LIN JUNG PENG

brucelin90620@gmail.com • www.linkedin.com/in/bruce-jung-peng-lin • https://brucelinweb.com

EDUCATION

Purdue University   *West Lafayette, IN*
M.S. in Electrical and Computer Engineering   *(Expected) 05/2027*
- **Relevant Coursework**: Computer Architecture(in progress), Introduction to Operating Systems(in progress)

National Taipei University of Technology   *Taipei, Taiwan*
B.S. in Mechanical Engineering   *06/2023*
- **Relevant Coursework**: Design and Practice of Control System, Digital Control, Introduction to Robotics, Intelligent Robots and Lab, Computer Organization, Data Structure, Operating Systems, and Computer Algorithms

SKILLS

Languages: C/C++, Python, MATLAB, Shell Scripting
Robotics: ROS/ROS2, SLAM/VSLAM, Sensor Fusion, Motion Planning, Control Theory, Perception
Embedded: Embedded Linux, Yocto Project, Kernel/Driver Development, RTOS, I2C, SPI, CAN Bus
Tools: Git, Docker, GDB, NVIDIA Isaac Sim, Airsim, PCB Design

EXPERIENCE

City Science Lab @ Taipei Tech, a cooperation with MIT Media Lab   *Taipei, Taiwan*
Researcher – Promoted to full-time researcher after graduation to continue leading robotics projects.   *07/2023 - 04/2025*
TSMC Industry-Academia Research Project: Boston Dynamics Spot
- Developed autonomous navigation for Spot's patrol of a 5,000m² factory with 50+ inspection points.
- Architected a dynamic map-switching system to overcome hardware memory constraints, enabling persistent localization across multiple zones.
- Led the team in validating a mission planner in NVIDIA Isaac Sim before its successful deployment on hardware.

Foxconn Technology Industry-Academia Research Project: EVπ (Autonomous Vehicle)
- Integrated Foxconn's automotive-grade middleware (HHEV.OS) with the ROS2 control system.
- Optimized low-level sensor data pipelines for LiDAR and cameras, improving throughput for critical autonomous driving functions.
- Led an electronics overhaul, creating custom PCBs to replace unstable wiring and improve system resilience.

City Science Lab @ Taipei Tech, a cooperation with MIT Media Lab   *Taipei, Taiwan*
Undergraduate Researcher, topic: Development of SLAM and Navigation System for Hexapod Robot   *02/2023 - 07/2023*
- Fine-tuned Cartographer SLAM parameters to generate high-fidelity 2D maps for precise hexapod robot navigation.
- Corrected LiDAR odometry drift by implementing an AprilTag-based vision system.

Aeroprobing Inc., a drone solutions startup   *Taipei, Taiwan*
Software Engineer Intern   *11/2022 - 01/2023*
- Built an Airsim/ROS/YOLOv5 simulation environment to safely validate autonomous drone inspection algorithms.
- Achieved a 10x YOLOv5 inference speedup on a Xilinx FPGA, enabling 30 FPS real-time onboard obstacle avoidance.

SELECTED PROJECTS

Embedded Linux Smart Home Hub   *05/2025 - 08/2025*
- Developed custom Linux kernel drivers and device tree overlays for I2C/SPI sensors and GPIO actuators.
- Designed a responsive, multi-threaded C++ GUI using the Qt framework with a HAL for local hardware control.
- Integrated MQTT and Wi-Fi stacks for reliable remote command execution and cloud-based data visualization.
- Built a minimal, secure, custom Linux system from scratch for the target hardware using the Yocto Project.
- Implemented a robust A/B over-the-air (OTA) update mechanism and a hardware watchdog for system availability.

Bio-Inspired Quadruped Bionic Robot (Pangolin, Triceratops)   *07/2023 - 12/2023*
- Achieved cm-level localization via VSLAM, performing real-time 3D reconstruction and state estimation.
- Led circuit design and control system development to replicate the pangolin's unique curling defense mechanism.

Autonomous Drone for Line-Following and Material Transportation   *02/2022 - 11/2022*
- Developed the ROS-based control system and motion planning algorithms for autonomous delivery missions.
- Designed a custom drone from scratch, integrating circuits and selecting sensors for autonomous navigation.