

Muhammad Fadli

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Educations

Universitas Indonesia (UI), Depok, Indonesia (Aug 2021 – Jul 2025)

Major in Physics, GPA 3.29/4.00

- **Concentration:** Instrumentation Physics
- **Relevant Coursework:** Data Acquisition, Embedded Systems Work, Instrumentation System, Digital Signal Processing, Artificial Intelligence, Computational Physics, Introduction to Data Science
- **Activities:** Data Analysis Workshop Mentor, Robotics Tutor

Professional Experiences

PT Kalbe Farma, Jakarta, Indonesia

Machine Learning Engineer Apprenticeship (March 2024 – June 2024)

- Led a team of 6 at Kalbe Farma x Bangkit Company Capstone to develop a cloud-based PACS system integrating AI for chest X-ray image enhancement and assessment.
- Implemented and fine-tuned CNN models with Grad-CAM visualization using TensorFlow and Keras, supporting explainability in deep learning pipelines
- Developed AI-based image enhancement techniques with CLAHE, enhancing image contrast by up to around 20% for better diagnostic quality.

Gradient, Depok, Indonesia

Subject Matter Writer for Linear Algebra (January 2024 – July 2024)

- Wrote an easy-to-understand college notebook on Linear Algebra for more than 1000 users.
- Created over 20 math animations using manim library in python to help students learn the concepts easier.
- Achieved an average user rating of 4.7/5.0, reflecting the effectiveness of breaking down complex concepts into digestible explanations.

Department of Physics, Universitas Indonesia, Jakarta, Indonesia

Lecturer Assistant of Computational Physics (Feb 2024 – May 2024)

- Assisted 30 students in learning and using MATLAB to implement numerical methods for solving physics-based problems.
- Created informative study materials notebook for a course on numerical analysis in physics applications

Department of Physics, Universitas Indonesia, Depok, Indonesia

Laboratory Assistant of Analogue and Digital Electronics (Feb 2023 – Jul 2024)

- Graded over 35 students' lab reports and pre-tests based on established criteria and provided constructive feedback.
- Assisted 30+ students in lab experimental procedures, troubleshooting circuitry, and using lab equipments.
- Evaluated 12+ students' presentations and final projects

Organizations

Himpunan Mahasiswa Departemen Fisika Universitas Indonesia, Depok, Indonesia

Head of Entrepreneurship and Financial Beureau (Nov 2023 – March 2024)

- Led the initiative to expand student entrepreneurship by partnering with over 7 individuals to sell their products boosting the organization's income by 15% and supporting student entrepreneurship.
- Negotiated and finalized contracts with clothing convections, securing favorable terms and pricing up to 6% for the organization's merchandise.
- Oversaw and supervised the execution of various work programs, including Kantin Kejujuran, Jaket Himpunan, and more.

Pekan Rakyat Fisika Universitas Indonesia, Depok, Indonesia

Deputy Head of Robotics Competition (Feb 2023 – Jan 2024)

- Led a team of 7 in coordinating the overall planning and execution of the robotics competetion, ensuring the event went well as planned.
- Developed grading forms for competition criteria, ensuring consistent and fair evaluation of participating teams.
- Facilitated briefing and hands-on workshops for 40+ participants, provided personalized assistance and guidance to participants throughout the learning process before the competition.

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Projects

Variational Autoencoder (VAE)-Based On-site Earthquake Early Warning System Framework using Accelerometer for Estimating Acceleration Response Spectra.

(Sep 2024 – Jun 2025)

- Designed and implemented a CNN-VAE and CNN-LSTM architecture to reconstruct and estimate acceleration response spectra (ARS) from 3-second seismic waveform input.
- Achieved average R^2 score of 0.9460 on the INSTANCE dataset and 0.8633 on BMKG data using CNN-DNN VAE; CNN-LSTM VAE achieved peak R^2 of 0.9749 at short-period $T=0.01s$, ideal for low-rise buildings.
- Constructed a structured pipeline for preprocessing seismograph waveform data, applying spectrogram transformations, and evaluating model performance across multiple datasets for on-site EEWS deployment.

terTATa-LLM: From Tables and Text to Strategic Business Steps

(Jul 2025)

- Collaborated in a team of 3 to fine-tune Nous-Hermes-2-Mistral-7B-DPO using LoRA and 4-bit quantization on the TAT-QA dataset, enabling financial question answering from tabular and textual data.
- Designed a step-wise reasoning architecture (Extractor, Reasoner, Executor) for multi-hop question answering, tailored for real-world business decision support.
- Achieved F1 score of 46.62 on full test set and deployed a working prototype via Gradio on Hugging Face, allowing users to interactively query Excel files for insights.

Skills, Languages, Certifications, and Others

Hard Skills: MS Office, Python, Tensorflow, PyTorch, C/C++, SQL, MATLAB, Project Management, Manim, LabVIEW, Codesys, LaTeX, ReactJS

Soft Skills: Effective Communication, Teamwork, Presentation, Adaptability

Languages: English (Fluent), Indonesian (Native), Japanese (Conversational), Sundanese (Native)

Certifications: LBI English Proficiency Test (EPT) 600, Japanese Language Proficiency Test (JLPT) N4