



Predictive Control of fractionated Satellites and modular Robotmanipulators

Masterthesis

Task Description

Novel fractionated architectures in which satellites consist of modular independent sensor, actuator and computation submodules have a higher reconfigurability, reusability and extendability in comparison to traditional architectures. The same holds true for reconfigurable modular robotic manipulators. However to control such flexible and dynamic systems the controller needs not only to be capable to drive the systems to a target state in an effective and optimal manner, it also needs to cope with changing actuators arrangements due to a reconfiguration of the satellite or robot modules.

The Task in this thesis is to design a predictive controller for a system with changing degrees of freedom (e.g. actuators) during runtime and test the controller performance for a satellite formation scenario and a robotic manipulator in the Orekit and V-REP simulation.

Recommended Background

Control engineering, Java, (Matlab)

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