Tokyo, Japan
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Liew Hai Liang

Robotics Engineer

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Robotics engineer with various experiences in robotic system development, integration and deployment. I have experience in developing software, electrical and hardware systems from scratch ranging from robots for competitions to industrial quadruped robots.

Skills

Tools and Languages	Linux (Ubuntu), ROS, C++, Python, Git, OpenCV, Matlab, PyTorch, OpenAI Gym, RBDL, URDF, Xarco, qpOASES, Bash
Technical Expertise	System Design, Control Engineering, Mathematical Optimization, Computer Vision, Robot Simulation (DART, MuJoCo, Gazebo), Machine Learning, Data Processing, Serial Communication Protocols (CAN, I2C, SPI, UART), 3D Printing, Embedded programming (Arduino, STMicroelectronics), CAD design (Solidworks, FreeCAD), PCB Design (KiCAD), Test Automation
Languages	English (proficient), Chinese (native), Malay (proficient), Japanese (intermediate)

Technical Experience

Robotics Master's Degree Candidate — **Apr 2021 — Present**
Mizuuchi Laboratory, Tokyo University of Agriculture and Technology — *Tokyo, Japan*

- Designed and built a knee exoskeleton capable of augmenting human locomotion.
- Designed and built an electrical system to control Quasi-Direct Drive actuators with regenerative braking.
- Create machine learning datasets from exoskeleton sensor data to train neural networks for terrain detection.
- Developed a novel regenerative braking system for low-speed applications.

Software Intern - Mechatronics Team — **May 2022 — July 2022**
Rapyuta Robotics Co., Ltd. — *Tokyo, Japan*

- Troubleshoot and provide solutions to electronic hardware issues.
- Improve circuitry design for Electromagnetic compatibility (EMC) for product certification.
- Generate and modify test scripts for automated testing of robot systems on ROS.
- Collect test data and compile test reports for documentation and further analysis.

AI Humanoid Robot Engineer — **Sep 2020 — Feb 2021**
SIW Manufacturing Sdn. Bhd. — *Penang, Malaysia*

- Developed quadruped robot locomotion system as a member of the R&D team.
- Devised and implemented novel algorithms and algorithms from scientific papers.
- Deploy algorithms within multibody dynamic simulators for performance benchmarking.
- Create test cases to ensure algorithm stability and improve execution performance.
- Design and manufacture actuator prototypes for real-world quadruped robot.

Software Research Development Intern — **Jun 2019 — Aug 2019**
ViTrox Corporation Bhd. — *Penang, Malaysia*

- Devised and implemented algorithms to solve travelling salesman problem.
- Enhanced PCB fiducial mark detection accuracy using computer vision.
- Introduced 3D foreign materials detection system for PCB inspection.
- Assisted the development of camera plant growth tracker in vertical farming system.

Software Developer for Robotics Competitions — **Nov 2016 — Apr 2019**
Malaysia Autonomous Vehicle Challenge & ABU Robocon — *Johor, Malaysia*

- Integrated NVIDIA Jetson TX2 compute module on Auvidea J120 carrier board with Turtlebot 3.
- Implement computer vision and deep learning for visual recognition in an autonomous robot vehicle.
- Troubleshoot system errors during competition within limited amount of time.
- Spearheaded the development of new systems for application in Robocon Competition.
- Created a system for flying frisbee interception using computer vision.
- Developed a sensor fusion system to increase performance of Inertial Measure Unit (IMU) for robot positioning.

Education

Master's Course, Graduate school of Engineering, *Tokyo University of Agriculture and Technology* — Apr 2021 — Present
Bachelor of Engineering(Mechanical), *University of Technology Malaysia* — 2016 — 2020

Activities

Japanese Government (Monbukagakusho: MEXT) Scholar — Apr 2021 – Present

ASEAN International Mobility for Students (AIMS) scholar to Tokyo University of Agriculture and Technology — Sep 2018 — Jan 2019