Mathieu Brawley

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EDUCATION

University of Colorado Boulder   Boulder, Colorado
Bachelor of Science in Aerospace Engineering   *August 2019 – May 2023*

- Member of the Phi Kappa Tau fraternity. Member of both the club rugby team and the club water polo team.
- #1 public university for NASA funds. Ranked 5th for public aerospace engineering undergraduate programs.

Relevant Courses: Aerodynamics, Orbital Mechanics, Data Structures, Experimental and Computational Methods in Aerospace Engineering Sciences, Foundations of Propulsion, Controls and Systems, Structures, Aerospace Vehicle Design and Performance

EXPERIENCE

Systems Design Operational Support Engineer   Indianapolis, Indiana
Rolls-Royce   *July 2023 – Present*

- Have final say on whether an engine passed testing for AE2100D3 and oversee any control limit exceedances.
- Performed trending of jet engine production pass off test data. Automated previous method of trending data.
- Used Python for data analysis and created search functions for different databases.
- Tracked configuration changes and informed design team of performance differences.
- Helped determine issues with failed engines, both through the analysis of test data and visual inspection of the engine (boroscoping).
- Working on creating a database for the F-35 LiftFan test data to be combined with the in-fleet data.

PROJECTS

CRATER Senior Projects Design | *Systems, Constellation Design, Python*   August 2022 – May 2023
- ∗ Utilization of NASA data with Python to compute optimal constellation out of millions of possible designs using a Monte Carlo analysis.
- ∗ Industry-facing senior capstone project, with team being sponsored by Aerospace Corp. Lead member of multi objective optimization coding team, acted as team CFO, and hardware lead.
- ∗ Designed a cislunar satellite constellation, analyzing orbit families, altitude, coverage gap, crosslink distance, and more while also varying number of satellites.
- ∗ Satellite hardware design for propulsion, energy collection, energy delivery, and communications relaying.
- ∗ Link to team website with PDR, CDR, and TRR presentations with CONOPS.

Asteroid Constellation Design | *MATLAB, Orbital Mechanics*   March 2022 – April 2022
- ∗ Designed a satellite constellation around the asteroid Bennu.
- ∗ Used ODE45 to propagate the orbits considering orbital mechanics, orbit geometry, and SRP perturbations.
- ∗ Link to video of presentation.

Rotary Position Control | *Dynamics, Systems, MATLAB*   March 2021 – May 2021
- ∗ Designed a PID controller for a second order system
- ∗ Observed and characterized the step response of a closed loop control system for a rotary positioner

PROFESSIONAL AND TECHNICAL SKILLS

Languages: French and English, fluent and capable of writing in both.
Programming Languages: Python, MATLAB, C++, C#
Developer Tools and Software: LaTeX, MATLAB R2021, VS Code, Solidworks, Arduino, Github, Ansys, Ansys STK, JMP
Lab skills: 3D Printing, Laser cutting, 3D Modeling

HONORS, AWARDS, TRAINING CERTIFICATE, CERTIFICATIONS

- ∗ MATLAB for Data Processing and Visualization Certificate 2020
- ∗ MATLAB Programming Techniques Certificate 2020
- ∗ Christian Service Program Award.