

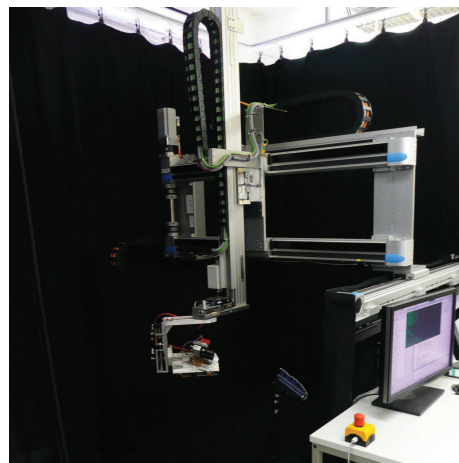


## **Development und Implementation of the Base Functions of a Simulator for Rendezvous Maneuvers of Spacecraft**

In order to successfully perform a rendezvous of two spacecraft, the exact knowledge of the movement and properties of both vessels is needed. One of the Institute of Automation's research focal points is capturing the target spacecraft using cameras. The algorithms, that are developed at the institute, face fierce challenges during their operation in space.

To ensure the reliability of these methods, they need to be tested on realistic images. One way to acquire these images, is the use of a simulated environment. The Mini Proximity Operation Simulator (MiPOS) is a stationary demonstrator, which was developed to provide this environment. A kinematic chain of translational and rotatory axes allows the three-dimensional movement of a camera. This assembly provides the means to record images under realistic conditions.

In the course of this thesis, the base functions that are necessary to control MiPOS have successfully been implemented. These functions provide the foundation for the preparation and execution of future experiments.



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STUDENT RESEARCH THESIS

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