

SETH ROBLES

Cambridge, MA

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Education

Massachusetts Institute of Technology (MIT) — GPA 4.9/5.0

Expected May 2027

BS in Mechanical Engineering and Robotics

Cambridge, MA

- **Coursework:** Robotic Manipulation, Dynamics & Controls II, Measurement & Instrumentation, Circuits, Signal Processing, Design and Manufacturing
- **Extracurriculars:** MIT Electronics Research Society, MIT Admissions Ambassador, Camp Kesem, Latino Cultural Center Exec, Associate Advisor, Zeta Psi Fraternity, Society of Hispanic Engineers, The Standard

Experience

Marine Autonomy Lab

Aug. 2025 – Present

Mechanical Engineering Research Intern

Cambridge, MA

- Designed and assembled a 12s3p Li-ion battery pack for autonomous marine platforms, emphasizing electrical safety and robustness
- Integrated a Ping360 imaging sonar on a BlueBoat platform, including waterproof cabling and communication verification
- Developed a C++ UDP interface for real-time sonar data streaming and logging within MOOS-IVP
- Executed system bring-up and validation testing to verify sensor integrity and communication stability

Fabrication-Integrated Design Lab

Jun. 2025 – Aug. 2025

Mechanical Engineering Research Intern

Cambridge, MA

- Characterized suction cup array performance using controlled load testing
- Designed and 3D printed a tracked suction-based system, iterating geometry for reliability

Projects

EMI Impact on I²C Sensor Communication

Fall 2025

2.671 Measurement & Instrumentation — Final Project

MIT

- Built a controlled test setup to study electromagnetic interference effects on I²C communication with a BNO085 IMU
- Instrumented signals using an oscilloscope and firmware logging to identify protocol-level failure modes
- Performed root cause analysis correlating waveform distortion with communication failures

LED Array PCB

2025

Personal Project

- Designed schematic and PCB layout in KiCad for an STM32-based LED driver with shift registers, MOSFETs, and a buck converter
- Generated fabrication files and BOM, coordinated assembly through JLCPCB, and validated board functionality

2.12 Robotics

Spring 2025

UR5 Team Lead

MIT

- Led a 7-person team integrating perception, motion planning, sensing, and actuation for an autonomous UR5 sorting system
- Prototyped and tested custom end effectors, iterating designs based on physical performance

Skills

Robotics & Embedded: Linux (Ubuntu), STM32, Arduino, Raspberry Pi, C++, Python, MATLAB

Test & Instrumentation: Oscilloscope analysis, firmware logging, system bring-up, root cause analysis

Electrical & PCB: KiCad (schematic & layout), power regulation, sensor integration

Mechanical: SolidWorks, Autodesk Fusion **Fabrication:** Soldering, FDM printing, lathe, mill

Languages: Spanish, Italian (Basic), ASL (Basic)

Awards

Gates Scholar, Jack Kent Cooke Scholar, National Merit Scholar, QuestBridge Scholar, Hispanic Scholarship Fund Scholar