

# Andrei Veliche

veliche.an@northeastern.edu • [www.linkedin.com/in/andrei-veliche](https://www.linkedin.com/in/andrei-veliche) • [A2Veliche.github.io](https://A2Veliche.github.io)  
Available for a 6 month co-op starting in July 2023.

## EDUCATION

### Northeastern University

Sept 2020 - June 2024

*Candidate for B.S. in Mechanical Engineering and Physics with Minor in Mathematics*

*Boston, MA*

- **GPA:** 3.98 (Dean's List)
- **Activities:** AeroNU, Putnam Math Club, ASME, Orthodox Christian Fellowship
- **Relevant Courses:** System Analysis and Control, Measurement & Analysis, Classical Dynamics

### The Newman School

Sept. 2016 – May 2020

*IB Program Graduate*

*Boston, MA*

## ENGINEERING SKILLS

**Programming:** Python, MATLAB & Simulink, C++, Java, LaTeX, Bash, Git, HTML&CSS

**Software:** SolidWorks, OnShape, KiCAD, AutoCAD, Fusion360, HSMWorks, Excel

**Fabrication:** Manual and Tormach CNC mills & lathes, steel welding, waterjetting, carpentry

## WORK EXPERIENCE

### Nanophotonics R&D Engineer Co-op

June 2022 - Dec. 2023

*Mesodyne Startup*

*Somerville, MA*

- Designed, modeled and manufactured a radiative heat flux calorimeter to measure efficiency of propane burner complete with closed-loop calibration procedure based on MATLAB thermofluid simulations.
- Prototyped and PID-tuned an STM32 embedded blower control board to drastically miniaturize previous burner intake methods and reach robustness against thermoacoustic instabilities.
- Automated post-processing pipeline for large HDF5 and Pandas datasets using Python and GitHub to provide instant analysis on newest prototype iterations.
- Improved thermal management of critical bench-top hardware through collaborative CAD design in OnShape.

### Junior Machinist

Spring 2021 - Spring 2022

*NEU Forsyth Machine Shop*

*Boston, MA*

- Maintaining machine equipment to ensure a safe, enduring, and efficient work environment
- Mastering concepts of precision machining, material selection, GD&T, speeds and feeds, tool geometry
- Designed and waterjetted a 2-in-1 collet tool holder to be mounted on a workbench for quicker Tormach tool setup

### Back-End Software Developer Intern

Fall 2019

*Notovox Startup Company*

*Cluj-Napoca, Romania*

- Coded Python scripts for autonomous user interface testing to accelerate website troubleshooting
- Programmed an ICD10 graph database using SQL and Neo4j to optimize pathology queries

## EXTRACURRICULARS

### AeroNU Redshift - Airframe Team

Jan 2023 - Present

*Northeastern University*

*Boston, MA*

- Collaborating with team members to enable the launch of a two-stage rocket using an L2 motor
- Assembling a custom flight controller using Adafruit ESP32 Feather to trigger stage separation and log flight data
- Iterating fin mounting solutions and controllable canards mechanism to ensure rocket stability during maxQ

## PERSONAL PROJECTS

### Self-balancing Inverted Pendulum

Summer 2020 - Spring 2022

- Implemented a working self-balancing inverted pendulum mechanism to demonstrate bipedal dynamics
- Studied tolerancing stackups in designing linear motion stage complemented with cost-benefit analyses
- Incorporated Simulink modeling and implemented mechanical flexures, DC motor control, and PID algorithms

### Automated Ping Pong Paddle

Spring 2023 - Present

- Automating the vertical bouncing action of a ping pong ball on a paddle with an 3 DOF actuated arm
- Experimenting with Pi Pico MCU, Model Predictive Control, ROS, pyFirmata, and computer vision