Mochamad Rifqi Nur Azhari

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Education

DeepLearning.AI, Specialization in Machine Learning & in Deep Learning 2022 – 2024

- Grades: 100.00/100.00 & 95.60/100.00

IBM, Professional Certificate in Data Scientist & in Data Analyst 2022 – 2024

- Grades: 99.60/100.00 & 99.67/100.00

University of Indonesia, BS in Mechanical Engineering 2017 – 2021

- Junior/Senior GPA: 3.66/4.00
- Specializations: Autonomy & Fluid Dynamics

Experience

Career Break Professional Development 2022 – 2024

- Took full-time non-degree education in the field of Data Science, finished more than 30 certifications, built machine learning and visualization portfolios, and competed in some competitions on online platform.

Research Assistant, Fluid Mechanics Laboratory, University of Indonesia 2020 – 2021

- Managed the establishment process of a new experimental research site that build for more than two years term, conducted the data collection process, produced a research paper, and secured full research funding.

Engineering Analyst Intern, Pertamina Hulu Energi 2020 – 2021

- Applied descriptive and diagnostic analysis to study the historical data of rotating machinery like turbines and compressors, and studied its maintenance procedures and processes.

Teaching Assistant, Faculty of Engineering, University of Indonesia 2020 – 2021

- Provided videos of students' big projects for around 150 students in regular, and international classes in the control system course and corrected weekly students' assignments in the calculus course.

Leadership

General Manager / Team Leader, Universitas Indonesia Flying Car 2020 – 2021

- Co-founded and led 6 specialized senior students from mechanical, and electrical engineering backgrounds reached 5th place in an international aerospace and technology competition which was best among the rookies.

General Manager / Team Leader, Universitas Indonesia Autonomous UAV 2019 – 2020

- Taken over a grounded project and led 21 freshman and sophomore students from multiple quantitative backgrounds reached finalist title in a major national flying robotics competition after a year of absence.
- Reduced production costs by 32% and time by 75% with a total of 13 batches of products by optimizing production processes and secured full research funding from multiple sources including sponsorships.

Research

Flow Control for Energy Efficiency Research Group, University of Indonesia 2020-2022

Experimental Study on a Horizontal-Axis Tidal Turbine [1][2]: Compared experimentally two different diffuser angles in a diffuser-augmented horizontal axis tidal turbine in a flowing tank with a current velocity of 0.7 m/s. Those two angles came up as the most optimal angles from the previous numerical research which was conducted with multi-objective optimization methods such as genetic algorithms and neural networks.

Universitas Indonesia Flying Car Research Organization 2020 – 2021

Hybrid Vertical Take-Off Landing (VTOL) Fixed Wing Urban Air Mobility Design with Foldable Wing: Built passenger drone design that could travel up to 300 km. Designed with multiple cameras as its main autonomy sensor, the drone adopted Convolutional Neural Networks (CNN) algorithm as its main algorithm.

Universitas Indonesia Autonomous Unmanned Aerial Vehicle (UAV) 2018 – 2020

Goods Transporter Small High Wing Unmanned Aerial Vehicle with Color Sensor Camera [3]: Built a goods carrier drone that could carry small objects with maximum size of 10x10 cm. Equipped with color detector camera that had been developed on the python OpenCV, the payload will instantly be dropped at the time the camera detected the target area. Designed with a high wing model, the UAV could fly at a very low speed due to high lift generated from the high wing.

Mask and Medicine Transporter Hybrid VTOL Fixed Wing Unmanned Aerial Vehicle [4]: Built a drone that has mission to deliver mask and medicine to promote contactless delivery during COVID-19 era. Fitted with a long wingspan, the big lift generated from the wing makes the drone able to fly at the very low speed. The future development of the drone was to add Vertical Take-Off Landing (VTOL) system so the drone could properly drop the goods without risk of damaging it.

Circuit Racer Micro Flying Plank Unmanned Aerial Vehicle with Catapult Launcher: Built an agile drone that has the ability to maneuver in a high speed condition. Powered by a 6S lithium polimer battery, the drone can perform high acceleration, which allows it to reach its maximum speed in a very short time. Additionaly, the drone was also equipped with auto-throttle and catapult for its launch mechanism. The elastic potential energy from the launcher helps the drone to take off rapidly, giving a big initial velocity for the propulsion system.

Aerial Mapper Small Flying Wing Unmanned Aerial Vehicle: Built a drone that has mission to collect visual data and create 2-dimensional maps of areas while conduct live video streaming during the data collecting process. Designed as a flying wing model with big winglets, the drone could fly very stable and turn very easily in a small radius so the map does not have any gaps.

Publications

[1] Experimental study on the optimum design of diffuser-augmented horizontal-axis tidal turbine

E. E. Ambarita, H. Harinaldi, ***R. Azhari***, R. Irwansyah

Clean Energy, Volume 6, Issue 5, 2022

Research Grants

[2] Penelitian Dasar Unggulan Perguruan Tinggi (PDUPT) (PI: Harinaldi, Ridho Irwansyah)

National Research and Innovation Agency / BRIN, Republic of Indonesia

Amount awarded: Rp 250,000,000,-

[3] Teknofest Project Support (PI: Yohan Suryanto)

Scientific and Technological Research Institution of Turkey / TUBITAK, Republic of Turkey

Amount awarded: 18,000 TL

[4] Tanoto Student Research Awards 2020

Tanoto Foundation

Amount awarded: Rp 11,000,000,-

Community Services & Additional Work Experiences

Pro Bono Law Advisory, Self-Employed 2024 – Present

- Assist a family in a 10-year long land dispute case over a property, ensuring decisions taken are in accordance with applicable legal provisions and cooperate with a non-paid local legal aid institution for legal action.

Rector's Delegates for International Aerospace & Technology Festival in Istanbul Turkey, Universitas Indonesia's Rectorate 2021

- Discussed the world's recent technology development with countries and companies leaders, and exhibited university's researches in the STEM field, established initial collaboration with lecturers in Turkey.

Technologies

Languages & Platform: Python, R, SQL, C++, C, HTML, CSS, LaTeX, Tableau, PowerBI, and Cognos

Libraries: NumPy, Pandas, tidyverse, Matplotlib, Seaborn, ggplot2, Sklearn, Tensorflow, and Keras