# RADITYO FAJAR PAMUNGKAS

Sidoarjo, East Java, Indonesia
linkedin.com/in/radityo-fajar-pamungkas
https://github.com/Radityofajar
radityofajar@gmail.com
+62 82249313303
+82 1034452312

## EDUCATION

Kookmin University (Master Student Program) — Seoul, South Korea
Electronics Engineering / Wireless Communication and AI Laboratory — 2022 – February 2024 (expected)
Overall GPA: 4.44 / 4.50
Focus: Energy management system, Virtual power plant (VPP), Anomaly/fault detection using unsupervised learning, and Industrial Internet of Things (IIoT)

University of Indonesia (Bachelor of Engineering) — West Java, Indonesia
Electrical Engineering / Energy and Power System Engineering — 2017 - 2021
Overall GPA: 3.48 / 4.00
Thesis: Hot Spot Detection Application for Solar PV Module Based on Digital Image Processing

## PROFESSIONAL EXPERIENCE

**Excellent Researcher | WiCom AI Laboratory | Kookmin University, Seoul** — **Feb 2022 – Present**

- Conducted scientific research in wireless communication and artificial intelligence areas.
- Presented and published papers at domestic and international conferences.
- Published domestic and international patents.
- Implemented high-end technology in the Industrial sector.

**Junior Researcher | Tropical Renewable Energy Research Center | Depok, West Java** — **Aug 2020 – Sept 2021**

- Designed and implemented a computer vision algorithm for defect detection on solar PV modules using python and openCV to automate monitoring with approximately 100 % higher faster.
- Collected visual images, thermal images, temperature, and IV curve data of defect and standard solar PV modules and created a database for future research.
- Developed a prototype application for defect detection to optimize the monitoring and maintenance of solar power plants with 92% accuracy.

**Head of Electrical Engineer | Autonomous Marine Vehicles | Depok, West Java** — **Sept 2019 – Sept 2020**

- Engineered autonomous surface vehicle (ASV) Makara 9 mark II and underwater remotely operated vehicle (ROV) Makara X with robust design and easy assembly to compete in Southeast Asia and International competition.
- Organized and led weekly meetings and activities for five staff in the electrical engineering division.

**Head of Research & Development | Autonomous Marine Vehicle | Depok, West Java** — **Feb 2018 – Sept 2019**

- Submitted a proposal for the research grant program to gain financial support and received a grant of up to 220 million Rupiah.
- Wrote papers or patents for ASV and ROV, with two published patents in 2020.

**Electrical Designer – Intern | PT.Kriya Eratama Intech | Cikarang, West Java** — **Aug 2020 – Sept 2020**

- Designed and built a modern vending machine prototype using three stepper motors, Atmega 2560, Raspberry pi, and a touchscreen monitor with minimum cost.
- Designed a power board for vending machine using Autodesk Eagle with robust design and easy to maintenance.
- Programmed control systems and graphical user interface (GUI) for a modern vending machine using C++ and Python with PyQt5 library.

## HONORS & AWARDS

| | | |
|---|---|---|
| 3rd place on Kontes Kapal Cepat Tak Berawak Nasional (KKCTBN) ASV Category | \| Malang, Indonesia | **2019** |
| 3rd place on the 12th AUVSI International Roboboat Competition | \| Florida, USA | **2019** |
| 1st place on 3rd ASEAN MATE ROV Competition Explorer Category | \| Surabaya, Indonesia | **2019** |
| 2nd place on Kontes Kapal Cepat Tak Berawak Nasional (KKCTBN) ASV Category | \| Madura, Indonesia | **2018** |
| 1st place on 2nd ASEAN MATE ROV Competition Explorer Category | \| Surabaya, Indonesia | **2018** |
| Grantee of Program Hibah Desain Prototipe (PHD-Pro) | \| Depok, Indonesia | **2019** |
| Finalist Pekan Karya Mahasiswa Riset Eksakta (PKM-RE) | \| North Sumatra | **2021** |

## ORGANIZATIONS

| | | | |
|---|---|---|---|
| **Autonomous Marine Vehicle** | \| Head of Electrical Engineer | \| Universitas Indonesia | **2019-2020** |
| | \| Head of Research & Development | \| Universitas Indonesia | **2018-2020** |
| | \| Mechanical Engineer Staff | \| Universitas Indonesia | **2017-2018** |

## OTHER PROJECTS

**Electrical Engineer | SquareTech | Smart Chicken Coop | Depok, West Java** **2020-2021**

- Wired and Integrated multiple sensors and actuators for a smart chicken coop prototype based on IoT technologies.
- Programmed a basic data acquisition system to monitor humidity, temperature, and luminous intensitywith 80% accuracy.
- Programmed a PID controller to control the heater, lamp, and exhaust power level.

**Researcher | Wireless Communication and AI Lab | 5G Small Cell | Seoul, South Korea** **2022-Present**

- Designed of 5G small-cell IoT platform technology with the industrial manufacturing facility and IoT equipment integration.
- Designed OPC-UA edge server for AI execution and storage database in an industrial IoT environment.
- Developed and implemented an interworking 5G small-cell IoT platform for industrial manufacturing facilities
- Implemented OPC-UA, Modbus, MQTT, etc., for industrial IoT platform integration.
- Employed diverse machine learning models with renowned libraries and frameworks, including Scikit-Learn and TensorFlow.

## PATENTS

- Budiyanto MA, Syahidah A, Azharrisman F, Kurnianto IR, Pamungkas RF, inventors. KAPAL AUTONOMOUSMAKARA 09: WAHANA PEMETAAN DANAU OTOMATIS. S00202008265. 2020. https://scholar.ui.ac.id/en/publications/kapal-autonomous-makara-09-wahana-pemetaan-danau-otomatis
- Budiyanto MA, Syahidah A, Azharrisman F, Kurnianto IR, Pamungkas RF, inventors. UNDERWATER ROV MAKARA X: SURVEI BAWAH LAUT MENGGUNAKAN REMOTELY OPERATED. P00202007816. 2020. https://scholar.ui.ac.id/en/publications/underwater-rov-makara-x-survei-bawah-laut-menggunakan-remotely-op
- Makara 09 Mark II-Autonomous Surface Vehicle. RoboNation. 2019. https://robonation.org/app/uploads/sites/3/2019/10/UI_RB19_TDR.pdf

## PUBLICATIONS

**Design and Implementation of a 2D MIMO OCC System Based on Deep Learning**

MDPI Sensors | Published: 3 September 2023 | https://doi.org/10.3390/s23177637

**Intelligent IoT Platform for Multiple PV Plant Monitoring**

MDPI Sensors | Published: 25 July 2023 | https://doi.org/10.3390/s23156674

**A Novel Approach for Efficient Solar Panel Fault Classification Using Coupled UDenseNet**

MDPI Sensors | Published: 19 May 2023 | https://doi.org/10.3390/s23104918

## CONFERENCES

**The 5th International Conference on Artificial Intelligence in Information and Communication (ICAIIC 2023)** **February, 2023**

Titled Paper 1: Forecasting Solar Energy Production using a Hybrid GCN-BiLSTM Model

Titled Paper 2: Predicting Indoor PM2.5 Concentration using LSTM-BNN in Edge Device

**The 1st Korea Energy Conference** **December, 2022**

Titled Paper 1: Solar Photovoltaic Modules Fault Classification Based on Deep Learning

Titled Paper 2: Forecasting of Building Electricity Consumption Based on Weather Data

Titled Paper 3: Solar Power Generation Forecasting Based on Regional Weather

**The 3rd Korea Artificial Intelligence Conference** **September, 2022**

Titled: Deep Learning-based Photovoltaic Panels Defect Detection using Aerial Thermography Imaging

**The 13th International Conference on Ubiquitous and Future Network (ICUFN 2022)** **July, 2022**

Titled: Abnormal Voltage Detection in On-Grid PV-ESS System by Support Vector Machine with Principal Component Analysis

**The 32nd Joint Conference on Communication and Information (JCCI 2022)** **April, 2022**

Titled: Data Anomaly Detection in IoT System Based on Extended Isolation Forest and Sliding Window

**The 7th International Symposium of Applied Chemistry (ISAC 2021)** **September, 2021**

Titled: Performance Test of Negative Ion Plasma as Air Purifier to Degrade Volatile Organic Compounds (Case Study for Ethanol and Toluene)