

A maker and engineer with demonstrated skills in fabrication, design for manufacturing, modeling and optimization of constrained physical systems, scientific software, and technical communication. Excited to apply multi-disciplinary aerospace project experience to new challenges in emerging manufacturing technologies and processes.

## SKILLS

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**Programming:** python, MATLAB, Mathematica, git

**Design Optimization:** [CasADi](#), [AeroSandbox](#)

**CAD:** SolidWorks, Creo, 3D model revision control (GrabCAD, ThangsSync), GD&T

**Manufacturing:** mill, lathe, waterjet, laser cutter, sewing, soldering, additive manufacturing (polymers, metals, and ceramics), solid rocket propellant production, composites, silicone mold production, polymer casting

## EDUCATION

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### Massachusetts Institute of Technology

Cambridge, MA

*Doctor of Philosophy in Aeronautics and Astronautics – Space Propulsion*

Sept 2019 - May 2023 (Expected)

- Key classes: additive manufacturing, design of high temperature materials, structure of materials, cellular solids, space propulsion, rocket propulsion, matrix methods in data analysis

*Master of Science in Aeronautics and Astronautics*

Sept 2017 - June 2019

*Bachelor of Science in Aerospace Engineering*

Sept 2013 - June 2017

## WORK EXPERIENCE

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### MIT International Center for Air Transportation

Cambridge, MA

*Graduate Researcher*

Sept 2017 - Present

- Designed and conducted experiments to measure the effects of solid rocket motor design parameters on exhaust plume radiant emission
- Developed an end-to-end differentiable model in python for exhaust plume radiant emission of rocket motors; utilized model and AeroSandbox computational framework to optimize aircraft design and analyze performance tradeoffs
- Managed a team of undergraduate researchers

### MIT AeroAstro 3D Printer Workshop

Cambridge, MA

*Instructor and Manager*

Jan 2018 - March 2020

- Implemented and managed a 3D printer workshop for the MIT AeroAstro department with FDM and SLA printers
- Led seminars and hands-on workshops on proper printer use, material selection, hazard awareness, trouble-shooting strategies, and designing for additive manufacturing

### Blue Origin

Kent, WA

*Engines Materials and Processes Intern*

June - August 2019

- Identified, mixed, and characterized alternative extrude honing media for improving interior surface finish of cast or additively manufactured components
- Designed and built a test rig for evaluating extrude honing media; tested effectiveness of developed extrude honing media at improving surface finish of test coupons

### Boeing

Huntsville, AL

*SLS Flight Termination System Intern, SLS Cryo Filters and Valves Intern*

June - August 2016, 2017

- Compiled and presented test procedure data packages for the Space Launch System's flight termination system pyrotechnics to NASA for Range Safety approval
- Designed and prototyped a voltage and current tester for life cycle testing of valve limit switches; developed a MATLAB tool to filter and analyze data for lot acceptance testing of switches

### Northrop Grumman

Manhattan Beach, CA

*Aerospace Engineering Intern*

June - August 2015

- Developed MATLAB code to model the effects of contamination on the surface emissivity of the mirrors on the James Webb Space Telescope and implemented a GUI simplify use of the code
- Characterized additively manufactured aluminum coupons and utilized results to select heat treatment parameters