

Robert Barlow

Web / barlowr.com

Linkedin / [linkedin.com/in/barlowr/](https://www.linkedin.com/in/barlowr/)

Geo / Boston, MA

Email / greenmountainrob@gmail.com

Education

Olin College of Engineering / 09.2016 - 05.2021

Engineering: Robotics, B.S. / 3,6 GPA

Work Experience

Software Engineer

Autonodyne LLC, Boston, MA / October 2021 - Current

Developed & maintained autonomous vehicle behaviors centered around sUAS

- Integrated fixed wing sUAS control (including autonomous landing capability) and geofence UI/back-end into Autonodyne's multi-vehicle common control ground station application.
- Developed an Airsim/PX4 based SITL stack with first-person-video streaming of vehicle flight in simulated environments
- Working to develop edge-based target following autonomy behavior library in C++. Leveraging OpenCV, VisDrone trained YoloV5 object classification ML model, SSORT tracking association and custom motion planning module.

Robotic Engineering Intern

MVP Robotics, Bradford, VT / January 2021 - May 2021

Developed a standalone end of line tester & field test system for MVP's HEKTR Targets

- Designed & implemented a novel impedance measurement circuit system to evaluate consumable target deterioration
- Designed & assembled PCBAs comprising the impedance measurement system, high power burnout system, LCD display, Beaglebone computer, battery & charging circuitry.
- Developed a networked API for all system functions, a physical LCD UI and a web UI

Mechanical Engineering Intern

Zipline International, South San Francisco, CA / July 2019 - July 2020

Worked on a multidisciplinary team to develop Zipline's sUAS detect-and-avoid perception system

- Developed acoustic perception hardware from one-off rapid prototypes through 50+ unit volume production
- Worked closely with EE team to design a NVIDIA Xavier NX compute module carrier board PCBA and enclosure with highly constrained size, weight, weather and thermal requirements
- Supported testing work and developed custom electro-mechanical testing hardware/software where commercial off the shelf equipment wasn't available or practical
- Setup an electrical prototyping space & helped maintain Zipline's small machine shop
- Purchased & personally refurbished a South Bend 14" lathe to expand machine shop capabilities.

Lead Shopbot & Woodworking Instructor

Olin College of Engineering, Needham, MA / September 2017 - June 2019

In charge of Olin's Shopbot, a large scale 3 axis CNC router, and associated spaces.

- Performed preventative and on-demand maintenance work, lead continuous improvement projects, and instructed fellow students and faculty in hand tool use, power tool use, CAM, and Shopbot operation.

Researcher in Mechatronic Engineering

Engineers For Exploration REU, San Diego, CA / June 2018 - September 2018

Worked with Scripps to create an underwater sensor system to localize/orient 3D mapping of coral reefs

- Designed and implemented sensor systems comprised of custom PCBA, IMU, LCD & LED displays, pressure sensor, battery, and wireless charging circuitry
- Developed custom molded epoxy shell to waterproof & impact-proof sensors

Projects

+One / **Entrepreneurial venture to advance state-of-the-art in avalanche rescue technology** / barlowr.com/projects/mech/PlusOne

Atari Deep RL / **Worked to reproduce DeepMind's Atari agent with a policy gradient approach** / xieruishen.github.io/Atari_with_RL/blog

Technical Fabric Selection / **Formulated & solved optimizations to inform selection of outdoor gear fabrics** / barlowr.com/projects/gear/0_fabric

Toolbox

Python 3 / C++ / C#

Solidworks / Fusion 360 / NX

KiCAD / Eagle

CNC & Manual Machining

FAA Part 107 sUAS Pilot

Fun Stuff

2021 Pacific Crest Trail & Long Trail Thru Hiker

Owner, Big Coffee Guy Roasting Co.

Former President, Babson-Olin-Wellesley Climbing Organization

Former Leader, Olin College Outing Club

Cyclist, Climber, Skier, Hiker, Paraglider