Sam Milhaven
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Education

Northeastern University, Boston, MA **Expected April 2026**
Master of Science, Robotics, Mechanical Engineering Focus
Relevant Coursework: Mobile Robotics, Robot Sensing & Navigation, Robot Mechanics & Control, Control Systems Engineering

Lafayette College, Easton, PA **May 2024**
Bachelor of Science, Honors in Integrative Engineering, Robotics Focus
- A multidisciplinary systems engineering approach that includes content from Mechanical and Electrical and Computer Engineering while focusing on key Robotics concepts.

Relevant Coursework: Robotics Systems & Design, Control Systems & Mechatronics, Manufacturing & Design, Human Factors & Engineering Psychology

Technical Skills

- Programming: Python, ROS 2, Arduino, Matlab, Simulink, and Java
- Hardware: Drive Systems, Wiring/Soldering, Rapid-prototyping/FDM printing, GD&T
- Modeling: Autodesk Fusion360, Solidworks, Webots (3D physics-based simulator), Control Systems

Industry Experience

Robotics R&D Intern, HITT Contracting Inc., Falls Church, VA **Summer 2025**
- Assisted in the advancement of the Virtual Superintendent project by designing and installing a custom payload for the SPOT robot which included a 6-DOF arm that held a tablet and moved vertically to assist in telecommunication on site.
- Learned about current construction processes and technologies and ways robotics can be used to assist and improve the construction industry.

Research Experience

Silicon Synapse Lab Research Assistant, Northeastern University, Boston, MA **Fall 2024-Present**
- Designed Solidworks prototype of a passive grasping foot for a quadruped robot to traverse narrow paths.
- Modeled and 3D printed mounting solutions for critical hardware and electronic systems for the Husky quadruped robot, including batteries, Nvidia Jetson, flight controller, and electronic speed controllers.

Honors Thesis Candidate, Lafayette College, Easton, PA **Fall 2023-Spring 2024**
- Designed, built, and demonstrated an electric motorcycle that utilizes a biomimetic replication of rider-lean torque to maintain stability on uneven terrain.
- Conducted a literature review in preparation for paper, developed LQR controller for rider-lean pendulum, and conducted linear and Webots simulations to validate controller and design parameters.

Excel Research Scholar, Lafayette College, Easton, PA **Summer 2023**
- Collaborated with a team of 4 researchers to design, build, and demonstrate a driverless, self-stabilizing, mini-electric motorcycle to validate the dynamic accuracy of the Webots software.
- Designed steering motor mount for manufacturing, programmed steering Arduino FSM, designed and soldered steering interface circuit board, designed and wired tractive and control systems, including multiple safety systems

Other Experience

Head Resident Advisor, Lafayette College, Easton, PA **Fall 2023-Spring 2024**
- Oversaw a team of 11 Resident Advisors and over 300 residents across five residence halls.
- Provided regular staff performance, community, and facilities updates Res. Life Asst. Director.