John Alessio

Education – Northeastern University – May 2023 – 3.65 GPA

CANDIDATE FOR BACHELOR OF SCIENCE IN COMPUTER ENGINEERING & COMPUTER SCIENCE

- Coursework: Circuits/Signals: Biomed. Apps. ~ Embedded Design~ Cornerstone of Engineering 2 ~ Fund. of Networks ~ Fund. of Computer Science 2 ~ Algorithms & Data ~ 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)

Experience

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

- Designed prototype 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.
- Contributed 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.
- Wrote bash script for first time system setup and for system startup.

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

- Leading an avionics mentorship program teaching new members embedded software and PCB design.
    - Lead workshops and labs, create presentations and guides, give lectures, & coordinate meetings.
- Designed and built multicell LiPo battery charging and management PCBs.
- Designed a (mostly) THO Arduino kit for members learning to solder.
- Wrote drivers in C++ for IMU and high-g accelerometer using SPI and I2C in use on flight control boards.
- Prototyped magnetic, spring-loaded, electrical interface for rocket umbilical cord.
- Designing new revision of a line-cutter PCB used for reefing parachutes in flight.

Personal Projects

- Designing an L2 certification rocket to fly sometime spring 2021.
- Successfully designed, built, and flew L1 rocket to receive certification.
- Wrote program for playing midi files on Stepper motors to create music.
- Created a coin bank with counting/sorting using an Arduino, and 3D-printed/laser-cut parts.