

ALRIDHO

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EDUCATION

Hasanuddin University

Makassar, Indonesia

Physics, Electronics and Instrumentation. GPA: 3.89

Aug 2021 – Oct 2025

- Participant in the 4th International Medical Device and Technology Conference (iMEDiTEC 2025) in Penang, Malaysia, presenting anomaly detection results from time-series sensor data using LSTM autoencoder.
- Committee Member and Participant in the National Physics Seminar (SNF) 2024 Makassar.
- Teaching Assistant for Machine Learning and Introduction to Linux courses.

EXPERIENCE

Laboratory Assistant - Instrumentation Lab

July 2024 – June 2025

Hasanuddin University

Makassar, Indonesia

- Instructed the Microcontroller Systems practicum, teaching sensor integration on Arduino/ESP32 using I^2C and SPI protocols.
- Guided the IoT Instrumentation practicum, focusing on device connectivity via HTTP REST API and WebSocket.

Bangkit Academy - Machine Learning

Feb 2024 – June 2024

Bangkit Academy led by Google, GoTo, Tokopedia, and Traveloka

Makassar, Indonesia

- Mastered machine learning and deep learning concepts, ranging from mathematical foundations to algorithm development with TensorFlow and cloud deployment.
- Collaborated with a team to develop an Android application integrated with machine learning models.
- Graduated with best graduate distinction.

RESEARCH EXPERIENCE

Collaborative Fundamental Research (PFK) Unhas 2024

Research Assistant - Biomedical Signal Processing & Machine Learning

- Contributed to the development of an IoMT framework for Real-Time Patient Consciousness Monitoring by processing muscle signal (EMG) and heart rate (ECG) data and pass it to machine learning model.
- Built an Unsupervised Learning pipeline for physiological time-series data using TS2Vec for feature embedding and DBSCAN for data clustering.
- Co-authored an international scientific publication in the Signals journal (MDPI): doi.org/10.3390/signals6040067.

PPS-PTM BIMA DIKTI Grant

Research Assistant - Health Monitoring Device

- Designed an IoT and Machine Learning-based health monitoring system for hypertension patients to enable early detection of stroke risk.
- Developed Random Forest, Logistic Regression, and XGBoost models using SMOTE techniques to optimize imbalanced data on a custom dataset, achieving $\approx 90\%$ accuracy on test data. Manuscript is currently under review.

Community Service Program (PPMU) Unhas 2025

Research Assistant - Internet of Things Framework

- Designed and implemented a Smart Irrigation and hydroponic automation system based on ESP32, integrated with the Blynk platform for remote monitoring.
- Deployed the device at the partner location and provided a system demonstration to the To Nepo Farmer Group in Barru Regency.

PROJECTS

Robotic Arm Defect Sorter Based on VAE & YOLO

- Developed a Convolutional Variational Autoencoder (C-VAE) model for anomaly detection, trained exclusively on normal datasets to recognize defects using MSE between input and reconstructed images.
- Integrated the YOLO algorithm as a pre-processing step to detect objects and crop bounding boxes before inputting them into the VAE model.
- Connected both models with a robotic arm system for automatic sorting. The integrated robot and deep learning system achieved zero sorting errors across 20 consecutive physical validation trials.

Sentiment Analysis - IndoBERT Fine Tune

- Built a custom dataset from Google Maps reviews and applied stopword removal using the Sastrawi library.
- Performed fine-tuning on the pre-trained IndoBERT model using the processed data.
- Developed a REST API for the model using FastAPI with comprehensive documentation.

TECHNICAL SKILLS

Languages: Python, C/C++, Bash, R, SQL (Postgres), Go, JavaScript.

Frameworks & Libraries: PyTorch, TensorFlow, Keras, Scikit-Learn, OpenCV, Hugging Face, Pandas, NumPy, Matplotlib.

MLOps & Tools: Tableau, Ollama, llama.cpp, LangChain, Git, Docker, Linux, AWS EC2/GCP, FastAPI, Vercel.