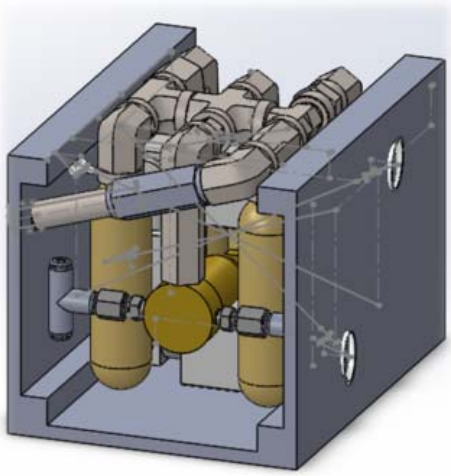
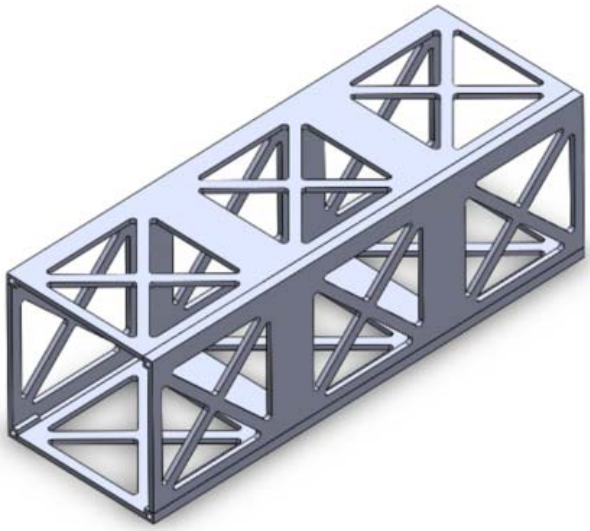
Spacecraft Systems Engineering





Advisor: Mason Peck, mp336@cornell.edu

Number of students: 1-2

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

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.

The systems-engineering role focuses on requirements development for the flight demonstration, managing allocation of requirements across spacecraft subsystems (including tasks that include the mass budget, power budget, link budget, and propellant budget), managing key interface issues, designing test and verification activities, and managing the integration and test of the prototypes.

Some familiarity with spacecraft technologies and design practices is required—whether through previous coursework or (preferably) experience with CubeSat design and fabrication. 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.