# John Alessio

## Education – Northeastern University – May 2023 – 3.65 GPA

**CANDIDATE FOR BACHELOR OF SCIENCE IN COMPUTER ENGINEERING & COMPUTER SCIENCE**

- Coursework: Digital Design ~ Electronics ~ Networks ~ Computer Systems ~ Algorithms & Data ~ Logic & Computation ~ Discrete Structures ~ Differential Equations & Linear Algebra
- Activities: AerospaceNU; NU Symphony Orchestra; NU SEDS (Mars Rover and Mars Ice); Collegiate CS:GO

## Skills & Abilities

- PCB Design (Eagle, Altium)
- Microcontrollers (STM32, Arduino)
- C/C++, Python, Java, C#, Bash
- Soldering (THO, SMT, stenciling, and rework)
- Embedded Linux (Ubuntu/Debian)
- CAN (CANOpen), RS485, Modbus, SPI, I2C
- Version control (git)
- Multimeter, variable PSU, oscilloscope
- 3D printing & laser cutting
- CAD (Solidworks, Autodesk Inventor)

## Co-op Experience

**ELECTRICAL ENGINEERING CO-OP| FESTO | JULY 2021 – DECEMBER 2021**

- Prototyped PCB for a low-cost, open-loop, pipette, designed to fit in a 9mm Pitch.
- Designed Raspberry Pi hat for 24V conversion, CAN, and RS485 for industrial compute module concept.
- Developed drivers for Modbus devices in Java and C# for an open-source software initiative.
- Contributed bug fixes and features to a liquid-handler software project including H-Bridge gantry support, closed loop control, axis factory class, brake and e-stop status support, & TMCM-1241 driver.
- Wrote test scripts for liquid handling system and demo scripts for trade shows.
- Created Bash script for first time system setup and for system startup.

## Project Experience

[🌐]: Project details at jalessio.info

**PROJECT LEAD/AVIONICS ENGINEER | AEROSPACENU | FALL 2019 - CURRENT**

- Lead an avionics mentorship program teaching new members embedded software and PCB design.
    - Conduct workshops and labs, create presentations and guides, and give lectures.
- Designed and built multicell LiPo battery charging and management PCBs. [🌐]
- Developed a (mostly) THO Arduino kit for members learning to solder. [🌐]
- Wrote SPI/I2C drivers in C++ for IMU and high-g accelerometer in use on flight control boards. [🌐]
- Prototyped magnetic, spring-loaded, electrical interface for rocket umbilical cord. [🌐]

**PERSONAL PROJECTS**

- Design an L2 certification rocket to fly sometime spring 2022. [🌐]
- Successfully designed, built, and flew L1 rocket to receive certification. [🌐]
- Wrote program for playing midi files on Stepper motors to create music. [🌐]
- Created a counting/sorting coin bank with an Arduino, and custom parts. [🌐]