Andrei Veliche

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Education

Northeastern University Sept 2020 - July 2024
Candidate for Bachelor of Science in Mechanical Engineering and Physics *Boston, MA*

- **GPA:** 3.97 (Dean's List)
- **Activities:** ASME, AeroNU, Putnam Club, Chess Club
- **Courses:** Electricity and Magnetism, Electronics, Fluid Mechanics, Thermodynamics, Classical Dynamics, System Analysis and Control, Measurements and Analysis, Advanced Mechanics of Materials

The Newman School Sept. 2016 – May 2020
IB Program Graduate *Boston, MA*

Skills

Programming: Python, MATLAB, C++, Java, LaTeX, Macaulay2, Bash, Git, HTML & CSS, SQL
Software: AutoCAD, Fusion 360, SolidWorks, KiCAD, HSMWorks, Excel, Maple
Fabrication: Manual and Tormach CNC mills & lathes, steel welding, waterjetting, carpentry

Work Experience

Prototyping R&D Engineer Co-op Jun. 2022 - Dec. 2022
Mesodyne Startup *Somerville, MA*

- Designed and implemented a radiative heat flux calorimeter complete with a 2D thermal model in MATLAB
- Improved quality of thermal camera data post-processing using large HDF5 and CSV datasets and Pandas
- Developed a robust control system for combustion air intake blower compatible with wide ranges of pressure heads
- Fabricated PCB electronics and programmed Python GUI applications for a more reliable data acquisition system

Junior Machinist Jan. 2021 - May 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

Software Developer Intern Fall 2019
Notovox Startup Company *Cluj-Napoca, Romania*

- Coded Python scripts for autonomous user interface testing to accelerate website throubleshooting
- Programmed an ICD10 graph database using SQL and Neo4j to optimize pathology queries
- Collaborated with professional software developers in a remote work setting

Personal Projects

Automated Ping Pong Paddle Spring 2023

- Automated the vertical bouncing action of a ping pong ball on a standard-sized paddle.
- Experimented with model predictive control, ROS, and computer vision.

Self-balancing Inverted Pendulum Fall 2021

- Designed and implemented a self-balancing inverted pendulum mechanism to demonstrate feedback control
- Implemented research into guide rail designs, mechanical flexures, control theory, and PID algorithms

Murder Hornet Defense System for Beehives Spring 2021

- Assembled an outdoors beehive security camera that disables threatening murder hornets via electrocution
- Programmed a Raspberry Pi 3B+ using Python, bash, OpenCV, and Linux OS networking packages

Community Service

FIRST Tech Challenge Mentor Sept. 2021 - Present
The Newman School *Boston, MA*

- Coaching high school students in principles of deterministic design to build a 15-20 kg competition robot
- Sharing classroom knowledge to inspire creative thinking and solve complex challenges
- Inspiring and mentoring STEM-oriented rising seniors during college applications