

# YUSRON IZZA FARADISA

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## PROFESSIONAL EXPERIENCE

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### **FPGA Engineer | System Engineering Division**

Feb. 2024 – Jun. 2024

*PT Len Industri (Persero)*

*Bandung, Rep. of Indonesia*

- Responsible to conduct research & development of telemetry system using ADRV9364-Z7020 System on Module (SOM), including the Zynq 7020 System on Chip (Dual Core ARM Cortex A9 and Artix-7 FPGA) with AD9364 radio frequency chip.
- Succeeded to develop Amplitude Modulation program using embedded linux in C programming language to transmit .WAV audio file.
- Developed GUI Application using Python and Tkinter library to communicate with the development board through UDP protocol.
- Integrated company's Quadrature Phase Shift Keying (QPSK) program to the radio frequency chip.
- Developed Binary Phase Shift Keying (BPSK) Modulation using Verilog HDL.

### **Teaching Tutor & Teaching Tutor Assistant**

Sep. 2022 – Sep. 2024

*Jago Robotika (STEM Education Startup)*

*Yogyakarta, Rep. of Indonesia*

- Led robotic class teaching among children in a prestigious elementary school in Yogyakarta such as Lukman Hakim International and TK-SMP Teladan with more than 20 student each class.
- Assembled and troubleshooted more than 60 electronic parts used in teaching materials.

### **Digital Signal Processing Lab Work Assistant**

Oct. 2023 – Dec. 2023

*Gadjah Mada University*

*Yogyakarta, Rep. of Indonesia*

- Led three session in lab work activity: Frequency Spectrum and Filter Implementation using Python, Finite Impulse Response Implementation and Windowing using Python, and Digital to Analog Converter and Analog to Digital Converter Implementation in STM32 Nucleo-F446RE Development Board.
- Implemented Fast Fourier Transform (FFT) algorithm to transform signal from time domain to frequency domain.
- Implemented basic digital filter such as low pass, highpass, band pass, and band stop filter.
- Implemented windowing algorithm such as triangle, hann, hamming, and blackman.

### **Basic Electronics Lab Work Assistant**

Oct. 2023 – Dec. 2023

*Gadjah Mada University*

*Yogyakarta, Rep. of Indonesia*

- Led session in lab work activity: Instrumentation Amplifier, AC-DC Converter Regulator, Phase Shift Oscillator.
- Built simple full-bridge wave rectifier with LM317 voltage regulator to provide stable voltage source an electronic circuit.
- Familiar with NI ELVIS II workstation to prototyping many type of electronic circuit.
- Familiar with NI LabVIEW to interface with digital multimeter and digital oscilloscope.

### **Telecommunication Lab Work Assistant**

Oct. 2023 – Dec. 2023

*Gadjah Mada University*

*Yogyakarta, Rep. of Indonesia*

- Led session in lab work activity: Asynchronous Serial Communication, Digital Modulation, Digital Communication.

- Conducted some experiment with analog and digital modulation, such as amplitude modulation and binary phase shift keying.

### Differential Equation Lecture Teaching Assistant

Gadjah Mada University

Feb.2022 – Jun. 2022

Yogyakarta, Rep. of Indonesia

- Led a group containing 8-10 people to learn Differential Equations.
- Led weekly tutor meeting for study group.

## EDUCATION

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### Ehime University

Short Term Exchange Program

Ehime, Japan

Oct. 2024 – Nov. 2024

- **Activities:** Dependable computing Research Area (Dependable systems, Fault tolerant systems, Fault tolerant computing, Test and diagnosis of logic circuits, Design for testability of logic circuits).

### Gadjah Mada University

Bachelor of Electrical Engineering, Minor in Computer Engineering (GPA: 3.58)

Yogyakarta, Rep. of Indonesia

Sep. 2020 – Oct. 2024

- **Coursework:** Computer Architecture (RISC-V), Digital System, Interface and Peripheral Engineering, Digital Signal Processing, Microprocessor System, Communication System.
- **Activities:** Electrical Engineering and Information Technology Student Association as Head of Workshop Division, National Essay Competition by Brawijaya Univeristy and Semarang State University, Committee of the Technocorner National Robotic Competition UGM 2021 & 2022, 35th National Student Scientific Week 2022 by Ministry of Education, Culture, Research, and Technology.

## PROJECTS

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### Traffic Light Violation Detection System Based on Internet of Things and Image Processing 2023

- Implemented a computer vision model to detect and recognize vehicles number
- Configured cameras and edge devices (ESP32) for real-time video capture and image processing.
- Developed simple algorithms to identify vehicle violations based on traffic light status.
- Integrated the system with cloud platforms for remote monitoring and data storage.
- Conducted testing and optimization to ensure high accuracy.

### Countlories: App for Diet and Nutrition Detection Using Machine Learning 2023

- Developed image classification model using transfer learning from Inception V3 model to classify more than 20 types of Indonesian Traditional food.
- Integrated RESTful APIs to fetch data from databases.

### Analog Light Follower 2023

- Built an analog circuit-based light follower using photoresistors (LDRs) and DC motors.
- Built system that allows the device to automatically follow the brightest light source without digital microcontrollers.
- Implemented comparator circuits using operational amplifiers (Op-Amps) to process sensor signals and drive motors accordingly.
- Conducted testing and calibration to ensure high sensitivity to light and smooth movement towards the source.
- Tested, Assembled, and soldered components on breadboard and PCB, ensuring robust connections and minimal signal loss.

## GUI Application for PID Tuning Calculator using Python

2023

- Developed a user-friendly Graphical User Interface (GUI) application using Python's Tkinter and Matplotlib library.
- Implemented PID (Proportional-Integral-Derivative) calculation method optimize process tuning for industrial and academic use.
- Created pick point interactive features.

## SriRejeki Monitoring System: Greenhouse Monitoring System using Internet of Things

2022

- Designed and developed an IoT-based monitoring system to track environmental parameters in a greenhouse (e.g., temperature, humidity, soil moisture, and light intensity).
- Configured sensors such as DHT11/DHT22, soil moisture sensors, and LDRs, interfacing them with microcontrollers (ESP32).
- Developed a real-time data acquisition system with automatic updates, displayed on a user-friendly web dashboard.
- Ensured reliable wireless communication using Wi-Fi modules (ESP32).

## LANGUAGE AND SKILLS

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**Languages:** Indonesia (Native), English (Business), Japanese (N4)

**Programming Languages:** Python, C, C++, Verilog

**Tools:** Vivado, Vitis, STM32Cube IDE, Matlab & Simulink, Git, VS Code

**Frameworks:** Next.js, Tailwind CSS

**Libraries:** Pandas, NumPy, Matplotlib, TensorFlow

## CERTIFICATION

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<b>Verilog HDL Advanced Online Course Completion</b>   <i>Intel Corporation</i>	Apr 2024
<b>Verilog HDL Basics Online Course Completion</b>   <i>Intel Corporation</i>	Apr 2024
<b>DeepLearning.AI TensorFlow: Data and Deployment Specialization</b>   <i>NJSZDAHICLES</i>	May 2023
<b>DeepLearning.AI TensorFlow Developer Specialization</b>   <i>VP5H62UAGUXT</i>	May 2023
<b>DeepLearning.AI Machine Learning Specialization</b>   <i>TMA9F93QDXK</i>	Apr. 2023
<b>DeepLearning.AI Mathematics for Machine Learning Specialization</b>   <i>TMA9F93QDXK</i>	Apr. 2023

## HONORS AND AWARDS

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<b>JASSO Scholarship Awardee (One Month)</b>   <i>Ehime University</i>	Oct. 2024
<b>KATETIGAMA Scholarship Awardee</b>   <i>Gadjah Mada University</i>	Sep. 2023
<b>2nd Place National Competition (PIMNAS 35)</b>   <i>Ministry of Education Rep. of Indonesia</i>	Dec. 2022
<b>Finalist National Essay Competition</b>   <i>Semarang State University</i>	Oct. 2022
<b>Best Paper Nomination National Essay Competition LEON 2020</b>   <i>Brawijaya University</i>	Oct. 2020
<b>4th Place National Robotic Competition EBOTEC #7</b>   <i>Gadjah Mada University</i>	Aug. 2017

## VOLUNTEERING AND ORGANIZATION

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<b>National Technology and Computer Fair</b>   <i>Field Office Boy</i>	Sep. 2023
<b>Community Service KKN-PPM UGM 2023</b>   <i>Student Coordinator</i>	June 2023 – Aug. 2023
<b>Paguyuban Karya Salemba Empat UGM</b>   <i>Staff Resource Management</i>	Sep. 2022 – Sep. 2023
<b>Festival Gadjah Mada (FGM) 2022</b>   <i>Coordinator of IT Division</i>	June 2022 – Aug. 2022
<b>Technocorner UGM 2022</b>   <i>Coordinator of Robotic Division</i>	Aug. 2021 – May 2022
<b>Technocorner UGM 2021</b>   <i>Staff of Robotic Division</i>	Nov. 2020 – May 2021