Noah Saxenian

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Mechanical engineer specializing in electro-mechanical systems integration, motion control, and closed-loop systems. Experienced debugging and validating complex hardware prototypes across sensors, actuators, firmware, and data analysis.

EDUCATION

Tufts University, Medford, MA | *October 2022 – December 2025*
Bachelor of Science, Mechanical Engineering | Minors: Music Engineering, Mathematics | 4.0 GPA
Samuels Mechanical Engineering Award (Spring 2025), Dean's List each semester
Extracurriculars: Competition Climbing Team Captain
Relevant coursework: Electronics and Controls, Robotics And Mechatronics, Acoustics

TECHNICAL SKILLS

Programming & Scripting: Python (data analysis, test automation), MATLAB, LabVIEW, JavaScript, HTML, Git
Embedded Systems: Arduino (C++), ESP32 (MicroPython), Raspberry Pi, sensors, actuators, electromechanical integration
Control Systems: Control algorithm design and tuning, system identification, frequency analysis, modal analysis, filtering
CAD & Simulation: SOLIDWORKS (CSWA), Onshape, COMSOL CFD, KiCad (PCB & schematic design)
Fabrication: Manual mill, lathe, CNC, laser cutter, waterjet, 3D printing, sheet metal

EXPERIENCE

R&D Mechanical Engineering Co-op – *SharkNinja, Needham, MA | January 2026 – Present*
- Owned the design and integration of a modular electro-mechanical test rig, enabling rapid swap-out and evaluation of heated plate components and sensing configurations
- Designed and executed validation experiments to characterize thermal response, contact mechanics, and material effects; analyzed results to inform system-level design decisions
- Debugged electro-mechanical failures across hardware, sensors, and firmware, translating test data into actionable design improvements

Mechanical Engineering Research Assistant – *Tufts University, Medford, MA | June 2024 – December 2025*
- Designed and fabricated an automated impact excitation system using a robotic arm to improve repeatability and data quality for modal testing
- Defined subsystem interfaces between motion hardware, sensing, and analysis software; documented system behavior using transfer functions and modal parameters
- Built Python-based test and analysis tools to compute FRFs, extract damping and resonance data, and visualize system performance

Robotics Research Assistant – *Tufts University, Medford, MA | September 2023 – May 2024*
- Redesigned 3D printed housings for “Smart Motors,” improving durability and cutting assembly time by 50%
- Integrated electromechanical systems in educational robotics kits and programmed user interfaces

Workshop Staff – *Nolop Makerspace, Medford, MA | September 2024 – December 2025*
- Assisted makerspace users in their electronics, 3D printing, laser cutting, and woodworking projects
- Advised on mechanical design, electronics integration, and fabrication techniques for students and researchers
- Monitored and promoted a safe environment in the woodworking shop as part of the makerspace

Assistant Lodge Manager – *Appalachian Mountain Club, Gorham, NH | Fall 2021 – Summer 2023*
- Co-led a seasonal team in a high-pressure environment, coordinated logistics to support service for 52 guests per day
- Developed strong communication and team leadership skills through training new crew members while fostering positive dynamics and efficient work practices

PROJECTS

Microarray Slide Printer | *September 2025 – December 2025*
- Co-designed and integrated an automated microarray manufacturing system combining precision motion control, custom dispensing hardware, and statistical validation
- Designed a novel five-stage “split-head” microapplicator enabling synchronized mixing and dispensing from off-the-shelf reservoirs
- Led system-level optimization to achieve one slide per minute throughput (3x improvement), resolving mechanical, fluidic, and timing integration issues
- Tracked subsystem requirements, test criteria, and design changes across iterative prototypes

PID Controlled Espresso Machine | *January 2025 - August 2025*

- Designed and implemented a closed-loop PID control system on a microcontroller to regulate boiler temperature to ±1°C
- Tuned control gains to achieve fast settling time and minimal overshoot
- Developed both hardware and web user interfaces to display real-time temperature data, adjust setpoints, and configure heating profiles