

# AHMAD ZAKI FIRDAUS

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## SUMMARY

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AI Engineer with a strong focus on Generative AI, Computer Vision, and LLM-based solutions. Experienced in building scalable AI systems, from real-time object detection to on-premise anti-fraud systems using LLMs. Skilled in Python, TensorFlow, PyTorch, LangChain, FastAPI, and modern web stacks (Next.js). Passionate about creating reliable AI solutions that drive real-world impact.

## SKILLS

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- **Technical Skills:** Artificial Intelligence (AI), Object Detection, Deep Learning, Computer Vision, Machine Learning, Generative AI, Internet of Things (IoT), Microcontroller.
- **Programming and Tools:** Python, TypeScript, JavaScript, Git, LangChain, OpenAI, Ollama, PydanticAI, HuggingFace, Scikit Learn, PyTorch, TensorFlow, Keras, OpenCV, YOLO, FastAPI, Docker, SQL Server, Next.js.

## WORK EXPERIENCE

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### BPJS Kesehatan

Jun 2025 – Present

#### AI Engineer

- Automatic Verification: AI-driven Rules & NLP for Document Checking.
- Combined visual and textual embeddings with signature and QR detection to enable robust multi-modal metadata extraction.
- AI Fraud Detection: Anomaly Detection & Risk Scoring.
- AI Decision Support: Recommendation for Approval/Rejection.
- Automated scalable parallel processing across directories to handle classification, splitting, extraction, and summarization.

### DCSE UGM

#### Data Annotator

May 2024 – Jan 2025

- Led and collaborated with a team to develop an optimized image annotation strategy, improving data quality for object recognition.

#### AI Research Assistant

Mar 2025 – Mei 2025

- Designed a semantic segmentation framework using multi-modal data.
- Developed a pixel-wise segmentation model to accurately segment Borobudur temple reliefs (e.g., UNet, SegNet, PSPNet, DeepLabV3+, YOLO).
- Established an evaluation protocol incorporating segmentation quality and reconstruction metrics.

### ZONA FARM

Oct 2024 – June 2025

#### AI Engineer

- Developed a classification system to monitor chicken health, enhancing accuracy in poultry farming.
- Developed a Chatbot Poultry Assistant using LLM & RAG.

## **RESEARCH EXPERIENCES**

### **BANGKIT ACADEMY**

Aug 2023 – Jan 2024

#### **Machine Learning Cohort/Team Leader**

- Proficient in Machine Learning (classification, clustering) and Deep Learning (image processing, object detection).
- Led the development of "StayAwake" app using SSD methods to prevent accidents caused by driver drowsiness.
- Implemented real-time monitoring features to detect signs of inattention and activate alerts for driver awareness.

### **GADJAH MADA FLYING OBJECT RESEARCH CENTER**

Dec 2022 - Dec 2023

#### **Hardware Programmer**

- Developed UAV Flight Controllers using Teensy microcontrollers with C++.
- Optimized autopilot systems for Quadrotors, Fixed-wing, and Hybrid VTOL Plane for UAVs.
- Achievements : 1st Place KRTI 2023 for Technology Development, Flight Controller Development.

### **ELINS RESEARCH CLUB UGM**

Jun 2022 - Jun 2023

#### **Staff of Aeromodelling division - Programmer**

- Utilized skills in programming, sensor technology, and machine learning for impactful projects.
- Develop an Early Warning System to detect landslides and floods in disaster-prone areas.

## **ORGANIZATIONAL EXPERIENCES**

### **HIMPUNAN MAHASISWA**

Mar 2022 - Mar 2024

#### **Staff Kelompok Studi Elins**

- Conducting training and workshops in the field of electronics and programming in robotic fields.
- Led hands-on lab activities to enhance practical skills.

## **EDUCATION**

### **UNIVERSITAS GADJAH MADA**

Aug 2021 – May 2025

Majoring in Electronics and Instrumentation

- GPA: 3.81/4.00
- Thesis: Automatic Waste Classification System Real-Time Object Detection-Based on Single Board Computer Using YOLO Algorithm.
- **Certification** 📜 (2024): TensorFlow Developer Certificate
- **Certification** 📜 (2023): Machine Learning
- **Certification** 📜 (2023): Deep Learning
- **Certification** 📜 (2023): Computer Vision
- **Certification** 📜 (2023): Data and Deployment