Resha Dwika Hefni Al-Fahsi

Robotics and Machine Learning Enthusiast

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About Me

Technical Skills C/C++, Python, Computer Vision, Robotics, Deep Learning
Languages Indonesian, English

Education

Universitas Gadjah Mada Yogyakarta, Indonesia (2016–2020)

- Bachelor of Electrical Engineering
- GPA: 3.48

Work Experience

Neurabot
AI Engineer Intern Yogyakarta, Indonesia (December 2020 – March 2021)

- Developed an auto-tagging system and microscanner firmware for medical imaging.
- Programming Language: Python, C++
- Software, Tools and Libraries: PyTorch, OpenCV, scikit-learn, PlatformIO

UGM AI CENTER
Research Assistant Yogyakarta, Indonesia (June 2019 – December 2020)

- Involved in many Robotics, Computer Vision and Machine Learning Projects:
  - Developed back end of automated machine learning pipeline for data scientist to increase their productivity.
  - Developed service robot platform.
- Programming Language: Python, C++
- Software, Tools and Libraries: Docker, Flask, PyTorch, scikit-learn, OpenCV, ROS, Gazebo, RViz, Qt

Honeywell Laboratory at Department of Electrical and Information Engineering UGM
Research and Development Intern Yogyakarta, Indonesia (January – May 2019)

- Developed a dashboard design for face recognition system in Honeywell Laboratory of Department of Electrical and Information Engineering UGM.
- Programming Language: Python
- Software, Tools and Libraries: TensorFlow, OpenCV, Dash by Plotly, Qt

Department of Electrical and Information Engineering UGM
Lecturer Assistant Yogyakarta, Indonesia (August 2017 – January 2018)

- Lecturer Assistant for Basic Programming Course.
- Programming Language: C
- Software, Tools and Libraries: Repl.it

Gadjah Mada Robotic Team
Senior Programmer Team Lead Yogyakarta, Indonesia (November 2016 – October 2019)

- Senior Programmer and Team Leader for University's Robotic Research Team in Wheeled Soccer Robot Division:
  - Designed robot software architecture using ROS framework.
  - Implemented RRT* algorithm for the robot path planning.
  - Designed robot communication system, consist of base station, local database using hash table and peer to peer communication using TCP unicast and UDP multicast.
  - Designed decision-making algorithm for autonomus robot using FSM.
  - Implemented robot localization algorithm using Kalman Filter and Particle Filter.
  - Developed ball detection algorithm.
  - Implemented Artificial Neural Network in C++.
- Programming Language: Python, C++
- Software, Tools and Libraries: ROS, Qt, OpenCV, Protobuf, Boost

Competitions and Personal Projects

GUGEN Competition (December 2019)

- Developed a novel text-entry system for visually impaired people.
- **Top 6** for **Grand Prize and Excellence Award** from P-Ban.Com Corp.

AI-JAM Japan 2019 (December 2019)

- Developed a novel text-entry system for visually impaired people.
- Got **Gold award** from AI-JAM Japan.

MyQLaNet (November 2019 – Now)

- MyQLaNet is an end-to-end deep learning platform for macula detection.
- Developed the platform using PyTorch and Qt.

Indosat Ooredoo HackData (November 2019)

- Developed an IoT platform for measuring and maintaining electrical system.
- **Top 10 Finalist** from PT Indosat Ooredoo.

The 21th International Electronics Symposium (IES) (September 2019)

- Presented two papers about face recognition and vehicle counting in a poster presentation and exhibition session.
- Got **best paper award**.

NightOwl (August 2019 – September 2020)

- NightOwl is a robotic platform for wheeled service robot.
- Developed the robotic platform using ROS based on Python and C++ programming language.

OpenVINO Hackathon (August 2019)

- Developed a deep learning platform for early detection of sick livestock.
- Got 3^{rd} **place award** from PT Synnex Metrodata Indonesia.

DILo Hackathon Festival Yogyakarta (August 2019)

- Developed an IoT platform for measuring water usage.
- Got 2^{nd} **runner up place award** from DILo (Digital Innovation Lounge).

Laboratory Attendance Dashboard Website Based on Face Recognition System (January – May 2019)

- Developed a dashboard website for face recognition system in Honeywell Laboratory of Department of Electrical and Information Engineering UGM.
- Face recognition system and dashboard website was built using TensorFlow and Dash by Plotly respectively.

Wheeled Soccer Robot Contest of Kontes Robot Indonesia Regional 3 (April 2018)

- Developed a wheeled soccer robot platform.
- Got 3^{rd} **place and best strategy award** from Kementerian Riset, Teknologi dan Pendidikan Tinggi Republik Indonesia.

Fukurō (November 2016 – October 2019)

- Fukurō is a wheeled soccer robot platform based on RoboCup Middle Size League.
- Developed the robotic platform using ROS based on Python and C++ programming language.

Publications

- **Laboratory Attendance Dashboard Website Based on Face Recognition System**

  R. D. H. Al-Fahsi, Aleksander Patar Jiwandono Pardosi, Kevin Aldian Winanta, Thea Kirana, Okta Fajar Suryani, Igi Ardiyanto. (2019). "Laboratory Attendance Dashboard Website Based on Face Recognition System." 2019 International Electronics Symposium (IES). (pp. 19-23).

- **Moving Objects Counting Dashboard Web Application Design**

  K. A. Winanta, Thea Kirana, Resha Dwika Hefni Al-Fahsi, Aleksander Patar Jiwandono Pardosi, Okta Fajar Suryani, Igi Ardiyanto. (2019). "Moving Objects Counting Dashboard Web Application Design." 2019 International Electronics Symposium (IES). (pp. 45-48).

- **NightOwl: Robotic Platform for Wheeled Service Robot**

  R. D. H. Al-Fahsi, Kevin Aldian Winanta, Fauzan Pradana, Igi Ardiyanto, Adha Imam Cahyadi. (2020). "NightOwl: Robotic Platform for Wheeled Service Robot ." arXiv:2010.11505.