

Optimal controller failure recovery in a networked satellite formation

Bachelor/Master, Practical

In current satellite formations the loss of a controller aboard a satellite results in the total loss of the satellite's control authority. This work aims to optimally select another satellite in the formation to remotely control the satellite with the broken controller, thereby mitigating the controller loss.

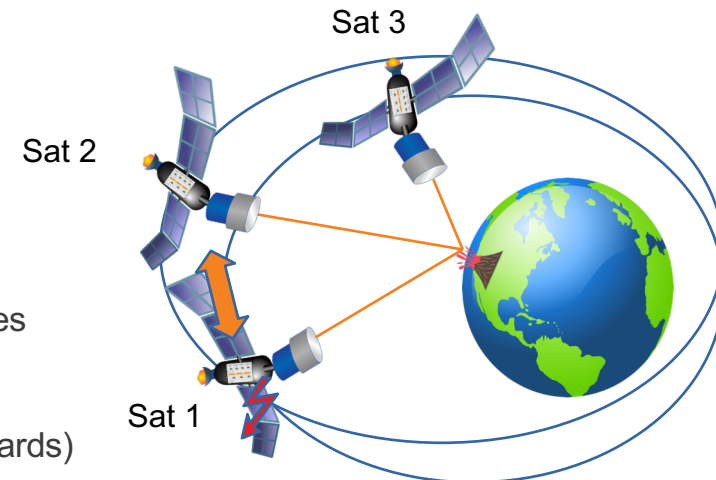
Task Description

Bachelor thesis/Practical

- SotA analysis of distributed multi-objective task-distribution approaches
- Implementation of a suitable approach in Orekit/Java
- Simulation of a controller failure scenario with different distribution objectives

Master thesis (additional tasks)

- Implementation of the suitable approach on small embedded HW (Skith-boards)
- Test of a failure scenario with an existing embedded model-predictive formation controller



Preliminary Knowledge

- Bachelor thesis/Practical: Programming in Java
- Master thesis: BA-Knowledge, Basic embedded systems knowledge (e.g. RODOS, ...)

Contact

Florian Kempf florian.kempf@telematik-zentrum.de

Julian Scharnagl julian.scharnagl@telematik-zentrum.de