Troy Otter

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EDUCATION

Worcester Polytechnic Institute – Worcester, MA   **Aug 2018 to May 2023**
Bachelor's Degree – Aerospace Engineering – Cumulative GPA: 3.89/4.0   *Aug 2018 to May 2022*
Master of Science – Aerospace Engineering   *Aug 2022 to May 2023*

SKILLS AND DISTINCTIONS

CAD: Creo, SOLIDWORKS, Inventor, AutoCAD
Analysis: Ansys Mechanical, SOLIDWORKS Simulation, Inventor Stress Analysis, Ansys Fluent
Programming: MATLAB, Python, C++
Manufacturing: CNC Milling & Turning, FDM 3D Printing, Laser Cutting, Waterjet Cutting, Soldering
Other Software: Microsoft Excel, Esprit CAM, KiCad, Altium Designer, Linux
Distinctions: SOLIDWORKS CSWA – Mechanical Design, Eagle Scout, WPI Dean's List

WORK EXPERIENCE

GNC ENGINEER – NEW GRADUATE ROTATION – Blue Origin   **July 2023 – present**
- Added build and test capabilities to the CI/CD pipeline of a simulation tool.
- Created automated tooling to verify performance requirements from Monte Carlo simulations.
- Identified and verified subsystem level fault tolerance to massive system faults by adding subsystem fault injection capability to the simulation tool and replicating the faults in the HIL lab.

CONTROL DYNAMICS INTERN – United Launch Alliance   **May 2022 – Aug 2022**
- Developed an engineering build of a dynamic simulation tool written in C++ and conducted time and frequency domain simulations and analysed data to determine the effects of a sensor failure for a crewed mission and presented results and recommendations to leadership.
- Implemented improvements and bugfixes to existing software tools in MATLAB and developed custom tools using MATLAB and Excel.

MECHANICAL ENGINEERING INTERN – Collins Aerospace   **May 2021 – Aug 2021**
- Developed and analysed design concepts and improvements for the canard actuation system of a precision guided mortar using Creo and MATLAB to reduce cost and simplify assembly.
- Manufactured test munitions and assisted in testing and failure analysis from flight tests.
- Led testing of thermal insulation for a short-wave infrared seeker design.

PROTOTYPING LAB TECHNICIAN – WPI Prototyping Lab   **Jan 2022 – present**
- Operated and maintained prototyping lab equipment including FDM 3D printers, CO2 laser cutters, and a desktop waterjet cutter.

PROJECT EXPERIENCE

AEROSPACE ENGINEERING SENIOR CAPSTONE PROJECT   **Aug 2021 – Mar 2022**
Design, Analysis, Assembly, and Test of a High-Powered Model Rocket
- Developed a 6-DOF dynamic simulator in MATLAB to simulate the flight of the vehicle. Implemented a rotating geoid model, with the ability to conduct Monte Carlo simulations for dispersion analysis.

WPI HIGH POWER ROCKETRY CLUB   **Aug 2018 - present**
Rocket Division Lead   *May 2020 – June 2022*
- **2021-2022 –** Led over 100 students in the design, analysis, construction, and testing of the launch vehicle for the Spaceport America Cup. Oversaw the successful development of a machined airframe joint, improved airbrakes, a next generation avionics system, and a single ended recovery system. In our rookie year our team placed 11th in design and 3rd in technical report out of 46 teams in our category.
- **2020-2021 –** Led 40 students throughout the school year. Developed and analysed a new air braking system and oversaw development of our first custom avionics board. Led tutorials on SOLIDWORKS, Ansys Mechanical, SOLIDWORKS Flow Simulation, MATLAB, and ESPRIT CAM.