

LA ODE MUHAMMAD ABIN AKBAR

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Meteorology graduate from ITB specializing in Data Science. Proven ability to deliver end-to-end projects by building a weather prediction system, focusing on designing the ML (CNN) model and automated data pipeline for satellite image analysis. Highly skilled in Python, SQL, and TensorFlow, I am ready to apply my data analysis and machine learning expertise to drive data-driven insights.

EDUCATION

Bachelor's in Meteorology, Institut Teknologi Bandung

July 2021 - Oct 2025

- GPA : 3.22 out of 4.00

EXPERIENCE

HMME Atmosphaira ITB as KEILPROF division

Sep 2022 - Mar 2024

- Analyzed and validated weather prediction data by comparing WRF (Weather Research and Forecasting) model outputs with actual data from sources like BMKG, Windy Weather, and WCPL ITB.
- Developed Python scripts for automating data extraction, transformation, and loading (ETL) from raw weather model outputs (WRF, WCPL) to assess forecast accuracy of weather forecasts for the Bandung and Jatinangor areas.
- Contributed to 24-hour rainfall anomaly prediction by running and analyzing the output from existing Fortran-based models, with findings published through Ia_MeteoITB.
- Conducted literature studies from scientific journals and collaborated with institutions like BMKG to refine forecast methodologies.

Assistant Physics Laboratory at ITB University

Feb 2023 - April 2023

- Analyzed experimental physics data for lab sessions by calculating linear regressions and visualizing results in Microsoft Excel.
- Developed clear data visualizations to demonstrate the relationship between variables for student reports and analysis.
- Provided technical support to students on data handling and interpretation, ensuring accurate and consistent results.

SAMSUNG Innovation Campus (SIC) batch 5

Feb 2024 - Jun 2024

- Developed a practical IoT-based project utilizing Python, JavaScript, and Arduino programming, showcasing integration of software and hardware components.
- Improved critical thinking and negotiation skills through addressing societal and global issues within a technology context.

PT. Brajakara Teknologi Media | Real-Time Object Detection for Web Application

Jun 2024 - Jul 2024

- Built a full-stack web application for the Hidronav project, with a primary focus on developing the user interface using React.js and Vite.js.
- Successfully implemented a key feature of real-time object detection directly in the browser using vanilla JavaScript and YOLO.js, a key accomplishment within a one-month internship.

Final Project: CBS Weather System (Bandung Basin Weather Prediction) in Institut Teknologi Bandung

Dec 2024 - Aug 2025

- Designed and built a full-stack weather prediction system (CBS Weather System) from scratch to provide localized 30/60-minute rain forecasts, delivered via both web (Next.js, TailwindCSS) and mobile (Flutter) applications.
- Engineered and deployed an automated data pipeline to process Himawari-9 satellite imagery using Python, TensorFlow, and OpenCV. Integrating a CNN model with various image processing algorithms including rule-based & hybrid thresholding, histogram stretching, and gamma correction to enhance prediction accuracy.
- Designed and deployed a REST API using Flask to serve model predictions, managing data flow and user feedback with a PostgreSQL database.
- Managed end-to-end deployment on a Linux environment (WSL-Ubuntu), configured with Gunicorn and Apache to ensure robust and secure (HTTPS) service.

AWARDS

Award for Dedication as a Basic Physics Laboratory Assistant

Institut Teknologi Bandung, Feb 2022 - Apr 2023

Best Project in Faculty-Level Environmental Design Competition

Faculty of Earth Sciences and Technology (FITB) ITB, Jan 2022 - Jul 2022

Certificate of Dedication as Inter-City Forum Staff, Aku Masuk ITB (AMI) 2022

Institut Teknologi Bandung, Dec 2021 - Mar 2022

SKILLS

Technical Skills

Core Skills:

- Data & ML: Python, Pandas, NumPy, SQL, Tableau, TensorFlow, Keras
- Data Engineering & Backend: Python, Flask, Gunicorn, Apache, PostgreSQL, MySQL, Git, Linux (WSL)

Additional Skills:

- Full-Stack & Mobile: JavaScript, React.js, Next.js, Flutter

Soft Skills & Languages

- Professional: Analytical Thinking, Problem-Solving, Teamwork & Collaboration, Communication, Negotiation, Time Management
- Languages: Indonesian (Native), English (Working Proficiency)