

DEPARTMENT OF AEROSPACE ENGINEERING AND ENGINEERING MECHANICS
COLLEGE OF ENGINEERING & APPLIED SCIENCE

SUMMER RESEARCH OPPORTUNITIES FOR UNDERGRADUATE students

APPLICATION DEADLINE: 03/01/2023

PROJECT TITLE: Design and Test of Attitude Control Methods for CubeSat

Donghoon Kim
College of Engineering and Applied
Sciences
736 Rhodes Hall
Cincinnati, OH 45221
Donghoon.Kim@uc.edu
Phone: 513 556 5365

Project Description

The objective of this project is to design and test attitude control algorithms for a CubeSat mock-up model. One UPRISE student will be recruited by the Intelligent Autonomous Systems Research Laboratory (IASRL) under the supervision of Dr. Kim. The student will be trained in the areas of sensor data handling and controller design based on mission requirements.

Roles and Responsibilities:

1. Capture sensor data and mitigate noise from this data.
2. Design a control algorithm to control the orientation of a flywheel-driven CubeSat model.
3. Evaluate the controller's performance in multiple scenarios.
4. Collaborate with lab members to enhance the controller.

An ideal candidate will possess:

- (a) basic knowledge of control systems,
- (b) theoretical knowledge of data handling methods,
- (c) working knowledge of Arduino, and
- (d) a passion for aerospace systems and a knack for problem-solving.