Dionesius **Agung**

Software Engineer · Robotics Engineer

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Summary

A student finishing a bachelor's degree in computer science from Institut Teknologi Bandung who is passionate about robotics and AI. Has 3 years of experience as a student in research and development of mobile robots. Research topics of interest mainly focused in state estimation, active SLAM, and navigation. A proactive person who is eager to learn new things. An aspiring engineer currently looking for opportunity as robotics software engineer.

Education

Institut Teknologi Bandung

Bandung, Indonesia

Bachelor of Engineering, Computer Science

Aug 2016 - Oct 2020

- Final project title: "**Autonomous Exploration and Active Mapping with Mobile Robots**".
- Active **member of a robotics developer team** which resides in the **Autonomous Vehicle Research Group** Lab.
- **3 years of experience** in research and development of **mobile robots**, experienced in **Robot Operating System (ROS)** and **Gazebo simulator**.
- Research topics of interest include state estimation and localization, navigation, SLAM, and perception.
- Has **organizational experience** in the **Computer Science Student Union**, once served as the **Council Secretary** and then as the **head of a commission in the Council of Supervisory and Representatives**.

Skills

Programming	Python, C++, Golang, Javascript
Tools and Technologies	Robot Operating System (ROS), Linux Operating Systems, OpenCV Library, Gazebo Simulator
Human Languages	Indonesian (native), English (fluent/native proficiency)

Experience

Dagozilla Robotics (Autonomous Vehicle Research Group Lab, ITB)

Bandung, Indonesia

Senior Technical Advisor

Sept 2019 - Present

- Gives technical advises and feedbacks to the software/programming team.
- Does more advanced research in state estimation and implementations of Bayesian filters.

Lead Software Engineer

Sept 2018 - Sept 2019

- Led the design and development process of the software system for a telepresence robot as well as the documentations of the system.
- Directed the research and development on computer vision, robotic control systems, robot AI, and software UI/UX for MSL-class robots.
- Designed and implemented AI for a MSL-class goalkeeper robot behavior and decision making.
- Implemented algorithm for robot pose estimation by combining odometry and heading sensor data using Monte Carlo Localization.

Software Engineer

Sept 2017 - Sept 2018

- Designed architecture for computer vision system software for football-playing robots that compete in MSL-class competitions.
- Built a software component for object (ball, obstacle, and field) detection for MSL-class competition robots using OpenCV library.
- Created software documentations of the vision system that I built as well as other legacy codes that were going to be migrated.
- Initiated the research on a pose estimation method by combining odometry and IMU sensor data using Extended Kalman Filter.

Shopee International Indonesia

Jakarta, Indonesia

Software Engineer Intern

May 2019 - Aug 2019

- Implemented back end handler component that deals with a high number of requests per second.
- Created "Feature Release Manager" application which allows independent and individual releases of features for different countries.
- Wrote software documentations of "Feature Release Manager" application and other software components that I implemented.

Projects

Mobile Telepresence Robot

Robotics

A mobile telepresence robot that can be controlled remotely via the internet used for teleconference

2018–2019

- The robot has been shown in various national exhibitions and technology-related conferences.
- Developed the robot software with Robot Operating System (ROS) and programmed the microcontroller (STM32).
- Created video chat software for the robot-mounted and user-facing applications using WebRTC.
- Used Python, C++, Node.js, socket.io, and WebRTC for this project.

Mobile Soccer Robot Development

Robotics

A team of mobile robots that compete in RoboCup Middle Size League

2017–2020

- Developed the robot software with ROS and did simulations of the robots in match environments on Gazebo.
- Applied software development practices in the development of the robot software.
- Contributed to the design of the computer vision system and the AI for robots' behavior.
- Used Python, C++, Node.js, ROS, and Gazebo for this project.

Peer-to-Peer Collaborative Editor

Distributed System

A simpler and plainer version of Google Docs

2019

- Created peer-to-peer collaborative text editor (simpler replica of Google Docs) utilizing CRDT.
- Built the graphical user interface with Qt.
- Used Python and C++ for the project.

Vision-Based Vehicle License Plate Reader

Image Processing

Using pure image processing techniques without any learning algorithms to read license plates

2019

- Built a custom image processing library for the recognition.
- Used pure image processing methods to recognize characters on license plates.
- Created a web-based graphical user interface for the application.
- Used C++, Javascript, and WebAssembly for this project.

Programme Monitoring and Evaluation System

Software

A system for West Java govt. to monitor and track the progress of current and planned programmes

2019

- Gathered functional and non-functional requirements from client (provincial government of West Java).
- Built the backend and frontend using PHP with Codeigniter framework.
- Used PHP for this project.

Awards

2019	**4th Place**, Indonesian National Robotics Competition (National league of the Indonesian RoboCup MSL)	*Indonesia*
2019	**1st Place**, Indonesian Regional Robotics Competition (Regional league of Indonesian RoboCup MSL)	*Indonesia*
2019	**Best Strategy Award**, Indonesian Regional Robotics Competition	*Indonesia*
2018	**Best Strategy Award**, Indonesian Regional Robotics Competition	*Indonesia*