

Seif Eddine Joul

seifjoul@gmail.com | <https://www.linkedin.com/in/seifjoul> | https://j0olz.github.io/Landing_Page_Joul/

Education

Universiti Sains Malaysia

Nov 2024

Bachelor of Science in Mechatronics Engineering (Hons)

Relevant Coursework: Embedded Systems, Automation, Reliability Engineering, Statistical Quality Control

Experience

Assistant Engineer, Hitronik— Penang, Malaysia

Aug 2023 – Oct 2023

- Restored a CNC lathe machine by diagnosing and fixing control faults and recalibrating motion settings, bringing it back to full operation within one week.
- Designed and installed a solar-powered LED signage system with custom PCB and rooftop solar integration, enabling 24/7 off-grid lighting.
- Built an automated solar-powered pump system using custom circuitry, microcontroller logic, and mechanical coupling to regulate upstream irrigation for a durian farm.

Projects

Adhesive Hook Reliability Project

Jan 2024 - Mar 2024

- Demonstrated reliability prediction techniques applicable to consumer and industrial product validation.
- Analyzed failure modes using Weibull distribution, demonstrating >90% confidence in expected performance lifetime.
- Conducted accelerated life testing using stress analysis (temperature and load cycles) to predict long-term failure.

LiDAR-Camera Sensor Fusion System

Mar 2024 - Aug 2024

- Developed a MATLAB-based sensor fusion pipeline combining LiDAR point clouds with camera image data using extrinsic calibration and projective transformation
- Integrated YOLOv4 object detection to improve scene interpretation and implemented depth estimation based on real-world coordinate projection
- Achieved sub-pixel alignment with average reprojection error below 0.03 px, enabling reliable object distance prediction and multi-sensor integration
- Fusion approach improved obstacle detection accuracy and depth estimation precision by approximately 35% compared to standalone LiDAR or camera systems under controlled test conditions

Regenerative Braking System for Amphibious Robot

Feb 2023 - Jul 2023

- Designed and installed a regenerative braking mechanism in a terrain-adaptive robotic platform, recovering kinetic energy during deceleration cycles
- Calibrated energy capture across 31–1532 rpm and integrated LiPo battery recharge logic, improving power sustainability in off-grid operation
- Reduced energy loss by up to 25% during field simulation, contributing to extended autonomous runtime and reduced dependency on external charging
- Coordinated sensor-triggered braking actuation with motor control feedback to ensure consistent braking performance and safe system operation

Skills

Statistical & Quality Engineering: Minitab, SPC, SQC, Pareto Analysis, DMAIC (Six Sigma), Reliability Testing (ALT, ESD, EMI), FMEA, Root Cause Analysis (5 Whys)

CAD: SolidWorks, MATLAB & Simulink, LabVIEW, OrCAD, CX Programmer, OpenCV

Programming: C/C++, Python, Ladder Logic, PLC Programming