

Project Title: Dynamics and Controls of SWARM Spacecraft

Adviser: Prof. Soon-Jo Chung (Aerospace Engineering)

Project Description:

Our research goal is to investigate novel guidance, navigation, and control (GNC) algorithms, and critical relative sensing technologies that will enable NASA's next distributed spacecraft missions. In pursuit of this goal, we will develop a novel control strategy and conduct experimentation for fault-tolerant decentralized optimal formation keeping and reconfiguration of precision formation flying of a large number of spacecraft. The proposed fault-tolerant approaches ensure maximal scientific returns and enhanced mission life cycle in the presence of potential anomalies of various sensors, actuators, and communication links. Thus they can significantly reduce the risk associated with swarm formation flight. This project is part of a joint work with the NASA Jet Propulsion Laboratory.



Student background and expected research activities:

We are looking for a motivated student with an interest in astrodynamics, control, and robotics with good programming skills.

Points of Contact

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Funding: NASA Jet Propulsion Lab