# Mark Dominic Yamarone

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## Skills

**Applications**: SOLIDWORKS, MatLab, Microsoft Office, Creo Parametric, NX, ANSYS, Confluence, Visio
**Programming**: Python, C++, Java, HTML, Amazon Web Services
**Manufacturing**: Sheet Metal Design, Milling, Composite Materials, DFM, Soldering, PCB Design, Rapid Prototyping

## Professional Experience

**Elementary Robotics –** *Mechanical Engineer*, Pasadena, CA January 2020 – Present
- Developing hardware for the next generation of factory automation and product inspection.

**MORSE Corp** – *Engineering Co-Op,* Cambridge, MA January 2019 – August 2019
- Designed structural components for unmanned aerial vehicles and their support systems in Solidworks.
- Developed heating systems for high altitude operations.
- Made hardware testing methods more reliable and consistent with automated tests and redundant safety systems.

**Endeavor Robotics** –*Systems Engineering Co-Op*, Chelmsford, MA January 2018 – June 2018
- Performed verification of robot performance in mobility, endurance, communications, and accessory interoperability.
- 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 custom test instrument to measure and record robot speed using Creo and Python tools such as Flask and Tkinter.

**Hasbro Inc.** – *Engineering Co-Op, Integrated Play*, Pawtucket, RI January 2017 – June 2017
- 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 mock ups of mechanisms for future animatronic toys using both machined and 3D printed parts.

**NASA JPL** – *Eng. Undergrad Intern – ECOSTRESS*, La Cañada, CA May 2016 – August 2016
- 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.

## Education

**Northeastern University**, G.P.A: 3.84 December 2019
B.S. Mechanical Engineering, Minor in Electrical Engineering
**Relevant Courses**: Intro to Flight, Mechatronics, Fluid Mechanics, Systems and Controls
**Activities**: Wireless Club, Aero NU, NU Mars Rover Team, Pi Tau Sigma Honor Society, WRBB 104.9 FM

## Engineering Activities

**Avatar XPRIZE Arm Capstone Project** 2019
- With a team of 5, designed and prototyped an anthropomorphic robotic arm and haptic exoskeleton controller.
- Developed a compact brushless motor driver for quasi-direct drive applications with precise torque control.
- Developed FreeRTOS based firmware for control and communications over RS-485 in C++.

**Northeastern University Mars Rover Team** – *Systems Engineering Lead* 2018 – 2019
- 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.

**Aerospace NU** – *Fixed Wing Project Lead* 2015 – 2019
- 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.
- Manufactured airframe using laser-cut pieces, COTS model airplane components and 3D printed hardware.

**Northeastern Wireless Club** – *Facilities Manager, Secretary* 2015 – 2019
- Organized and led projects that provided students hand on experience with circuits, software, and mechanical design.