Ibrahim Fadhil Djauhari

Email: ibrafdj@gmail.com | Website: www.ibrafdj.com | Github: github.com/ibrafdj | LinkedIn: linkedin.com/in/ibrafdj

Summary

A Robotics Software Engineer with five years of professional experience in mobile robot software development, taking novel research concepts to field-tested and production-ready systems. Proven expertise in full-stack development of ROS-based systems for navigation, sensor fusion, computer vision, and SLAM, validated by two patents and two academic publications.

Skills

Key Competencies: Computer Vision, Sensor Fusion, Deep Learning, SLAM, Embedded Systems, Teleoperation, Cloud Deployment

Robotics & Deep Learning Stack: Robot Operating System (ROS & ROS2), RViz, Gazebo, g2o, Pytorch, Tensorflow, OpenCV

Hardware & Sensors: Single-board computers (Nvidia Jetson, UDOO, Beaglebone), Camera, IMU, DVL, GPS, LIDAR, Sonar

Programming Languages: C, C++, Python, MATLAB, Javascript (NodeJS)

Work Experience

Researcher in the Ocean Perception Lab
University of Southampton, September 2024 – April 2025

- Developed a novel vision-based subsea cable tracking system on a Sparus II AUV using ROS, resulting in two academic publications
- Implemented a computer vision model trained with Pytorch in an Nvidia Jetson board for real-time detection of subsea cables using a Voyis Recon LS camera
- Launched and operated an AUV in eight-day field tests of the subsea cable tracking system in dynamic environments, leading to a successful observation of over 70% of a laid-down subsea cable
- Applied an open-source unsupervised learning pipeline to process the collected multimodal data (Images, laser point cloud, sensor measurements), generating automatically classified seafloor maps based on visual and location-based patterns

Cloud Middleware Engineer
Samsung R&D Institute Indonesia, August 2021 – August 2023

- Developed and deployed a Point-of-Interest (POI) search application serving ~7 million POIs for Samsung services in the Europe and Asia Pacific regions using Amazon Web Services (AWS)

Research Assistant in the ITB-HUG Research Team
Bandung Institute of Technology, October 2020 – August 2023

- Developed and implemented the navigation, guidance, and control (NGC) systems of the ITB Hybrid Underwater Glider (ITB-HUG) using ROS, employing an extended Kalman filter for fusing multiple sensor data from the IMU, DVL, Altimeter, and GPS
- Performed Hardware-In-The-Loop-Simulations (HILS), visualised with RViz and Gazebo, to validate the NGC system performance on the ITB-HUG's embedded systems

IoT Application Engineer
CAD-IT Consultants (Asia) Pte. Ltd., December 2020 – July 2021

- Developed and deployed full-stack IoT applications for enterprise manufacturing operations management using NodeJS, Flask, React, PostgreSQL, and PTC Thingworx

Education

Master of Science in Maritime Engineering: Marine Engineering & Autonomy
University of Southampton, September 2023 – September 2024

Bachelor of Science in Electrical Engineering
Bandung Institute of Technology, August 2016 – October 2020

Publications & Patents

I. F. Djauhari, A. Bodenmann, S. Simmons and B. Thornton, "Subsea Cable Search and Path Estimation Using Graph SLAM for AUV-Based Inspection," *2025 IEEE Underwater Technology (UT)*, Taipei, Taiwan, 2025, pp. 1-6, doi: 10.1109/UT61067.2025.10947380.

A. Bodenmann, **I. F. Djauhari**, J. Devgon and B. Thornton, "Real-time Subsea Communication Cable Detection for AUV-based Inspection," *2024 IEEE/OES Autonomous Underwater Vehicles Symposium (AUV)*, Boston, MA, USA, 2024, pp. 1-6, doi: 10.1109/AUV61864.2024.11030782.

"Sistem dan Metode Navigasi untuk Menentukan Data Posisi, Orientasi dan Kecepatan Wahana Luncur Bawah Air Otonom Hibrida". Indonesia Patent No. IDP000095871, filed 15 June 2021, issued 10 October 2024.

"Alat dan Metode Untuk Menggerakkan Hybrid Autonomous Underwater Glider dan Metode untuk Memandu Gerakannya". Indonesia Patent Application No. P00202105587, filed 22 July 2021. Patent pending.