Dionesius **Agung**

SOFTWARE ENGINEER · ROBOTICS ENGINEER

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Summary

A soon-to-be computer science fresh graduate from Institut Teknologi Bandung. Has **3 years of experience** as a student in **engineering and development of softwares**, mainly in the field of mobile robotics while being a member of **Autonomous Vehicle Research Group Lab**. Has experience in industry by being a software engineer intern in one of the biggest e-commerce players in Indonesia. Currently looking for internship or full-time opportunity as 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 engineering and development of softwares for mobile robots.
- 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 documentation 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 using ROS as middleware in Python.
- Implemented algorithm for robot pose estimation by combining odometry and heading sensor data using Monte Carlo Localization.
- Initiated better engineering and software documentation practices that enable the sharing of knowledge between divisions.

SOFTWARE ENGINEER   *Sept 2017 - Sept 2018*

- Designed and built the computer vision software component for MSL-class competition robots using OpenCV with ROS in C++.
- Created software documentation 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 in Golang.
- Created "Feature Release Manager" application which allows independent and individual releases of features for different countries in Golang.
- Wrote software documentation 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 exhibited 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 ROS, 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 ROS, Gazebo, Python, C++, and Node.js 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*