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Brian Lai Lap Hong

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Education

Universiti Teknologi Malaysia (UTM) *2022–Present*
Master of Philosophy (Robotics & Localization)
Universiti Teknologi Malaysia (UTM) *2017–2021*
Bachelor of Electronic Systems Engineering

Profile

Robotics engineer specializing in C++, Python, ROS1/ROS2, sensor fusion, and autonomous systems. Experienced in simulation, machine learning model implementation, and deploying solutions on Linux-based platforms. Adept at full-cycle project delivery from simulation to hardware deployment, collaborating effectively with multidisciplinary teams.

Work Experience

Robotics Software Engineer, Braintree Technologies *2021–Present*

- Designed and implemented navigation systems using ROS1/ROS2 and C++ for autonomous robotics.
- Applied machine learning techniques to enhance autonomy and decision-making performance.
- Developed simulation workflows in Gazebo and validated systems through field testing.
- Processed and analyzed sensor data—including images, point clouds, and IMU inputs—for real-time localization and perception.
- Designed and implemented custom ROS plugins to extend system functionality and optimize robot performance.
- Integrated MoveIt for robotic arm motion planning and manipulation tasks.
- Implemented object detection and perception pipelines to enable environment-aware interactions.
- Set up and configured robotics Linux systems, including device drivers, networking, and deployment environments.
- Integrated hardware such as RealSense, Jetson, Arduino, and Teensy to support prototyping and deployment.
- Coordinated with clients, vendors, and multidisciplinary teams to deliver robust robotic solutions.

Postgraduate Experience

MPhil Researcher, Universiti Teknologi Malaysia *2022–Present*

- Conducting advanced research on localization techniques for mobile robotics.
- Enhanced scan-matching algorithms to improve positional accuracy and robustness.
- Built agricultural simulation environments to benchmark and compare localization methods.
- Performed literature reviews of state-of-the-art techniques to inform research direction.

Technical Skills

Programming: C++, Python, MATLAB
Robotics & Simulation: ROS1, ROS2, Gazebo, Blender, localization, mapping, navigation stacks
Hardware & Systems: IMU, RealSense, Jetson, Arduino, Teensy, sensor fusion, PCB prototyping, Linux, networking, Git

Software & Tools

Photoshop, Blender, Premiere Pro

Languages

Cantonese (Native), Mandarin (Native), Malay (Fluent), English (Fluent)

Publication

Brian Lai Lap Hong; Mohd Azri Bin Mohd Izhar; Norulhusna Binti Ahmad. 2025
Improved Monte Carlo Localization for Agricultural Mobile Robots with the Normal Distributions Transform.
International Journal of Advanced Computer Science and Applications (IJACSA), 16(3), 2025
DOI: 10.14569/IJACSA.2025.01603100

Reference

Dr. Mohd Azri bin Mohd Izhar – Lecturer, Universiti Teknologi Malaysia; Email: mohdazri.kl@utm.my