Michelle Mobius

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EDUCATION

Cornell University — Ithaca, New York

Hunter R. Rawlings III Cornell Presidential Research Scholar — August 2023-May 2027

Mechanical Engineering Major

Related Coursework: Statics and Mechanics of Solids, Thermodynamics, Electricity and Magnetism, Short Course in MATLAB, Linear Algebra for Engineers, Differential Equations for Engineers, Physics Mechanics and Heat, Experimental Physics, Lasers and Photonics, Engineering General Chemistry

University of Michigan — Ann Arbor, Michigan

Dual enrollment/Non-Degree — September 2021-April 2023

Related Coursework: Honors Applied Calculus II, Honors Multivariable and Vector Calculus III, Introduction to Probability

WORK AND VOLUNTEER EXPERIENCE

Cornell Space Systems Design Studio — Ithaca, New York

Undergraduate Researcher — November 2023-Present

- Design and develop star tracker for a satellite simulation testbed by utilizing a hemispherical air bearing to simulate zero gravity, and creating a combination of testbed hardware and lighting
- Develop the star tracker's attitude determination using Python and MatLab
- Designed and tested nozzle blocks and propulsion system testing structure for the ROADS CubeSat which aims to launch two 3U CubeSats that will autonomously reunite in low Earth orbit with AVS US

Max Planck Institute for Extraterrestrial Physics — Garching, Germany

MICADO Mechanical Engineer Intern — July 2024 - August 2024

- Intern with the MICADO team, designing a camera and cryostat shutter for the 40 m Extremely Large Telescope in Chile
- Designed the baffle for MICADO using NX CAD and Siemens optical model, focusing on calculating vane apertures
- Ensured coefficient of thermal expansion remained consistent with other camera components in the cryogenic environment, and worked with optical and manufacturing engineers for design and implementation

The Max Planck Institute for Physics — Munich, Germany

Cryogenic Rare Event Search with Superconducting Thermometers (CRESST) Intern — June 2022 - July 2022

- Intern with CRESST experiment - a low mass dark matter search focused on direct dark matter detection using cryogenic detectors
- Helped design and test tungsten-based transition edge sensors (TES) for the detector using bonding, sputtering, cryostat machines
- Wrote and presented a research poster

MIT BWSI CubeSat Program — Remote

Researcher — September 2020 - August 2021

- Fall: Build and program a model CubeSat (miniature satellite)
- Winter: Learn how to program (Python)and operate a full-scale CubeSat
- Summer: Build, program (Python), integrate, and operate a full-scale CubeSat

CORE SKILLS

CAD: NX (advanced), Autodesk Fusion 360 (advanced), SolidWorks (intermediate), AutoDesk Inventor (intermediate/advanced), OnShape (intermediate)

Programming: Python (intermediate), Java (intermediate), MatLab (beginner), Javascript (beginner), HTML (beginner), CSS (beginner), Git (intermediate), JSON (beginner), Linux (beginner)

Technical Skills: Using lathe, mill, bonding/sputtering machines, soldering, 3D printing, systems engineering (writing requirements, making ConOps), robotics, image processing, Arduino, Raspberry Pi

Languages: Russian (fluent in speaking), German (limited working proficiency), Latin (elementary proficiency), Hebrew (elementary proficiency)

Other: Writing, public speaking, working in teams, asking questions

EXTRACURRICULAR ACTIVITIES AND HOBBIES

Women of Aeronautics and Astronautics, Society of Women Engineers, Cornell Ski and Snowboard Club, Cornell Rowing Club, viola, astrophotography, sustainability, robotics, reading, board games, soccer, hiking, chess, art