

Troy Otter

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EDUCATION

Worcester Polytechnic Institute – Worcester, MA

Aug 2018 to May 2023

Bachelor's Degree – Aerospace Engineering – GPA: 3.9/4.0

Aug 2018 to May 2022

Master of Science – Aerospace Engineering – Thesis Track – GPA: 4.0/4.0

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

CONTROL DYNAMICS INTERN – United Launch Alliance

May 2022 – Aug 2022

- 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. Developed an engineering build of a dynamic simulator tool written in C++ to allow for accurate simulation of the failure.
- Implemented improvements and bugfixes to existing software tools in MATLAB and developed custom tools using MATLAB and Excel.
- Developed a detailed verification process for Emergency Detection System parameters and began implementation through a MATLAB tool.

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.

ENGINEERING INTERN – EOM Offshore

Jun 2019 – Oct 2020

- Developed conceptual and production designs for a bottom mount node and the Safe-Moor mooring solution using Autodesk Inventor.

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. Managed 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 managed development of our first custom avionics board. Led tutorials on SOLIDWORKS, Ansys Mechanical, SOLIDWORKS Flow Simulation, MATLAB, and ESPRIT CAM.