Zihan Lin

Waltham, MA | 857-294-5016 | zlukelin@gmail.com | http://neulinzihan.github.io | www.linkedin.com/in/zlukelin

Summary

Mechanical Engineer with M.S. in Robotics and hands-on experience in hardware testing, electromechanical system troubleshooting, and sensor integration. Experienced in interpreting schematics, writing test documentation, and collaborating cross-functionally to resolve hardware defects. Bilingual in English and Mandarin Chinese with education in the U.S. and engineering work experience in China.

Education

Northeastern University, Boston, MA — Dec 2025
Master of Science in Robotics

Northeastern University, Boston, MA — Dec 2023
Bachelor of Science in Mechanical Engineering

Skills

Hardware & Test: Oscilloscope, Signal Generator, Multimeter, Soldering, Calibration, Sealed Test Chambers
Design & Prototyping: SolidWorks, Creo, AutoCAD, 3D Printing (DLP/FDM), DFM
Programming & Systems: Python, Linux/Bash, Git, Raspberry Pi, Arduino, ROS 2, Serial Communication (UART/USB)
Controls: PID Control, Sensor Fusion (IMU/GPS/ToF), Motion Control, MATLAB/Simulink

Work Experience

Shark Ninja, Needham, MA | *Test Engineer Co-op* — Jan - Jun 2023

- Built sealed test chambers with pressure sensors for air purifier leak validation; configured Prometheus for automated data logging, replacing manual recording.
- Wrote Python scripts to parse pressure-sensor and wind-tunnel datasets, flagging out-of-spec readings.
- Developed test procedure and test cases for additional-filter qualification — covering fiber fabrication, assembly fitment, and adsorption performance — documented for future tester reproducibility.
- Isolated root causes of test-fixture failures on Shark Uprights and Robotic Vacuums (worn fittings, seal degradation, cover cracks); updated test protocols to reduce false failures.
- Logged defects and non-conformance findings in Excel tracker; delivered real-time updates and weekly test-result summaries to engineering leadership.
- Joined cross-functional weekly reviews with Product Engineers to triage defects, adjust test scope on design changes, and reprioritize coverage.

HiRain Technology, Beijing, China | *Mechanical Design & Product Test Engineer Co-op* — Jul - Dec 2021

- Constructed PCB test fixtures; validated circuit performance through firmware flashing, Linux debugging, and soldering rework in post-production testing.
- Interpreted wiring diagrams and schematics to troubleshoot board-level hardware failures.
- Optimized CAD models for PCBA enclosures in AutoCAD/Creo, ensuring DFM compliance and geometric tolerance.

Project Experience

Micro/Nano Biomechanical Characterization Lab | *Lab Assistant* — Jun 2022 - Dec 2025

- Automated indentation testing via Raspberry Pi/Python/PID-controlled X-Y stage with serial communication to motor controllers, reducing per-sample cycle time by 5×.
- Engineered 3D-printed compliant linkage with dual-IMU sensor fusion for real-time trajectory reconstruction; co-authored publication in European Journal of Mechanics - A/Solids.
- Designed multi-geometry test indenters in SolidWorks via DLP 3D printing; maintained detailed test documentation for lab reproducibility.

GPS/IMU Driver Development & Sensor Fusion | *Robotics Sensing and Navigation* — Sep - Dec 2025

- Engineered a ROS 2 device driver for VectorNav VN-100 IMU over USB serial, configuring register-level 40 Hz sampling and publishing synchronized sensor messages.
- Developed inertial odometry pipeline with magnetometer calibration and complementary filter, reconstructing vehicle trajectories over a 2+ km urban route.

ToF Cameras and Vibrational Smart Glass | *Assistive Robotics* — Sep - Dec 2024

- Built a wearable obstacle-detection device integrating Arducam ToF camera and dual vibration motors on a custom 3D-printed frame driven by Raspberry Pi 4B.
- Implemented real-time depth pipeline with PWM-controlled haptic feedback, achieving 30% improvement in user feedback accuracy.