

An engineer with demonstrated skills in data analysis, modeling and optimization of constrained systems, scientific software, manufacturing, and technical communication. Excited to apply multi-disciplinary project experience to new challenges in data science.

## SKILLS

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**Programming:** python, MATLAB, git, SQL (BigQuery)  
**Data Analysis:** numpy, pandas, seaborn, matplotlib, lmfit, pingouin  
**Computational Optimization:** [CasADi](#), [AeroSandbox](#)

## EDUCATION

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**Massachusetts Institute of Technology** Cambridge, MA  
*Doctor of Philosophy in Aeronautics and Astronautics – Space Propulsion* Sept 2019 - June 2023

- Key classes: matrix methods in data analysis and machine learning, numerical methods, statistics, additive manufacturing, rocket propulsion

*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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**Formlabs** Somerville, MA  
*Research and Development Engineer* June 2023 - Present

- Develop and implement models to understand stereolithography printing process physics: fluid pressure on parts during print process, identification of time-optimal layer heights, flow artifacts on cupped volumes
- Propose experiments, collect data, and analyze results for improving print quality and print speeds of Form 4 printers
- Write SQL queries for print metrics; analyze data with statistical methods; visualize data with Grafana and Redash dashboards

**MIT International Center for Air Transportation** Cambridge, MA  
*Graduate Researcher* Sept 2017 – June 2023

- 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

**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 to simplify use of the code
- Characterized additively manufactured aluminum coupons and utilized results to select heat treatment parameters