Firhan Imam Haekal

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Technical Skills

Languages: JavaScript, Python, SQL
Tech Stacks: PyTorch, Tensorflow, Keras, MlFlow, MinIO, Regex, Docker, PostgreSQL, n8n, Azure, Supabase, Java, FastAPI
Developer Tools: Git, VSCode

Professional Experience

Laboratory Researcher February 2023 – Present
Information Centric Network Laboratory *Malang, Indonesia*

- Implemented Machine Learning service of water potability detection project using MLFlow for model management, MinIO as a S3-based artifact storage, Docker for containerization, and gRPC for client-server communication with backend service.
- Designed RegEx-based algorithm to parse 20000+ Cross-Site Scripting (XSS), Server-side request forgery (SSRF), SQL Injection cyber attack logs of a Golang-based web server.
- Assisted lecturer on teaching Artificial Intelligence lecture to guest students of Army Polytechnic (POLTEKAD) by demonstrating how WordPress attacks can be classified and predicted using Machine Learning.
- Stack: Python, Docker, RegEx, MLFlow, MinIO, PostgreSQL

AI Center Assistant Lecturer May 2025 – July 2025
Brawijaya University *Malang, Indonesia*

- Taught 40 employees at East Java's Ministry of Communication and Digital Affairs on designing tabular data Retrieval Augmented Generation (RAG) workflow without using vector store by combining Supabase, PostgreSQL, and LLM tools for query generation
- Taught 29 participants on automating CV review through Google Sheets API and LLM tools.
- Stack: Supabase, PostgreSQL, OpenRouter, n8n

Data Science Department Research Intern February 2024 – July 2024
Indonesia National Research Agency (BRIN) *Bandung, Indonesia*

- Reduced preprocessing time of 100K rows of texts from 70 minutes to 2 minutes in the previous research preprocessing pipeline through serialization and Python dictionary techniques
- Designed Indonesian's Twitter text preprocessing pipeline that reduces the training time of the CNN model by 71.87% and 42.94% on the LSTM model
- Accepted in IC3INA Conference: 10.1109/IC3INA64086.2024.10732128
- Stack: Python, RegEx

Teaching Assistant September 2022 – December 2024
Brawijaya University *Malang, Indonesia*

- Taught 4 classes of 30+ Undergraduate Students on various topics of Computer Science, including Artificial Neural Network, Data Structures, and Basic Programming
- Stack: Python, Java

Selected Projects

Nusa Insight | *Docker, Python, FastAPI, Scikit-Learn, Azure, Uvicorn, NLTK, RegEx* May 2025

- Built core text processing functions that leverage RegEx for string cleaning, similarity checking, stopwords removal, and Indonesian language-specific word patterns
- Built multi-dictionary-based normalizer for foreign language translation, slang, stemming, and removal
- Utilized Azure Cosmos DB batch operations for database transactions that speed up the process by 96.7%
- Annotated texts extracted for dictionary building through TF-IDF implementation of scikit-learn.
- Deployed with Azure Static Web Apps: https://kind-smoke-021c8e70f.6.azurestaticapps.net

Water Feasibility Prediction ML Service | *Docker, gRPC, MlFlow, MinIO, PostgreSQL* August 2024

- Built a containerized machine learning on Docker compose that supports comprehensive versioning, artifact management, and automated deployment
- Implemented MLflow for experiment and model tracking while storing artifacts in MinIO, an S3-compatible storage system
- Employs gRPC for efficient model deployment and client-server communication
- Github: https://github.com/Lab-ICN/water-potability-ml-service

Education

Brawijaya University September 2021 – January 2025
Bachelor of Science in Computer Science *Malang, Indonesia*

Brawijaya University September 2024 – Present
Masters of Science in Computer Science *Malang, Indonesia*