

IAF SPACE SYSTEMS SYMPOSIUM (D1)  
Cooperative and Robotic Space Systems (6)

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## IMPLEMENTATION OF ADVANCED ROBOTIC TECHNOLOGY FOR ON-ORBIT SERVICES

**Abstract**

The use of robotic arms in space operations has become more and more popular in the last years, since it can provide significant advantages over traditional manual methods, including increased safety, reduced

cost, greater efficiency and accuracy in executing complex tasks. The current state of the art allows them to have a more performing situational awareness due to an increased capability of the sensors and control systems, an example of which is their frequent application in berthing and unberthing operations on the ISS.

Some interesting solutions for the implementation of a robotic manipulator on board of a commercial space station are being developed by the Master SEEDS Student Team. The robotic manipulator should execute on-orbit operations as a human-robot interface including maintenance and refuelling of satellites. Overall, this technology could play a crucial role in supporting Low Earth Orbit activities and other space-based assets and it looks a very promising area in terms of active research and continued development in the years to come.