Zihan Lin

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

Education

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

Northeastern University, Boston, MA — Dec 2023
Bachelor of Science in Mechanical Engineering
Dean's Honor List · Presidential Global Scholars · Dual Husky Scholars

Project Experience

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

- Designed and fabricated multi-geometry test indenters in SolidWorks via DLP 3D printing; created verification protocols to characterize force-displacement responses in soft matrices.
- 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.

6-DOF Robotic Arm Trajectory Control | *Mechatronic Systems* — Sep - Dec 2024

- Designed a 6-DOF robotic arm control system in MATLAB/Simulink using NMPC with a Gaussian Process-augmented state-space model precise trajectory tracking and disturbance rejection.

Composite Pressure Vessel FEA | *MechE Computation and Design* — Jan - May 2022

- Performed FEA in ANSYS Workbench to model fibrous composite layups in a high-pressure liquid tank, verifying peak von Mises stress remained within safety margins of yield strength under designated internal pressures.

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; developed sensor fusion pipeline with magnetometer calibration for vehicle trajectory reconstruction.

Work Experience

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

- Designed sealed test chambers with pressure sensors and compressed-air fixtures in SolidWorks; configured Prometheus for automated data logging, replacing manual recording.
- Developed test procedure and test cases for air purifier filter qualification — covering fabrication, assembly fitment, and adsorption performance — with documentation for reproducibility.
- Isolated root causes of test-fixture failures on Robotic Vacuums (worn fittings, seal degradation); updated test protocols and wrote Python scripts to flag out-of-spec data.
- Logged defects in Excel tracker; delivered weekly test-result summaries to engineering leadership in cross-functional reviews with Product Engineers.

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.
- Optimized 2D/3D CAD models for PCBA enclosures in AutoCAD and Creo, ensuring DFM compliance; created engineering drawings for manufacturing handoff.
- Interpreted wiring diagrams and schematics to troubleshoot board-level hardware failures.

Skills

Design & Prototyping: SolidWorks, Creo, AutoCAD, 3D Printing (DLP/FDM), DFM, Serial Communication.
Simulation & Analysis: ANSYS FEA (Mechanical & Thermal), MATLAB, Simulink, Simscape.
Programming & Tools: Python, PID Control, C#, Java, Raspberry Pi, Arduino, Linux/Bash, Git, ROS 2, Sensor Fusion.