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Ibrahim Fadhil Djauhari

Email | Website | Google Scholar | LinkedIn | Github

Education

Master of Science in Marine Engineering & Autonomy at the University of Southampton, 2023 – 2024

Bachelor of Science in Electrical Engineering at Bandung Institute of Technology (ITB), 2016 – 2020

Work Experience

Underwater Drone Operator & Marketing
Rovostech Co. Ltd., August 2025 – November 2025

- Performed maintenance and assembly of electronic/mechanical hardware for custom-built Remotely Operated Vehicles (ROVs)
- Planned and performed a three-day shipwreck mapping mission on the Java Sea using a 150m-rated observation-class ROV, successfully gathering over 10,000 images of underwater objects from multiple angles
- Built a CUDA-based photogrammetry pipeline integrating computer vision for image correction and object detection, successfully converting a ~10,000 image dataset into two high-fidelity 3D models

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

- Developed a novel vision-based motion planning system for autonomous tracking of subsea cables using C++, Python, and ROS, resulting in two academic publications.
- Trained and implemented a real-time computer vision/perception model on an Nvidia Jetson board using Pytorch, achieving a 1 second cable detection rate in 4k resolution seafloor images
- Developed a graph-based SLAM system to update map estimations based on new visual observations in real-time, successfully proving robustness in up to 2% false positive and 25% false negative visual observation rates
- Planned and performed eight days of field-testing of the subsea cable tracking system on an Autonomous Underwater Vehicle (AUV), successfully observing 60% of a 110m subsea cable autonomously

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

- Developed and deployed a Point-of-Interest (POI) search application serving over 100 million monthly requests for Samsung services in the Europe & Asia Pacific regions using Amazon Web Services (AWS), ensuring 100% uptime using Blue-Green deployment strategy

Research Assistant in the Computer & Control Systems Lab (LSKK ITB)
Bandung Institute of Technology (ITB), October 2020 – August 2023

- Developed a line-of-sight guidance system and a gain-scheduled PID control system for precise motion planning of an AUV, achieving a maximum of 6m cross-track error in a 2500m^2 lawnmower survey pattern
- Developed a navigation system integrating multiple sensors (IMU, DVL, Altimeter, GPS) of an AUV fused using an Extended Kalman Filter (EKF), achieving International Hydrographic Organization (IHO) error standards for hydrographic surveys
- Performed Hardware-In-The-Loop-Simulations (HILS) to test system performance on embedded AUV hardware using Rviz and Gazebo

Leadership Experience

Project Leader
OSKM ITB 2019, April 2019 – September 2019

- Managed 2,481 committee members and over 2 billion IDR of funds to achieve the vision of OSKM ITB 2019 as a student orientation event to welcome and educate 4,465 new ITB students
- Helped raise over 600 million IDR in funding by negotiating deals with sponsors such as Telkom Indonesia, Paragon, and Ultramilk
- Initiated OSKM ITB 2019 as the largest zero-waste event in ITB and recycled 412kg of food waste throughout the event

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.

"Alat dan Metode Untuk Menggerakkan Hybrid Autonomous Underwater Glider dan Metode untuk Memandu Gerakannya". Indonesia Patent Application No. IDP000101328, filed 22 July 2021, issued 11 December 2024.

"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.

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Training & Workshops

Marine Data 4 Sustainable Oceans Workshop (2025): Attended a marine data processing workshop organized by Copernicus Marine Service and Mercator Ocean International

Sustainathon Indonesia (2024): Developed the prototype for "SejukHemat", an application to help optimize AC temperature for power efficiency, in a six-week ESG-themed virtual hackathon

Awards

Indonesia Endowment Fund for Education Agency (LPDP) Scholarship (2023): Awarded a fully-funded scholarship from the Indonesian government to enroll in master's study at the University of Southampton.