

Aiman Hazim

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Education

- University of Fukui** — B.Eng. Mechanical and Systems Engineering (Robotics Course) Expected Mar 2027
- Full Malaysian-government scholarship recipient for studies in Japan
- University of Malaya** — Preparatory Program for Study in Japan (Special Course), Completed Feb 2021

Skills

Programming: Python, C/C++

Robotics & Tools: ROS, NVIDIA Isaac Sim, Velodyne 3D LiDAR, thermal (TIR) cameras, Docker, Linux, Git

Hardware & CAD: Arduino, KiCad, circuit design and soldering, Onshape

Languages: Malay (native), English (TOEIC 970/990), Japanese (JLPT N2; conducts research and coursework in Japanese)

Research Experience

Undergraduate Researcher, Intelligent Robot Research Laboratory, University of Fukui 2025 – Present
Thesis: Large-Scale Simulation with Human-Behavior AI for TIR–LiDAR Robot Navigation

- Designing a 20 m × 20 m dynamic indoor environment in NVIDIA Isaac Sim populated with multiple AI-driven human agents, each with individual appearance, gait characteristics, and collision-avoidance behavior, to evaluate SLAM performance statistically across 100+ environment configurations
- Implementing active multimodal SLAM fusing thermal-infrared (TIR) camera and 3D LiDAR data to achieve robust localization and traversability mapping in dark and crowded environments, extending prior lab work (Walk2Map++/HO3-SLAM) from passive to active vision
- Built a ROS data pipeline on the Mega Rover mobile robot: synchronized multi-sensor recording with rosbag, human detection from TIR imagery via thermal thresholding, and depth-image generation from Velodyne VLP-16 point clouds
- Deployed Isaac Sim 5.1.0 on a remote cloud GPU instance, independently resolving Docker permission, SSH configuration, and GPU streaming issues to enable an AI-assisted development workflow

Projects

PyroScout — Thermal–LiDAR Fusion for Search-and-Rescue (personal project) Jun 2026

- Built a from-scratch 2D autonomous search-and-rescue simulator in Python that fuses 2D LiDAR for geometry and a thermal sensor for semantics, letting a robot map an unknown building and locate a heat-emitting victim with no prior map
- Implemented the full classical autonomy stack: log-odds occupancy-grid mapping, frontier-based exploration, clearance-aware A* planning, and a pure-pursuit controller, coordinated by a behavior state machine
- Achieved 8/8 successful rescues with zero wall collisions across randomized sensor-noise trials, localizing the victim to ~1 cm via thermal–LiDAR fusion; covered by 41 unit/integration tests with CI

Autonomous Vacuum Robot — Robot Engineering Creative Experiment course (team of 3) Jan 2024

- Designed and machined the acrylic robot body in Onshape, built the electronics from KiCad circuit design through soldering and assembly, and programmed control logic on an Arduino UNO R3
- Received the Eiwa System Management Award at the final assessment, where each attending company selected its top team, for improvising a design fix on the spot to clear the challenge course

Self-Hosted LLM & RAG Assistant (personal project) 2025 – Present

- Run open-weight LLMs locally with llama.cpp (GGUF) for fully offline, private inference, and built a retrieval-augmented (RAG) assistant in Open WebUI over personal notes and research papers to speed up literature review
- Self-hosted on a GPD Win Max 2 handheld (Ryzen AI 9 HX 370, 64 GB RAM), scaling compute on demand via an OCuLink-attached external GPU (NVIDIA Titan Xp)

Work Experience

Housekeeping Staff & New-Staff Trainer (part-time), Hotel Fujita — Fukui, Japan Nov 2022 – Present

- Trained and onboarded new staff members over 3+ years of service alongside full-time engineering studies
- Maintained room-quality standards under strict per-room time constraints by refining and standardizing cleaning procedures

Inventory Auditor (part-time), AJIS Co., Ltd. — Fukui, Japan Jun 2025 – Present

- Perform high-accuracy stocktaking counts for retail clients as part of audit teams under fixed time windows

Newspaper Delivery Staff (part-time), Fukui Shimbun — Fukui, Japan Sep 2025 – Present

- Complete early-morning delivery routes reliably while balancing three part-time jobs with thesis research

Certifications

TOEIC 970/990 (L: 480, R: 490) Jun 2026

JLPT N2 Dec 2020