Ahmad Arif Sultoni

AI Engineer

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SUMMARY

AI Engineer with 3+ years of professional experience in designing and deploying deep learning solutions, supported by over 4 years of hands-on development in machine learning and computer vision. Specialized in optimizing models for industrial applications, particularly in the mining sector, with expertise in object detection, segmentation, and image classification. Proficient in Python, TensorFlow, and PyTorch, with a strong focus on streamlining AI workflows for resource efficiency and scalability. Passionate about bridging cutting-edge research with real-world implementation, including generative AI and RAG for LLMs. Proven ability to deliver robust vision-based systems for challenging industrial environments. A collaborative team player committed to continuous learning and solving complex problems through innovative AI/ML solutions.

EXPERIENCE

Artificial Intelligence Engineer 04/2022 - Present

PT. Safepedia Global Teknologi ↗

1. AI Core Logging – PT. Freeport Indonesia

- Developed a deep learning-based application for analyzing core photos from drilling operations.
- Detected and analyzed key features on core images with segmentation and joint analysis.
- Differentiated between natural and mechanical fractures based on images
- Built a user-friendly GUI to simplify input and user interaction.
- Reducing RAM usage in processing deep learning models to improve performance.

2. GeoAI – Mind ID

- Developed an mining land detection system using satellite imagery data and a custom YOLOv8-seg based segmentation model.
- Measured mining area sizes with precise geospatial analysis.
- Leveraged Google Colab, Makesense.AI, and segment-geospatial for data annotation, segmentation, and processing.

3. Geologging – PT. Antam

- Built a quicklog application powered by deep learning for analyzing core photos from gold mining exploration.
- Applied Detectron2 for core detection and segmentation, accelerating the geological logging process.
- Develop deep learning application methods to increase effectiveness with limited resources.

4. Grain Counting Analysis – PT. Timah

- Prepared a mineral rock image dataset to train a segmentation model with Detectron2.
- Detected, counted rock types, and analyzed mineral content using predefined constants.
- Optimized the model for resource efficiency and high accuracy in mineral analysis.

5. DataBot: AI Analytics Platform - KESDM

- Developed a conversational agent to translate natural language into data insights, tables, and charts from a government data warehouse.
- Built a Python (FastAPI) backend orchestrating a Text-to-SQL workflow with LangGraph.
- Implemented a hybrid-search (semantic, BM25, fuzzy) RAG pipeline for highly accurate, context-aware SQL generation.
- Created a responsive UI (JavaScript, Chart.js) featuring real-time streaming analysis and auto-generated interactive visualizations.

Freelance AI Developer 02/2025 - 03/2025
Recyclorobo.ai ↗

- Developed and optimized custom computer vision models for waste sorting systems using YOLO and CNN-based architectures.
- Integrated MLflow for end-to-end experiment tracking and reproducibility across training pipelines.
- Applied Automatic Mixed Precision (AMP) to accelerate training with reduced memory usage.
- Investigated model performance trade-offs including latency, FLOPs, and memory footprint for edge deployment.
- Conducted performance gap analysis between HQ and LQ datasets, and proposed solutions using domain adaptation, transfer learning, and data synthesis.
- Designed and tested robust mixed-domain training workflows to mitigate domain shift and improve model generalization.
- Implemented advanced data augmentation strategies and synthetic data generation to enhance dataset diversity and improve model robustness.

Freelance Mentor 10/2021 - 01/2022
Indobot Academy ↗

- Assisted students of all skill levels in core subjects, including programming and electronics.
- Delivering online course material about IoT
- Trained adult learners in classes, workshops and via remote learning programs.

Computer Vision Programmer 10/2018 - 10/2021
UNY Robotics Team ↗

- Develop object detection system on wheeled soccer robot using python programming language, openCV library and Tensorflow framework on Jetson Nano

EDUCATION

Mechatronic Engineering Education 2022
Universitas Negeri Yogyakarta - Bachelor's degree

GPA: 3,52

Essay:

Development of Object Detection Prototype Using Tensorflow Object Detection API and Google Colaboratory as Learning Media in Visual Sensing Robot Course

Achievment:

- 1st place Indonesian wheeled soccer Robot Contest at the National Level (2021)
- 3rd place Indonesian wheeled soccer Robot Contest at the National Level (2020)
- 2nd place Indonesian wheeled soccer Robot Contest at the Regional Level (2019)

CERTIFICATES

Google Cloud Big Data and Machine Learning Fundamentals ↗ 08/2023 - Present
Google Cloud

Getting Started With AI on Jetson Nano ↗ 07/2021 - Present
Nvidia

Jetson AI Specialist ↗ 07/2021 - Present
Nvidia

SKILLS

Python
Tensorflow
OpenCV
Pytorch
Linux
Streamlit
FastAPI
Flask
Ultralytics
Chroma
NodeJS
Snowflake
Google Colab
Google Cloud
ReactJS
MLflow
Docker
FAISS
SQL
Nvidia Jetson
Hugging Face
RAG
Langgraph
LangChain
Computer Vision
OCR
Ollama
MLflow
Crative
Teamwork
Willingnes to Learn
Flexibility

LANGUAGES

Indonesia Native
English Intermediate