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: Dynamics, Statics, Thermodynamics, System Dynamics, Mechanics of Materials, Fluids, Mechanical Synthesis, Electricity and Magnetism, Python, MATLAB, Linear Algebra, Differential Equations, Physics Mechanics and Heat, Experimental Physics, Lasers and Photonics, Chemistry, Engineering Leadership

WORK EXPERIENCE

Icarus El Segundo, California

Mechanical Engineering Intern May 2025 - August 2025

- Designed, manufactured, integrated, and tested hardware for long-endurance solar-powered stratospheric drones. Led rapid prototyping effort for the drone's avionics bay, and designed/built 20+ parts, including custom mounts for GPS, cameras, telemetry antennas, radio, and flight computer.
- Co-designed and field-tested a proprietary drone release mechanism, advancing it from proof-of-concept to patent.
- Conducted system integration and validation through 15+ flight tests and two successful demonstrations with DoD partners.

Cornell Space Systems Design Studio Ithaca, New York

Undergraduate Researcher November 2023-Present

- Develop satellite simulation testbed with hemispherical air bearing to replicate zero gravity and three rotational degrees of freedom for testing GNC, docking, and space domain awareness.
- Design and implement star tracker for spacecraft attitude, including LED testbed hardware, centroid detection, star catalog referencing, and attitude computation in MATLAB/Python.

Max Planck Institute for Extraterrestrial Physics Garching, Germany

MICADO Mechanical Engineer Intern June 2024 - August 2024

- Worked with the MICADO team to design a camera and cryostat shutter for the 40 m Extremely Large Telescope in Chile.
- Designed the baffle for MICADO using NX and Siemens optical model, focusing on calculating vane apertures and ensuring coefficient of thermal expansion consistency with other camera components in the cryogenic environment. Collaborated with optical and manufacturing engineers for design and implementation.

AVS US Ithaca, New York

Mechanical Engineering Intern November 2023 -May 2024

- Designed and tested nozzle blocks and a propulsion system testing structure for two ROADS 3U CubeSats, which aim to autonomously reunite in low Earth orbit.

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.
- Designed and tested tungsten-based transition edge sensors (TES) using bonding and sputtering machines; presented findings in a research poster.

TECHNICAL PROJECTS

MIT BWSI CubeSat Program September 2020 - August 2021

- Built and programmed a model CubeSat that detected climate change via penguin guano; led development of Python code for Bluetooth communication while collaborating on ADCS, image processing, and subsystem integration using Git.

Cornell MAE 2250 Open Design Project January 2025 - May 2025

- Designed, built, and tested a suction-based organizer with a French door mechanism and magnetic latching. Led a team of 6 students through ideation, design, and prototyping. Won Best Presentation award.

CORE SKILLS

CAD and Simulation: CATIA, NX, Autodesk Fusion 360, SolidWorks, AutoDesk Inventor, OnShape, Ansys

Programming: Python, Java, MATLAB, Simulink, Javascript, HTML, CSS, Git, Linux

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

Other: Russian, German, writing technical reports, public speaking, working in teams, asking questions

Extracurricular activities and hobbies: Women of Aeronautics and Astronautics, American Society of Mechanical Engineers, Society of Women Engineers, Ski and Snowboard Club, Climbing Club, Rowing Club, viola, astrophotography, robotics, board games, hiking, running, chess, art