Aranda Ilham Zubair

Electrical Engineering Student
Location: Jakarta, Indonesia | Phone: +62 856 9289 1675 | Email: arandailhamzubair@gmail.com
Links: https://www.linkedin.com/in/aranda-ilham-zubair/ | https://github.com/yaelahaiz | https://www.researchgate.net/profile/Aranda-Zubair?ev=hdr_xprf | https://x.com/arnd_ilhm_zbr

PROFESSIONAL SUMMARY

With a strong academic foundation in Electrical Engineering, I focus on designing and developing intelligent systems across Internet of Things (IoT), Artificial Intelligence, and emerging digital technologies. My work integrates hardware and software solutions to create efficient, scalable, and impactful systems for real-world applications. I am passionate about technological innovation, exploring how intelligent automation, robotics, and data-driven platforms can transform industries and accelerate digital transformation. Beyond academics, I actively contribute to educational initiatives, organizational leadership, and technology-driven entrepreneurship - combining technical expertise with strategic thinking and execution.

CORE EXPERTISE

- IoT & Embedded Systems (ADVANCED)

Designing and deploying IoT solutions using microcontrollers and sensor networks-covering hardware integration, firmware development, and reliable data communication for real-world use cases.

Technologies: ESP32/ESP8266, Arduino, Mini PC, MQTT, Sensors, Prototyping

- AI & Intelligent Systems (ADVANCED)

Designing and implementing AI and machine learning systems for data analysis, pattern recognition, and intelligent decision-making in engineering applications.

Technologies: Machine Learning, Python, Data Processing, Automation, AI Fundamentals

- Blockchain & Web3 Exploration (INTERMEDIATE)

Exploring blockchain ecosystems and crypto-based digital innovation-understanding decentralized concepts, token mechanics, and real-world applications in digital products.

Technologies: Web3, Crypto, DeFi, Smart Contracts, Digital Assets

- Signal Processing (ADVANCED)

Digital signal processing, modulation/demodulation schemes, channel coding, OFDM systems, and SDR implementation.

Technologies: DSP, OFDM, SDR, MATLAB, GNU Radio

- Satellite Network Monitoring & SNMP Systems (ADVANCED)

Designed and developed modular SNMP-based monitoring systems integrated with Orange Pi, ESP32, and Modem UHP. Contributed to system architecture design, security enhancement (SNMPv3), mesh routing implementation, and real-time web-based C/N monitoring dashboards for satellite communication infrastructure.

Technologies: SNMP, Network Monitoring, Modem, WebSocket, Mesh Routing

- Antenna Engineering (ADVANCED)

Involved in Ku-Band and Ka-Band antenna development, including sub-reflector design, 3D prototyping, conductive coating, auto-pointing elevationâ€“azimuth systems, and field performance testing. Developed transmitter (TX) code using Pluto SDR and conducted antenna simulation using CST for RF optimization.

Technologies: Ku-Band, Ka-Band, VSAT, Pluto SDR, CST Studio, 3D Printing, Auto-Pointing, RF Testing

SELECTED PROJECTS

- Designing an IOT-based Weather Monitoring Station Using ESP32 (2025)

Weather station using ESP32 with real-time monitoring and remote dashboard for environmental conditions tracking.

Domain: IOT SYSTEM

Tech Stack: ESP32, Sensor Integration, Real-Time Data, Web Monitoring

- Aiz Store (2025)

Developed a small business platform for digital services, combining brand identity, web development, and operations.

Domain: DIGITAL PLATFORM

Tech Stack: Frontend, Web Development, Branding, Business Operations

- SolarChain - Blockchain-Based Smart Solar Panel Rental for MSMEs and Communities (2025)

Concept platform for smart solar panel rental using blockchain-based tracking, transparent energy data, and tokenized access.

Domain: BLOCKCHAIN

Tech Stack: Blockchain, Web3, Solar Energy, Tokenized System

- Smart Farming Integration of IoT Technology in Automatic Irrigation System and Plant Condition Monitoring Using ESP32 (2024)

ESP32-based smart farming system with automated irrigation, soil and climate monitoring, and web-based dashboard access.

Domain: IOT SYSTEM

Tech Stack: Internet of Things, ESP32, Web Dashboard, Sensor Control

- Creating an Arduino Microcontroller Based Lift Simulator Using Assembly Language in Atmel Studio (2024)

Built an elevator simulator with Arduino and assembly language to demonstrate lift logic, button control, and floor sequencing.

Domain: EMBEDDED

Tech Stack: Embedded Systems, Assembly Programming, Arduino, Control Logic

- WiFi Motion Detector With ESP32-CAM And Telegram BOT For Smart Security (2024)

IoT motion detection system with ESP32-CAM, instant image alerts, and Telegram bot notifications for remote monitoring.

Domain: IOT SECURITY

Tech Stack: ESP32-CAM, Motion Detection, Telegram Bot API, Real-Time Notification

- Mini DIY Generator (2023)

Hand-cranked generator project producing electricity through coil rotation for practical physics experimentation.

Domain: ELECTRONICS

Tech Stack: 3D Design, Generator, Power Management, Mechanical Skills

- Plasma Coil High Voltage (2023)

Voltage converter project turning low voltage into high output using custom PCB design and prototyping workflow.

Domain: ELECTRONICS

Tech Stack: Mechanical Skills, Protel, Circuit Design, Soldering

EDUCATION

- Bachelor of Electrical Engineering

Credentials Overview: 12 Certs | 4 Patents | 4 Pubs

Status: OPEN TO COLLABORATION

CREDENTIALS

Certifications

- AI Praktis untuk Produktivitas | Dicoding Indonesia · 2025
- Belajar Penggunaan Generative AI | Dicoding Indonesia · 2025
- Belajar Dasar Git dengan GitHub | Dicoding Indonesia · 2023

- Belajar Dasar Structured Query Language (SQL) | Dicoding Indonesia · 2023
- Memulai Dasar Pemrograman untuk Menjadi Pengembang Software | Dicoding Indonesia · 2023
- Belajar Membuat Aplikasi Kognitif | Dicoding Academy · 2020

Patents

- IoT Weather Monitoring Station (IWEMS) | DGIP Indonesia · 2025
- Pagar Digital System Perlindungan Kawasan Taman Nasional | DGIP Indonesia · 2025
- LMS JMC Pagelaran | DGIP Indonesia · 2024
- Sisfo Pesantren JMC Pagelaran | DGIP Indonesia · 2024

Publications

- Analysis Dynamic of Spring Dumper Control System on Snowmobile with Fuzzy Logic to Improve Stability in Snowy Terrain | IEEE Transactions · 2025
- Experimental Study on the Utilization of IIR Filter for Efficient Audio Signal Processing | IEEE Transactions · 2025
- Peningkatan Kualitas Pengajaran Guru melalui Pembelajaran Berbasis Computational Thinking di Pesantren JMC Pagelaran | SENDAMAS Transactions · 2025
- Development of an Augmented Reality-Based Vision-to-Sound System for Object Recognition for the Visually Impaired Based on Digital Simulation | EXSACT-A ·

TOOLS AND SOFTWARE

MATLAB, CST Studio, ESP-IDF, Raspberry Pi OS / Linux, MQTT, FreeCAD, Google Colab, Arduino IDE, C/C++ (Embedded Programming), Flask, Mikrotik Router, Modem UHP, GNU Radio, Pluto SDR, VLAN Configuration