against 50+ edge-case scenarios.
- Developed a predictive AI Credit Scoring feature utilizing an XGBoost Classifier to evaluate user risk profiles, performing feature engineering on tabular data to optimize decision-making parameters.

Education & Certifications

Institut Teknologi Indonesia | Bachelor of Computer Science (S.Kom) September, 2022 – August 2026

- GPA: 3.51/4.00 (Cumlaude)
- Thesis: Implementation of Agentic Hybrid Retrieval-Augmented Generation (RAG) on LLM-Based University Admissions Chatbot.

RevoU Tech Academy | Data Analytics & Generative AI Program September, 2024 – December, 2024

- Score: 80 (A)
- Studi Independen Bersertifikat (MSIB) Batch 7

Organizational Experience

Himpunan Mahasiswa Teknik Informatika (HMIF) ITI - Human Resource Development

March, 2024 – March, 2026

- Spearheaded a 3-month comprehensive cadreization program for the 2026/2027 board candidates, architecting an end-to-end curriculum focused on organizational leadership and technical upskilling.
- Directed technical training initiatives by organizing MERN (MongoDB, Express, React, Node.js) stack workshops, accelerating the software engineering competencies of incoming candidates.
- Managed the evaluation and onboarding pipeline for new members, ensuring a structured transition into the core organizational hierarchy.