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

Software: MATLAB, Simulink, Simcenter Amesim, Office Suite
Programming: MATLAB, Python, C++
CAD/CAM: PTC Creo, SOLIDWORKS, Autodesk Inventor, AutoCAD, Esprit CAM
Hardware: CNC Milling & Turning, Manual Turning, FDM 3D Printing, Laser Cutting, Waterjet Cutting, Soldering
Distinctions: SOLIDWORKS CSWA – Mechanical Design, Eagle Scout, WPI Dean's List

WORK EXPERIENCE

GNC ENGINEER – LARGE ENGINE CSA – Blue Origin **Sep 2024 – present**

- Used test data to anchor model of hydraulic system in Simcenter Amesim.
- Designed and tested adaptive controller for hydraulic actuator using MATLAB/Simulink and ran testing on hardware using Speedgoat target.

GNC ENGINEER – NEW GRADUATE ROTATION – Blue Origin **Jul 2023 – Sep 2024**

- Added build and test capabilities to the CI/CD pipeline of a simulation tool.
- Verified subsystem level fault tolerance to large-scale system faults by adding subsystem fault injection capability to the simulation tool and replicating the faults on the HIL.
- Performed stability and robustness analysis on disturbance rejection control system using MATLAB/Simulink.

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.

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.