NOAH SPIEGELMAN

noahspiegelman05@gmail.com | (925) 708-2750 | Boston, MA
linkedin.com/in/noahspiegelman | noahspiegelman.com

EDUCATION

Boston University Boston, MA
Bachelor of Science, Mechanical Engineering Expected May 2028

- Cumulative GPA: 3.4
- Relevant Coursework: Engineering Mechanics, Mechanics of Materials, Intro to CAD. In progress: Manufacturing Processes, Intro to Robotics. Planned: Electromechanical Design

EXPERIENCE

Research Intern Jan 2026 - Jun 2026
University of Sydney Sydney, Australia

- Gained hands-on exposure to full APT workflow, including SEM-based sample preparation and fabricating specimens from metal powders through 3D printing and hardening
- Built IonTrace, a browser-based GUI (Next.js/TypeScript, Python backend) to load, reconstruct, and explore Atom Probe Tomography (APT) datasets and run the reconstruction pipeline
- Implemented an automatic display-budget system that dynamically down-samples large point clouds to keep the 3D viewport responsive on datasets with hundreds of thousands of ions

Science Intern Jun 2025 - Aug 2025
Tetra Tech Sacramento, CA

- Led Environmental Release to Construction (ERTC) Tailboards for 10-30 crew members per session, strengthening technical communication and public speaking skills
- Designated soil sampling locations and performed compliance inspections on active construction sites
- Managed interactions with crews, staff, and homeowners, de-escalating conflicts and building trust

PROJECTS

Quadruped Walking Robot (P.A.W.S.) — RASTIC Sep 2026 – Present

- Applying coordinate-frame transformations and forward kinematics to model joint geometry for a 12-DOF quadruped leg assembly and 4-DOF manipulator arm
- Leading mechanical design of 4-DOF robotic camera mount in Onshape, engineering joint geometry and range-of-motion for full camera FOV coverage within strict weight/size limits of chassis
- Selected Raspberry Pi and ESP32 as planned control hardware for motor and sensor integration

Point-To-Point Communication System — Boston University Sep 2025 – Dec 2025

- Planned out and built an Arduino-based optical Morse-code communication system, pairing a laser transmitter with a photoresistor-based receiver and a signal-conditioning circuit
- CAD and laser-cut custom housings with servo-driven beam steering for stable alignment
- Collaborated with a 4-person team through iterative testing and calibration, achieving 100% decode accuracy at distances up to 5+ ft with under 1.5 seconds of latency

Ambient Temperature Sensor — Boston University Jan 2025 – May 2025

- Designed and built a battery-powered room temperature monitor: a TMP36 sensor and Arduino Uno display temperature on an LCD, with LED and buzzer alerts outside a 70–75 °F range
- Modeled the assembly in CAD, soldered the circuit, and 3D printed battery holders; ~6-hour battery life

Intro Project: Rocket Nozzle — BURPG Sep 2024 – Nov 2024

- Designed and 3D printed a rocket nozzle in a team of 5; FEA showed a minimum factor of safety of 2.1
- Hot-fired the nozzle on a test stand; it stayed intact, with a chipped exit rim and scorched bore

SKILLS

Programming: Python, MATLAB, JavaScript/TypeScript, Java
CAD & Design: SolidWorks, Onshape, Figma, Fusion
Manufacturing: Laser Cutting, 3D Printing, Milling, Soldering, Power Tools, Hand Tools
Embedded & Hardware: Arduino, Raspberry Pi, ESP32, Sensor Integration
Robotics: Coordinate Frame Transformations & Rotation Matrices, Forward Kinematics, URDF