MUHAMMAD IZZUDDIN FAHMI
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SUMMARY OF QUALIFICATIONS

- Muhammad Izzuddin Fahmi is an undergraduate physics student at Universitas Airlangga (2022–2026) who is growing in ways of studying computational physics, material characterization, and data-driven modeling of physics.
- Has experience developing intelligent digital systems successfully, based on data analytics to support decision-making and operating, including being able to build chatbot algorithms and RFID Integrated System
- Meets the requirement as a computational physicist using Python and is comfortable in scientific computing, and libraries like NumPy, Pandas, and Scikit-learn to model data, machine learning, and simulation in physical systems.
- Has the ability to work independently in research and also work as a team member in experimental and computational projects, while encouraging new ideas, reproducibility, applied understanding of physics.

EDUCATION

Universitas Airlangga, Surabaya, Indonesia
Bachelor of Science in Physics, Expected Graduation: 2026

Relevant Coursework:

- Computational Physics
- Thermodynamics
- Python Programming
- Material Computation (Include Quantum Computing)
- Basic Elecronics (Analog & Digital)

TECHNICAL SKILLS

- **Programming Languages:** Python (Machine Learning, Intelligent Systems, Physical Simulator), Wolfram Language (For Wolfram Mathematica)
- **System Development:** ADA (*Anti Drowsiness Alarm*), Chatbot, PyMail
- **Teaching:** Workshop Assistance, Private Tutor
- **Electronics & Hardware:** RFID integration, Simple BLDC motor, HeROS Monitor

EXPERIENCE

5th International Conference on Physical Instrumentations and Advanced Material (ICPIAM)– Partisipant
October 2024

- Attended as a conference participant focusing on advancements in physical instrumentation and novel materials.
- Engaged in academic discussions and presentations to deepen understanding of current research in material science.

Universitas Airlangga X ITERA: Wolfram Mathematica Workshop– Workshop Assistant
October 2024

- Assisted in the coordination and execution of a technical workshop on Wolfram Mathematica applications in physics.
- Provided guidance and support to participants during hands-on computational sessions.

"Computational Material Design and Quantum Computing" Workshop ITB– Partisipant
August 2024

- Participated in a national workshop focusing on computational approaches in materials design and emerging trends in quantum computing.
- Engaged with experts and peers to enhance understanding of simulation methods and quantum algorithms in material science.

PROJECTS

RFID-Based Automated Cash Register

- Developed an RFID-enabled cash register system to automate and simplify transaction processes.

ADA (*Anti Drowsiness Alarm*) System

- Created a prototype system that detects driver drowsiness through real-time monitoring and triggers alerts to prevent accidents.
- Integrated sensor-based motion recognition to improve road safety and user responsivenes.

General Chatbot (Ongoing)

- Developed an alternative chatbot for multipurpose when can use in Local via Python Env (Temp: via Open WebUI with Gemma3 model).

Simple BLDC Motor Controller

- Developed a minimalistic BLDC motor controller circuit using basic components such as a breadboard, jumper wires, capacitors, and a potentiometer to regulate motor speed.

Double Pendulum Simulation with Python for Chaos Effect Analysis

- Created a Python double pendulum simulated distributed on a numerical based research project of chaotic dynamics of the double pendulum.

HeROS Monitor (Heart Rate and Oxygen Saturation Monitor)

- Developed system using a ESP32 microcontroller to measure, log, and monitor heart rate and oxygen saturation measurements in real time.
- Designed an interface to communicate with sensor modules that provided a minimalistic yet fully functional user interface to provide monitored biometric data and alert system.