Andrei Veliche

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Education

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

- **GPA:** 3.97 (Dean's List)
- **Activities:** ASME, Northeastern Electric Racing, Putnam Club, Math Club, Orthodox Christian Fellowship
- **Courses:** Thermodynamics, Fluid Mechanics, Electronics, Electricity and Magnetism, Intro to Material Science, Classical Dynamics, Control Systems and Analysis, Advanced Mechanics of Materials

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

Skills

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

Work Experience

Junior Machinist Jan. 2021 - Present
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
- Welded a steel table to be used as a homebuilt CNC router 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

Robotics Research Lab Intern Summer 2017
NEU River Labs, Richards 3rd floor *Boston, MA*

- Collaborated with 2 undergraduate students to develop a low-cost robotic arm for STEM outreach
- Developed an Arduino Mega -based circuit board supporting real-time feedback to actuate five DC motors

Personal Projects

Interactive Desk Lamp Fall 2021

- Enabled a standard desk lamp with clap, ambient light, and magnetic field sensing to improve studying experience
- Optimized analog op-amp circuits by utilizing multimeters, oscilloscopes, and signal generators

Self-balancing Inverted Pendulum Summer 2018 - 2020

- 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