

# Luthfi Fathurrahman

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## Education

**SEPULUH NOPEMBER INSTITUTE OF TECHNOLOGY | Surabaya, East Java**

**Bachelor of Engineering (B.E.) - Engineering Physics**

**GPA 3.03**

**Thesis: Fall Detection System Based on Accelerometer and Gyroscope Using Adaptive Neuro-Fuzzy Inference System**

- Developed an innovative Fall Detection System incorporating accelerometer and gyroscope data.
- Applied expertise in Computer Programming, Statistic and Stochastic, Automatic Control Systems, Optimization, and Fuzzy Systems to create an advanced solution.

### Achievements:

- 1st Place - National Scientific Writing Competition | University of Jember  
Recognized for excellence in scientific writing, showcasing the ability to communicate complex ideas effectively.
- 3rd Place - National Scientific Writing Competition | Airlangga University  
Secured a top position, demonstrating research and writing skills in a competitive national environment.
- Finalist - GEMASTIK 9 | Ministry of Education, Culture, Research, and Technology of Indonesia  
Attained finalist status in a prestigious national competition, highlighting technological innovation and creativity.
- Semifinalist - National Scientific Writing Competition | Sepuluh Nopember Institute of Technology  
Reached the semifinals in a competitive event, demonstrating proficiency in scientific communication and research at the institute.

## Research Experience

**STUDENT CREATIVITY PROGRAM | Surabaya, East Java**

**Team Leader**

**Project: Life+: An Arduino-Based Heart Rate Detection and Emergency Monitoring Device for the Elderly.**

- Led a dynamic team in the conceptualization and execution of the Life+ project, focusing on enhancing the well-being of the elderly through innovative technology.
- Formulated a strategic roadmap outlining key activities and resource requirements for the successful implementation of the project.
- Efficiently managed government funds, overseeing the construction of a comprehensive device incorporating a heart rate sensor, accelerometer, and gyroscope.
- Gathered and analyzed extensive activity data to inform the ongoing evolution of the monitoring device.
- Designed a sophisticated device capable of monitoring the heart rate and activity levels of elderly individuals, providing early alerts to family or caregivers in emergency situations.
- Conducted in-depth analyses of the device's structure and optimal placement to achieve optimal performance and user comfort.
- Maintained regular and transparent documentation of research progress, including detailed records of fund utilization.

## Work Experience

### **PT. ORISOL Indonesia**

#### **Field Application Engineer | Team Leader for Central Java Province**

##### **Roles and Responsibilities:**

- Conducted machine installations, inspections, and maintenance, as well as repairs.
- Served as a team leader for the Central Java Province, overseeing and coordinating the team's activities.
- Maintained positive relationships with customers, ensuring high levels of customer satisfaction.
- Provided regular updates to customers regarding machine-related information.
- Submitted detailed reports to the headquarters in Taiwan, keeping them informed about on-site activities and developments.

### **Dev Genius**

#### **Contributing Writer (Freelance)**

##### **Responsibilities:**

- Created articles on Medium covering Python Programming Language.

## Project Portfolio

### **Fall Detection System Project | [Link](#)**

- Developed and applied a fall detection system utilizing accelerometer and gyroscope sensors.
- Leveraged the Adaptive Neuro Fuzzy Inference System (ANFIS) to address health risks associated with falls, especially concerning patients and the elderly.
- Aiming to prompt swift first aid responses and reduce injuries, the project focused on refining the differentiation between daily activities and fall occurrences.

### **Student Performance Analysis | [Link](#)**

- Conducted comprehensive analysis of student performance using Microsoft SQL and Python.
- Emphasized demographic factors such as gender, race/ethnicity, parental education, lunch, and test preparation.
- Extracted meaningful insights into factors impacting academic success.

### **Covid-19 Portfolio Analysis | [Link](#)**

- Analyzed extensive data related to the COVID-19 pandemic, covering cases, deaths, and vaccinations globally.
- Derived insights into the impact of the pandemic on different countries, regions, populations, and another factors.

### **Car Price Portfolio Analysis | [Link](#)**

- Developed a machine-learning model predicting car prices based on various features.
- Utilized Microsoft SQL for initial data profiling, cleansing, and exploration.
- Employed Python for in-depth analysis to understand factors influencing car prices and build predictive models.

### **USA Housing Portfolio Analysis | [Link](#)**

- Built a machine-learning model predicting house prices based on various features.
- Utilized both Microsoft SQL and Python for data profiling, cleansing, exploration, and model development.
- Assisted individuals in determining appropriate house prices by understanding key factors influencing real estate prices.

### **Nashville House Price Portfolio Analysis | [Link](#)**

- Analyzed and prepared a dataset for understanding housing prices in Nashville.
- Utilized Microsoft SQL for data profiling, cleansing, and exploration.
- Created a clean and structured dataset to gain insights into factors influencing house prices in Nashville.

**Telco Customer Churn Analysis | [Link](#)**

- Predicted customer churn in a telecommunications company using machine learning.
- Conducted data profiling, cleansing, and exploration with Microsoft SQL and Python.
- Created a model to identify customers likely to churn, facilitating proactive retention strategies.

**Airbnb Singapore Analysis | [Link](#)**

- Analyzed Airbnb data in Singapore to understand market dynamics.
- Explored total competitors in each region and analyzed properties offered by competitors.
- Identified trends in customer preferences within the Airbnb market.

**AdventureWorks Sales Report | [Link](#)**

- Created detailed sales reports and dashboards using data from AdventureWorks Cycles.
- Transformed raw data into professional-quality reports to track Key Performance Indicators (KPIs).
- Compared regional performance, analyzed product-level trends, and identified high-value customers.

**35-Year Mortgage Policy Analysis | [Link](#)**

- Conducting a thorough assessment of the 35-year mortgage policy's impact on Indonesian homeownership.
- Addressing the critical issue of a 12.71 million household housing backlog.
- Evaluating the potential extension of KPR tenor to 35 years, considering regional, demographic, and societal implications.
- Providing constructive recommendations for future housing policies to achieve a balanced approach in addressing homeownership challenges.

## **Skills**

**Technical:**

- Microsoft Excel
- Power BI
- SQL
- Python (Pandas, NumPy, Matplotlib, Seaborn, Altair, Streamlit, Selenium, Scikit-Learn)

**Language:**

- Conversational English