

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, Control Theory, Dynamics and Vibrations, Electronics, Stochastic Probability, Material Science, Mechanical Computation (FEA), Heat Transfer

Activities: Wireless Club, Aero NU, NU Mars Rover Team, NU ASME, Pi Tau Sigma Honor Society, WRBB 104.9 FM, Major League Hacking

Engineering Experience

MORSE Corp – Cambridge, MA

January 2019 – June 2019

Engineering Co-Op

- Designed components for unmanned aerial resupply drones.
- Created instruments to aid in the measurement and manufacturing of small batch plastics.
- Developed heating systems for high altitude operations including calculating required energy for controlling and maintaining operating temperature.
- Made testing methods more reliable with automated and redundant systems.

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.
- 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.

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.

Clubs

Northeastern University Mars Rover Team

2018 – Present

System Technical Lead

- Designing a remotely operated planetary rover for a simulated Mars environment to compete in the University Rover Challenge.
- 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 for motor control and data collection.
- Manufacturing parts using composite materials such as carbon fiber and fiberglass.

Northeastern Wireless Club

2015 – Present

- Airlights
 - Used a Raspberry Pi and various social media API's to make an internet-connected and interactive lighting system for the club room.
 - Developed embedded software to interpret I2C communications and control RGB LED light strips.
 - Designed an enclosure and mounts for our custom PCB, Raspberry Pi Zero, and control relays.
- Reflow Solder Oven - *Project Lead*
 - 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.

Aerospace NU

2015 – Present

Project Lead

- Led the Fixed Wing team in creating a plane to compete in SAE Aero Design East 2019.
- Created CAD, defined system architecture, and led propulsion and controls teams to meet competition requirements.
- Managed project timeline using Gantt charts and project life-cycle milestones.
- Manufactured airframe using laser-cut pieces, COTS model airplane components and 3D printed hardware.

Skills

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

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

Manufacturing: Mill, Lathe, Composite Materials, Soldering, 3D Printing, Laser Cutting, Power Tools

Hobbies & Interests

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