Leo Shaw

leos@andrew.cmu.edu 408.769.9693 LinkedIn/leoshaw

Education

Carnegie Mellon University *Pittsburgh, PA*
Master of Science in Artificial Intelligence Engineering, Mechanical Engineering *December 2026*
Relevant Courses: Modern Control Theory, Robot Dynamics and Analysis, Systems and Toolchains

Rutgers University *New Brunswick, NJ*
Bachelor of Science in Mechanical Engineering; Bachelor of Arts in Computer Science *December 2024*
Honors: Dean's List (*2021-2022)*, Rutgers Badminton Club Division [D1] (*President/Captain, 2021-2024*)
Relevant Courses: Multiphysics Simulations, Dynamic Systems Controls, Deep Learning, Computer Algorithms,

Skills

Software: SOLIDWORKS, ANSYS, MATLAB, AutoCAD, Java, C++, Python, PyTorch ML, SparkML, GCC.
Hardware: Mills, Lathes, Band Saws, Circuitry, 3D Printers, Soldering Instruments

Experience

Field Service Engineer I *Santa Clara, CA / Ulvac Technologies, October 2024 - August 2025*

- Reconfigured a 6-inch to 8-inch etch chuck assembly by fully disassembling the legacy stack, rebuilding and installing the new chuck, upgrading power switches and valve control software, and rerouting wiring to integrate a new VAT system and circuit breaker with existing sensors, boosting tool flexibility, cutting unplanned downtime by ~15%, and improving wafer temperature uniformity and etch accuracy.
- Maintained and serviced a $50M fleet of advanced semiconductor tools across 6 high-volume fabs by executing preventive maintenance, precision calibrations, and data-driven repairs, lifting equipment uptime by 18%.
- Delivered on-site support for strategic accounts including Intel, Apple, Google, and the Penn State Nanofabrication Facility by resolving high-impact tool issues under tight production windows, protecting cycle time and product yield.
- Executed 30+ hardware and software modernization projects—including vacuum and RF subsystem upgrades, motion/handling retrofits, and PLC/HMI software revisions—using structured retrofit plans and post-upgrade validation to improve process stability by 22% and extend tool lifecycle.
- Partnered with cross-functional engineering and manufacturing teams to run structured root-cause analyses, implement permanent corrective actions, and standardize troubleshooting playbooks, cutting average fault diagnosis time by 35%.
- Authored 10+ high-quality technical reports, procedures, and checklists that codified best-practice maintenance standards and trained site technicians, reducing repeat failure incidents across serviced toolsets.

Mechanical Engineering Intern *Milpitas, CA / Paltorc, May 2022 - August 2022*

- Implemented end-to-end integration between the E-Bike control module and companion app to capture heart rate, temperature, weather, and incline data in real time.
- Diagnosed, tested, and resolved mechanical and software issues to improve system reliability.
- Developed the official E-Bike website and mobile application

Projects

Solar-powered Terrain Walker / *Fall 2023 - Fall 2024, Senior Design Project*

- Engineered and programmed an autonomous, solar-powered, 4-legged walker using Chebyshev 4-bar linkages and pantographs, reducing cost by ~34% compared to traditional 6-legged models.
- Reduced actuators per leg from 3 to 1, leveraging kinematically efficient 4-bar mechanisms for motor consolidation, enhanced energy efficiency, and simplified controls.
- Modeled pivot designs in Solidworks and validated structural integrity through Ansys stress simulations
- Developed sensor and motion subsystems in C (Arduino) to achieve gait stability and terrain performance comparable to 6-legged robots.

Minesweeper Artificial Intelligence Project / *April 2024 - August 2024*

- Developed an autonomous Minesweeper agent using deep reinforcement learning and convolutional neural networks for high-dimensional state analysis and strategic play.
- Applied Python, TensorFlow, Keras, and PyTorch for scalable model development, evaluation, and visualization.
- Engineered custom reward functions and implemented experience replay and target network techniques to incentivize optimal decision-making and stabilize training.
- Achieved over 30% win rate on expert-level games, demonstrating significant performance improvement over baseline logic-based approaches.