Burhanudin

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Biomedical Engineering graduate focused on intelligent medical robotics and AI-driven control systems. Experienced in reinforcement learning for surgical robot simulation, ROS2 and computer vision for autonomous systems, and brain signal acquisition using ECVT technology. Demonstrated hands-on expertise in Python-based ML implementation, robotic control, and experimental neuroimaging research within academic and research environments.

Related Experiences

Universitas Gadjah Mada — Yogyakarta, Indonesia
Assistant Programmer — ROS2 (Autonomous Excavator ERIC Project) — *Apr 2024 – Nov 2024*

- Developed ROS2 nodes for perception and control integration in an autonomous excavator system.
- Implemented computer vision pipelines for object detection and environmental awareness.

C-Tech Labs Edwar Technology — Tangerang, Indonesia
Research Intern — Neuroimaging & Brain Signal Analysis — *Jan 2024 – Feb 2024*

- Performed frequency sweep characterization of a brain signal acquisition module using a function generator and digital oscilloscope, and developed Python-based analysis to compare injected carrier signals with captured neural responses to identify optimal operating frequency.

GAMAFORCE UGM — Yogyakarta, Indonesia
Vision & Control Programmer — *Dec 2022 – Dec 2024*

- Developed vision-based guidance and control algorithms for autonomous aerial systems.
- Integrated computer vision modules with control systems for target tracking and navigation tasks.
- Collaborated within multidisciplinary engineering teams for system testing and field validation.

Jago Robotika — Yogyakarta, Indonesia
Student Tutor — *Nov 2024 – Dec 2025*

- Mentored students in robotics fundamentals, programming, and system integration concepts.
- Facilitated hands-on robotics sessions guiding students in developing their own Arduino-based projects integrating sensor inputs and actuator outputs.

Related Projects

Bachelor Thesis Project – AI-Based Surgical Robot Control | *Python, Reinforcement Learning*

- Developed a reinforcement learning framework for autonomous surgical tool manipulation using the da Vinci Research Kit simulator.
- Engineered reward functions and exploration mechanisms to improve convergence and task success in needle-picking scenarios.
- Conducted comparative analysis of training configurations to identify the most stable and efficient learning strategy.

Capstone Project – BISINDO Sign Language Translator App | *Dataset Generation*

- Led end-to-end development of a BISINDO sign language translation system, overseeing data acquisition, preprocessing, and model training workflows.
- Worked with certified BISINDO practitioners to capture structured sign language gesture data for supervised learning.
- Performed dataset annotation, preprocessing, and augmentation to enhance robustness of the sign classification model.

Education

Universitas Gadjah Mada — Yogyakarta, Indonesia
B. Eng. in Biomedical Engineering | GPA: 3.14/4.00 — *2021 – 2026*

Technical Skills

Embedded & Control: C/C++, ESP32, Arduino, SBC, System Administration
Engineering Tools: LTSpice, Arduino IDE, ROS, Gazebo, Octave, FreeCAD
Machine Learning: Python
Languages: Bahasa Indonesia (Native), English (C1), Arabic (beginner)