

# Mark Dominic Yamarone

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## Education

Northeastern University, G.P.A: 3.84

December 2019

Candidate for B.S. Mechanical Engineering, Minor in Electrical Engineering

**Classes:** Fluid Mechanics, Thermodynamics, Dynamics and Vibrations, Electronics, Linear Systems, Material Science, Mechanical Computation (FEA), Controls, Heat Transfer

**Activities:** Wireless Club, AIAA, University Rover Competition, NU ASME, Pi Tau Sigma Honor Society, WRBB 104.9 FM, Major League Hacking

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## Engineering Experience

Endeavor Robotics – Chelmsford, MA

January 2018 – June 2018

*Systems Engineering Co-Op*

- Tested products for design confidence and requirement compliance for 5 product lines.
  - Performed verification of robot performance in mobility, endurance, communications, and accessory interoperability at both system and component level.
- Collaborated with team on planning and proposal for a major development contract with the US Army.
- Designed a “Hardware-in-the-Loop” breakout system of chassis electronics for delivery to government customer.
- Became familiar with robotic system architecture through testing new components on existing system baselines and finding replacements for obsolete parts.
- Developed a test instrument to measure and record robot speed from blank sheet to completion using Creo and Python tools such as Flask and Tkinter.

Hasbro Inc. – Pawtucket, RI

January 2017 – June 2017

*Engineering Co-Op, Integrated Play*

- Engineered new play experiences for next-gen, connected toys using advanced technologies such as computer vision, virtual reality, and voice recognition; including speech based games for Amazon Alexa.
- Created examples and working demos of new technologies using C++ and Python.
- Created mock ups of mechanisms for future animatronic toys using both machined and 3D printed parts.
- Developed a VR integrated board game from concept to a viable product with a team of interns and presented project to upper management of Hasbro for further development.
  - Created demo VR environments in Unity using C#, and modeled a cost effective VR headset concept.

Knightly – Boston, MA

September 2016 – May 2017

*Firmware Developer*

- Developed and tested embedded firmware for a BLE wearable safety device including implemented Bluetooth protocols in C++ for an ARM Cortex-M based chip.
- Designed and modified electromechanical systems to meet a target cost and profitability.

NASA Jet Propulsion Laboratory - La Cañada, CA

May 2016 – August 2016

*Eng. Undergrad Intern – ECOSTRESS*

- Designed 10 data and power cables internal to the instrument as part of the project cabling team.
- Supervised manufacturing of 30 cables and routed cables on the computer model of the instrument in Siemens NX.
- Worked in a clean room environment with flight hardware including cables and satellite structures.
- Attended lectures and Q&A sessions with JPL engineers and scientists to learn about all aspects of the space industry.

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## Clubs

Northeastern Wireless Club

2015 – Present

*Facilities Manager*

- Maintain club space and inventory, as well as ensuring instruments are in working condition.
- Airlights – Using a Raspberry Pi and various social media API's to make an internet-connected and interactive lighting system for the club room.
  - Developing embedded software to interpret I2C communications and control RGB LED light strips.
  - Designing an enclosure and mounts for our custom PCB, Raspberry Pi Zero, and control relays.
- *Project Lead* - Reflow Solder Oven
  - Modified a toaster oven to be digitally controlled and run a standard reflow profile.
  - Used Arduino to create a temperature controller with feedback from thermocouples.

Northeastern American Institute of Aeronautics and Astronautics

2015 – Present

*Project Lead*

- Leading the Fixed Wing team in creating a plane to win the SAE Aero Competition 2019.
- Creating CAD, defining system architecture, and leading propulsion and controls teams to meet competition requirements.
- Managing project timeline using Gantt charts and project life-cycle milestones.
- Manufactured airframe using laser-cut pieces, COTS model airplane components and 3D printed hardware.

University Rover Competition

2018 – Present

*System Technical Lead*

- Designing a remotely operated planetary rover for a simulated Mars environment.
- Defining system requirements and engineering a solution best suited to complete competition tasks including autonomous navigation, sample collection, and tool grasping.
- Managing the mechanical, electrical, and software design and integration of 4 subsystems.
- Creating custom circuit boards to control drive system and distribute power.
- Coding rover functionality on an embedded Linux system using Python and C++.

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## Skills

**Applications:** SOLIDWORKS, MatLab, Microsoft Office, Creo Parametric, NX, ANSYS, Confluence, Visio

**Programming:** Python, C++, Java, HTML, Amazon Web Services, Unity, OpenCV

**Machining:** Mill, Lathe, CNC, Soldering, 3D Printing, Laser Cutting, Power Tools

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## Hobbies & Interests

Tinkering, Hacking, Skiing, Volleyball, Soccer, Camping, Radio DJ, Playing Trumpet, Synthesizer & Guitar, Cooking