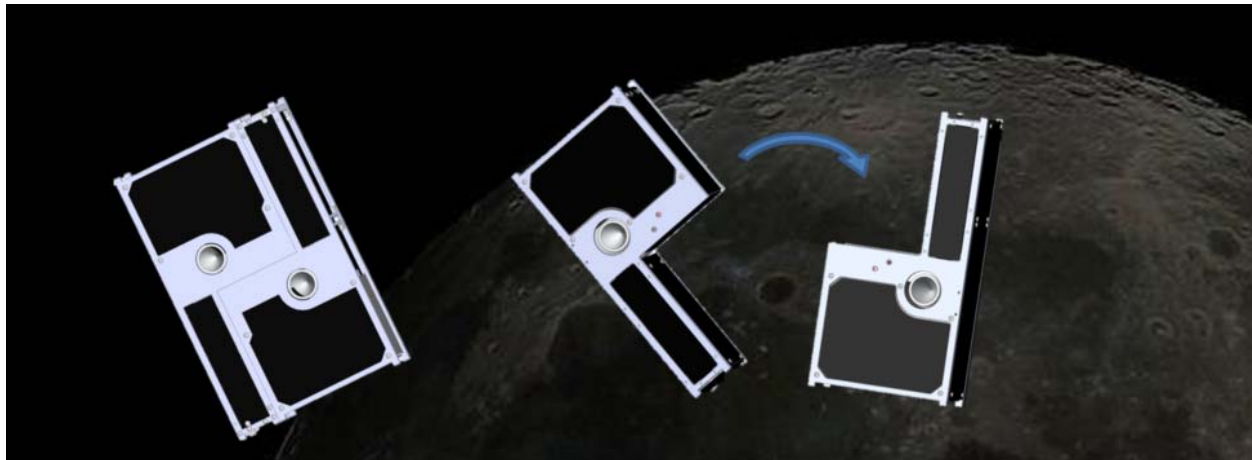


Spacecraft Electrical Engineering



Advisor: Mason Peck, mp336@cornell.edu

Number of students: 1-2

Majors: Upper-level undergraduate or MEng; AEP, ECE, or MAE

The student will work with a small team of Ph.D. students and undergraduates on a NASA-sponsored project called “On-Orbit Autonomous Assembly with Nanosatellites.” The goal of the research is to design and build a prototype pair of small spacecraft capable of autonomously docking in orbit to demonstrate a robust technique for robotic assembly of much larger space systems. The two spacecraft for this flight experiment are 3U CubeSats.

Alternatively, a student may be selected for the Cislunar Explorers project, which consists of designing and building two 3U CubeSats for launch to the moon in 2018.

The electrical-engineering role focuses on design and analysis of power electronics (batteries, solar arrays, and related power-distribution electronics), electrical harness, and printer circuit-board design as required. The student must be experienced with PCB layout and soldering.

Some familiarity with spacecraft technologies and design practices is required—whether through previous coursework or (preferably) experience with CubeSat design and fabrication. In particular, the use of ESD-protective practices are required for this spacecraft. The student will work with NASA engineers and on flight systems; so, an ability to conduct applied research on high-value hardware and communicate with diverse team members in a rigorous professional environment is necessary.