BRADEN OH

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EDUCATION

- **Olin College of Engineering — Engineering with Physics — May 2023 — GPA: 3.92/4.0**
- **Relevant Courses:** Introduction to Sensors, Instrumentation, and Measurement; Introduction to Computer Modeling and Simulation; Quantitative Engineering Analysis (includes Linear Algebra, Vector Calculus, Mechanics, Dynamics, Signals & Systems); Strength of Materials; Thermodynamics (Spring 2021).

TECHNICAL EXPERIENCE

Olin Satellite + Spectrum Technology & Policy (OSSTP) Group — Aug 2020-present

- Delivered a Python link budget calculator for the Space Weather Atmospheric Reconfigurable Multiscale Experiment (SWARM-EX) CubeSat mission. Developed a software tool to perform power flux density (PFD) calculations for orbiting spacecraft and currently developing software tools to aid in equivalent power flux density (EPFD) analysis. These tools are in use for SWARM-EX and in group research into interference produced by commercial satellite swarms.

Olin College, Hall Effect Thruster Research Team Lead — Sep-Dec 2018

- Founded and led a student team that designed, fabricated, and successfully test-fired a 19.5mm Hall effect thruster. Performed analyses to determine crucial design parameters and created all CAD models and manufacturing diagrams. Designed metallic components for external manufacturing. Fabricated Boron Nitride components in-house. Secured outside funding and laboratory resources. Lead authored an award-winning paper that was published by ASEE in 2020.

NASA Jet Propulsion Laboratory, Mars 2020 Entry Descent & Landing Intern — May-Aug 2018

- Designed and performed flight software system verification testing in a flight hardware testbed and developed automation capabilities for Entry, Descent, and Landing (EDL) simulation engines for the Mars 2020 (Perseverance) rover team. Delivered testing procedure and anomaly report, documented source code for automation capabilities, and delivered a suite of Python scripts that perform reliable state configuration of a simulated spacecraft.

NASA Jet Propulsion Laboratory, Europa Fault Protection Intern — Jun-Aug 2017

- Wrote interactive data visualization software to aid in fault tree analysis (FTA), analyzed the use of SysML as a tool to model spacecraft fault protection systems, and developed high-level FTA templates for application to the Europa Clipper and Lander missions. Delivered SysML training document and cost/benefit analysis, standalone visualizer application and source code, and Excel FTA templates for four mission phases.

NASA CubeQuest Challenge, Team Lead & Systems Engineer — 2014-2017

- Founded and led a team of ∼40 high school students from across the country in the NASA CubeQuest Challenge. Trade-studied COTS CubeSat propulsion and optical communication technologies and led subsystem design teams. Secured approximately $650,000 of in-kind support. Lead author of technical design documents submitted to CubeQuest.

NOTABLE SELF-DIRECTED COURSE PROJECTS

- Analog AM free-space optical communication system
- Reaction wheel ADCS system for falling objects
- Autonomous navigation programs for robotic vacuums
- Doppler-shift based moving-vehicle path reconstruction algorithm

PUBLICATIONS

- **Undergraduate Demonstration of a Hall Effect Thruster: Self-Directed Learning in an Advanced Project Context**
  – Lead Author - *Earned ASEE Aerospace Division's Distinguished Student Paper Award, 2020*

SKILLS

Software Python; MATLAB; JavaScript/Node.js; LaTeX; USAF CyberPatriot training in Linux system administration; Code documentation.

Fabrication Rapid prototyping with laser cutter and 3D printer; manual & CNC mill; manual lathe; handheld & CNC plasma cutter; MIG welding; JPL ESD environment certification (Summer 2017); LDS Bishop's Storehouse system certification for forklift operation (Fall 2020).

CAD Drafting manufacturing drawings, Autodesk Inventor Certified User, Solidworks.