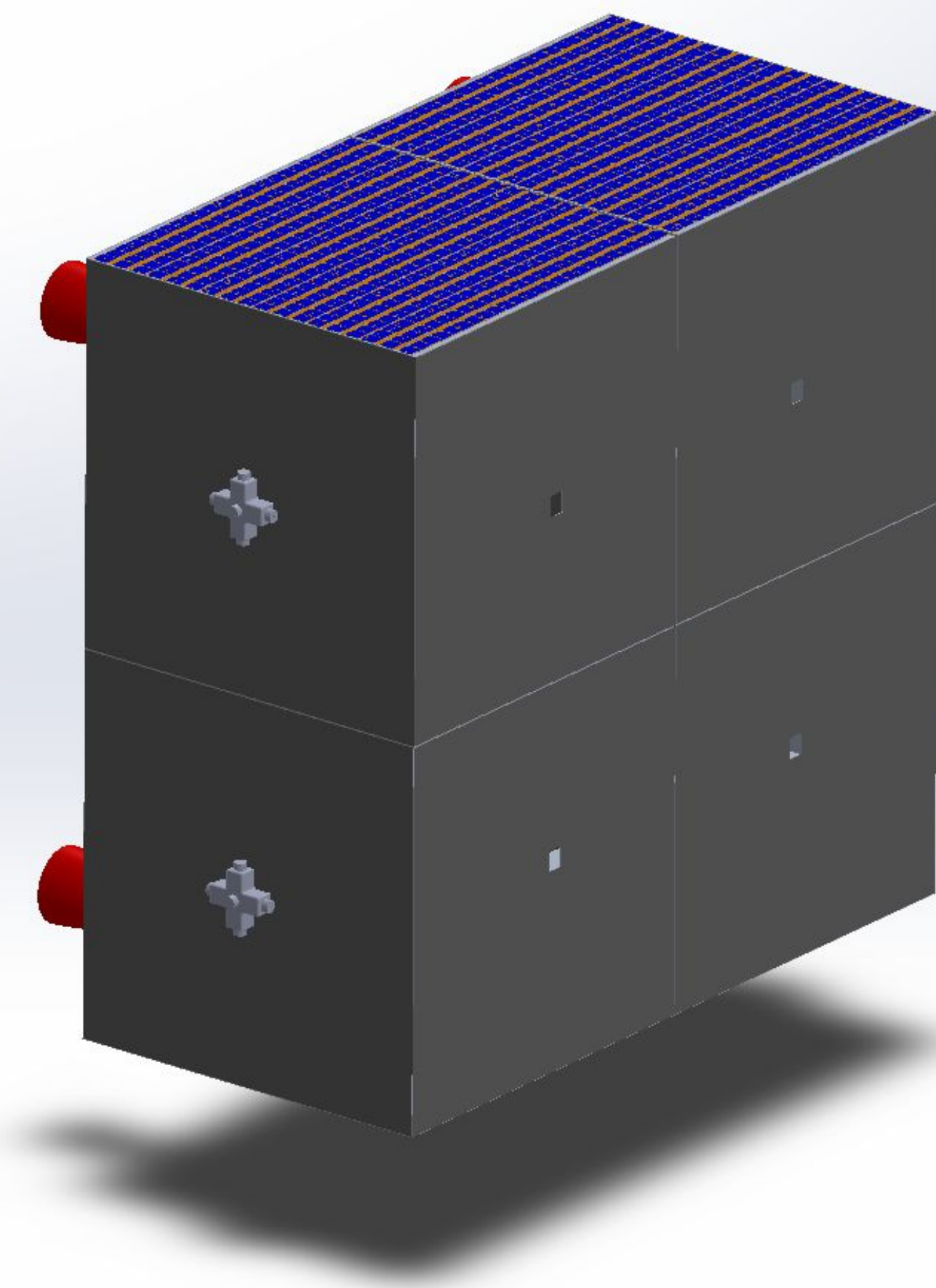


### Motivation

Space Debris has been a major problem for space flight, and the problem is only getting worse. If this debris is not removed soon, then it will be nearly impossible to send any object into space. There are over 20,000 pieces of large debris over 5 cm orbiting Earth, and the number is increasing at a rapid pace. Experts say that 5 pieces of large debris, such as decommissioned satellites, must be removed from Low Earth Orbit every year to prevent a dangerous cascade of collisions.



Coupled Flight

### Mission Statement

A swarm of 4 satellites, and a detachable net will capture, and deorbit the Envisat. Using a hook and clamp system, the swarm of satellites will separate, and maneuver to capture the Envisat with the net. All orbital transfers and maneuvers will be performed with the swarm of satellites connected to one another. Once the Envisat is captured, the swarm will detach the net, and thus the Envisat during the transfer orbit to Earth's atmosphere, and rendezvous with the International Space Station.

### Mission Objectives

Our primary objective is to depart from and return to the International Space Station to rendezvous, capture, and dispose of the Envisat. Our secondary objectives are to test the satellite for further operations in extracting space debris in Low Earth Orbit and to show the reliance of using a swarm of satellites with a net to decrease the amount of space debris.

### The Team



Jason Horosny



Alec Richter



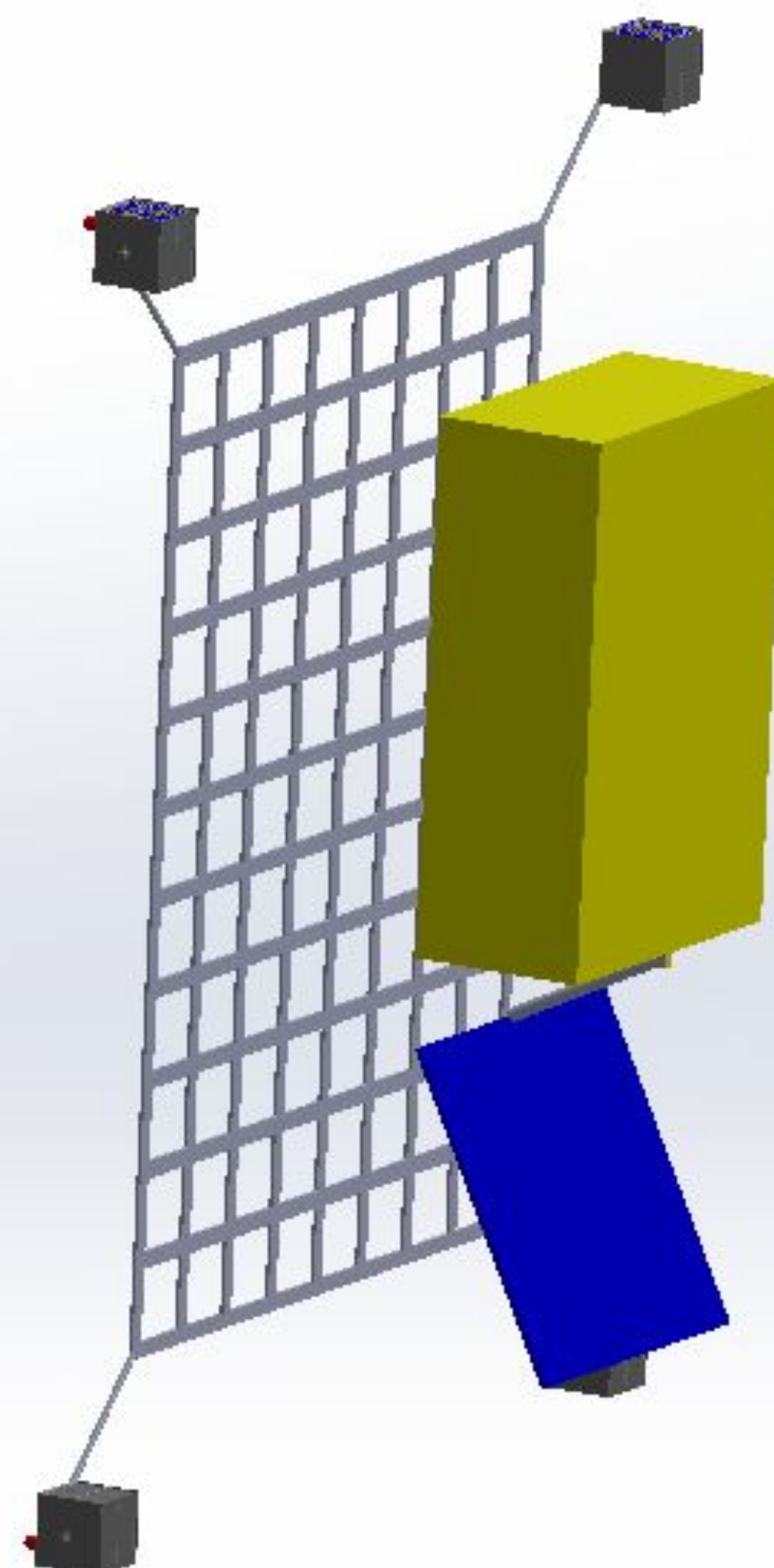
Arthur Jollymour



Juan Gadd



Francis Apalisok



Formation Flight

### Mission Overview

The satellite will perform a series of Hohmann Transfers from the ISS to the Envisat's orbital path, then from the Envisat's orbit to an Earth-intercepting orbit where the Envisat will be deorbited and released over the Indian Ocean, and finally from this orbit back to the ISS's orbit where it will rendezvous with the ISS.

### Why the Envisat?

The Envisat is the largest deorbited satellite in Low Earth Orbit, and it will not deorbit for another 150 years. If the Coroner is able to dispose of the Envisat, then it will be able to capture and dispose of any other satellite orbiting Earth.

### Acknowledgments

The team would like to thank SpaceMicro for donating the CPU and allowing us to visit their company workspace.