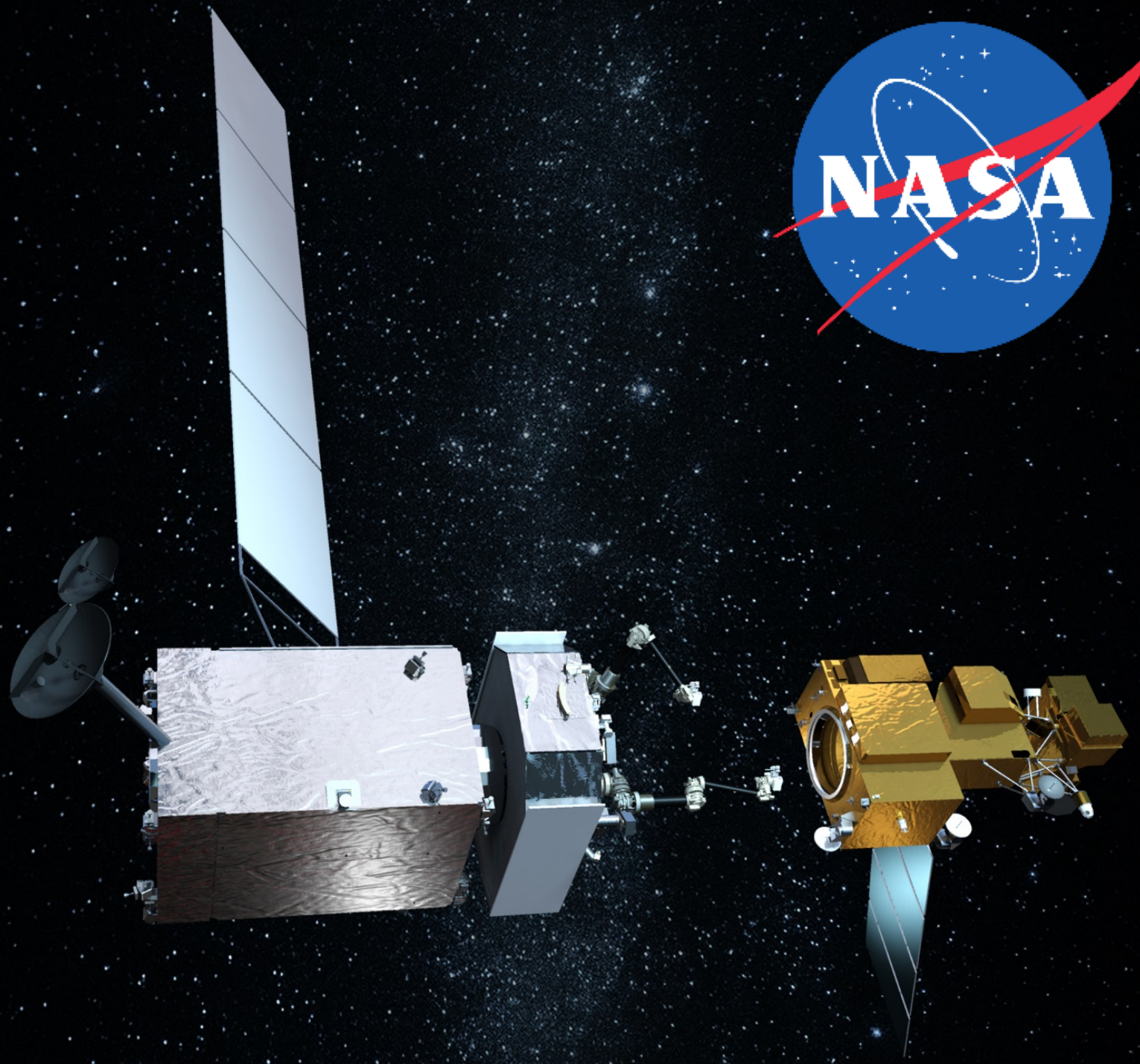
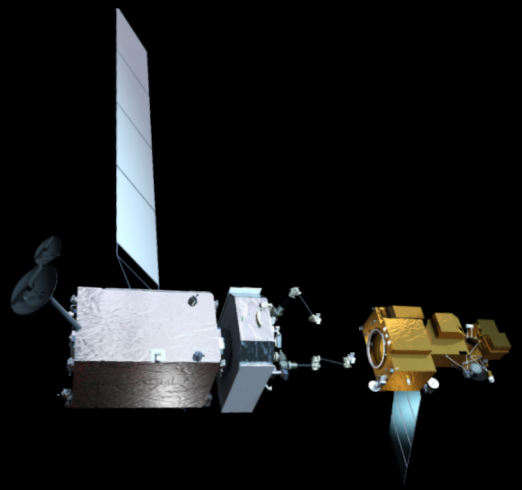


AI, Autonomous Systems, and Computer Vision for Satellite Servicing

NASA Goddard Workshop on Artificial Intelligence

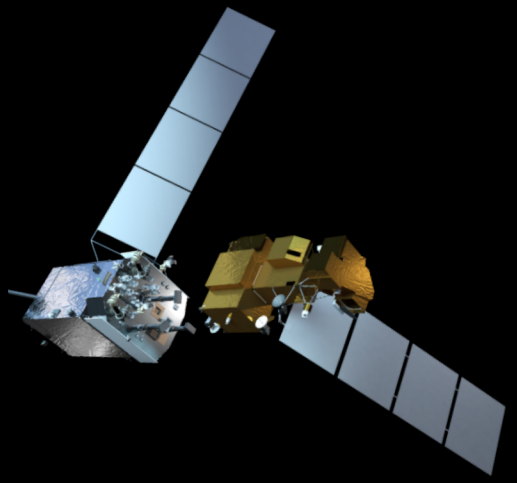
Brian Roberts
Robotics Technologist
Satellite Servicing Projects Division
NASA's Goddard Space Flight Center

Restore-L



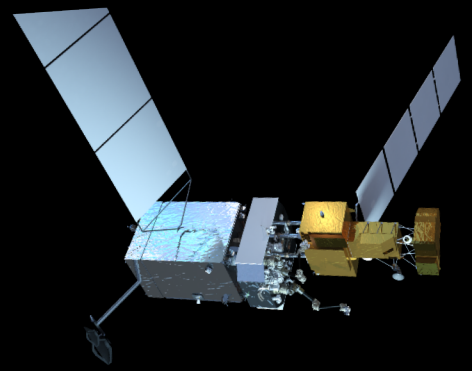
1

Autonomous Rendezvous, Inspection



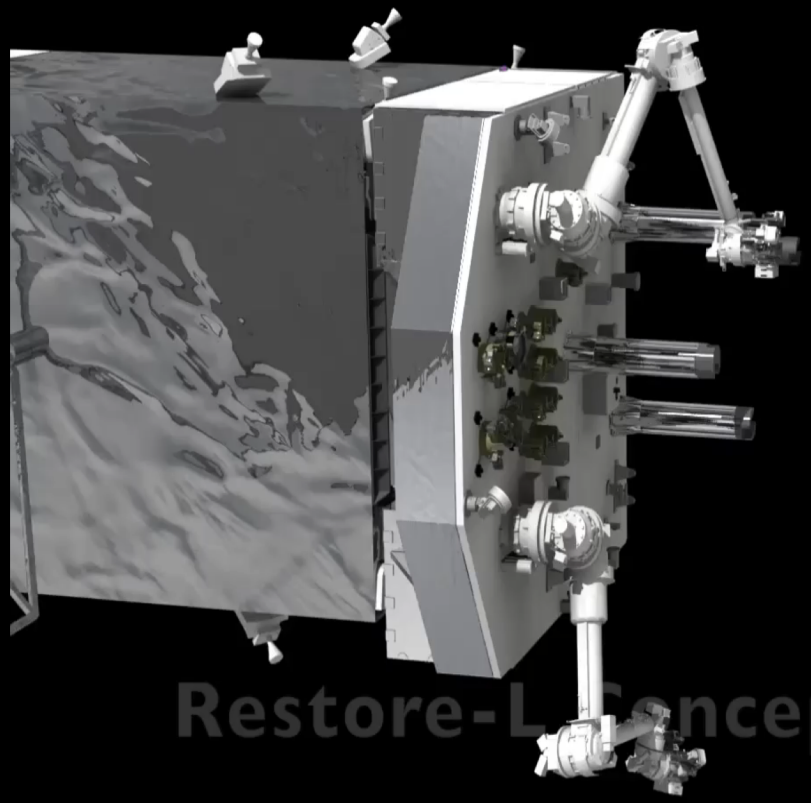
2

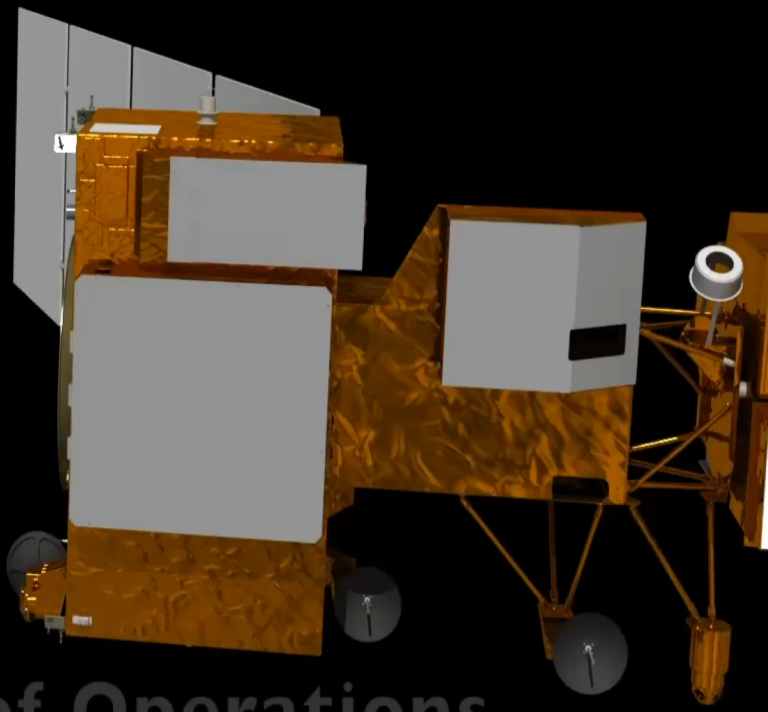
Autonomous Capture



3

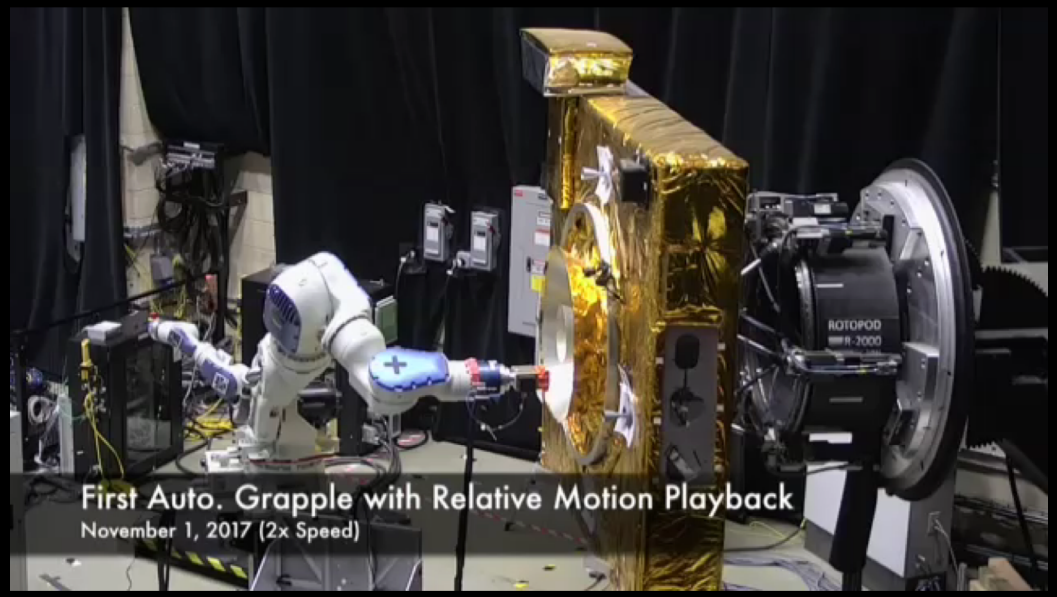
Telerobotic Refuel & Relocate

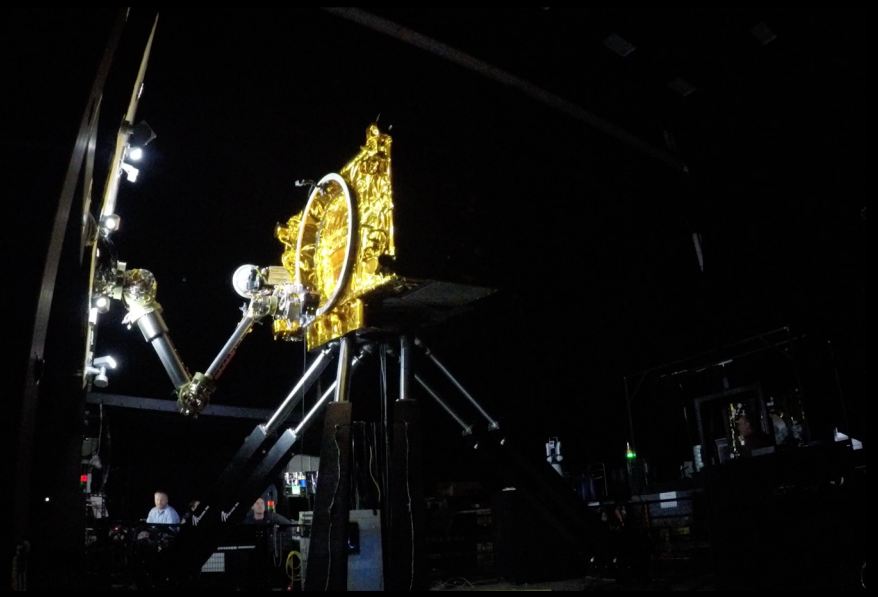




Restore-L Concept of Operations

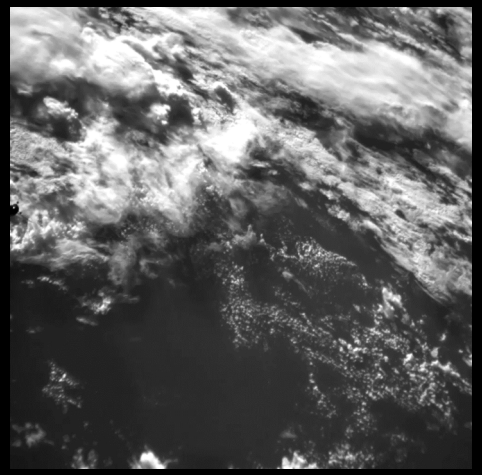
Practicing autonomous rendezvous on the ground

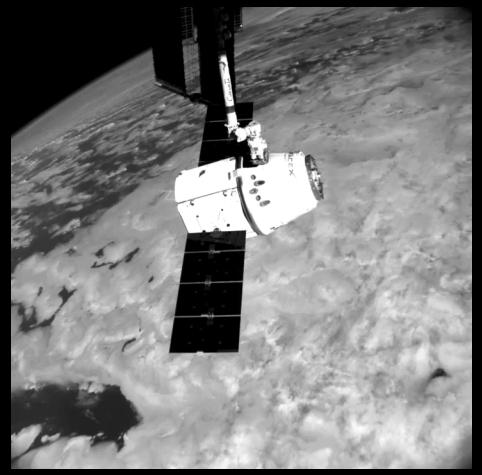


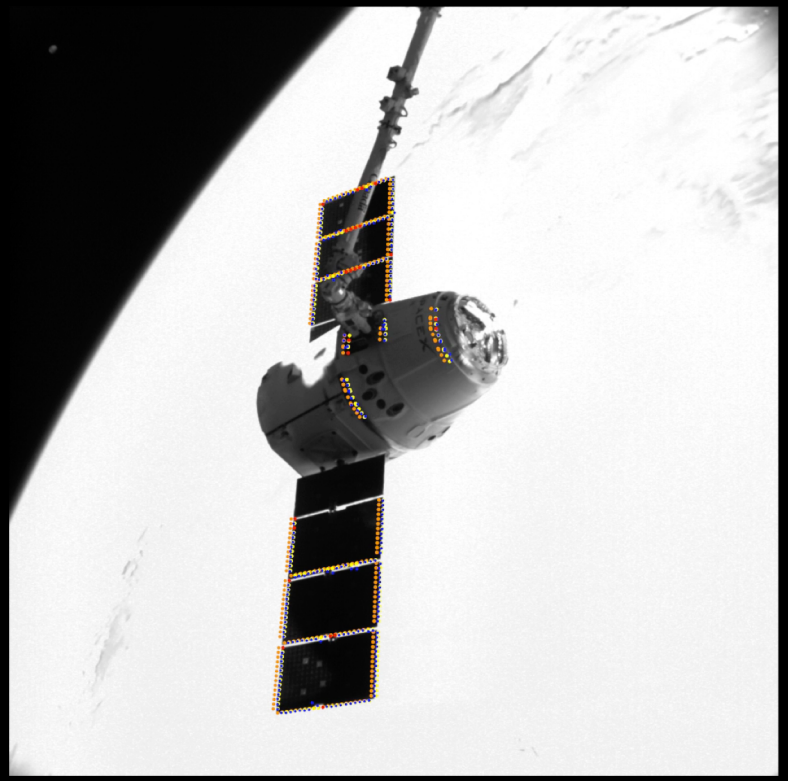


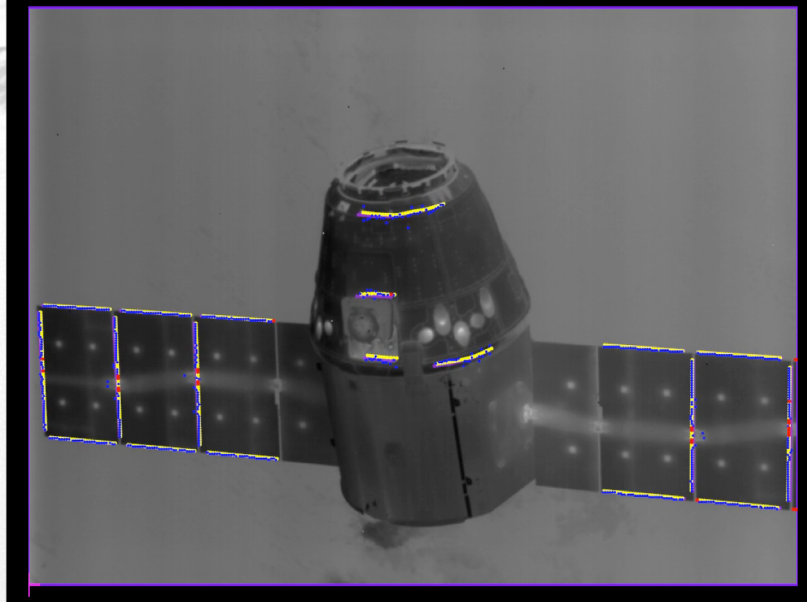
Practicing autonomous rendezvous in space on Raven

Raven is a technology-filled test module on the International Space Station that will help NASA test key elements of a new spacecraft autopilot system, and bring NASA one step closer to having a relative navigation system.

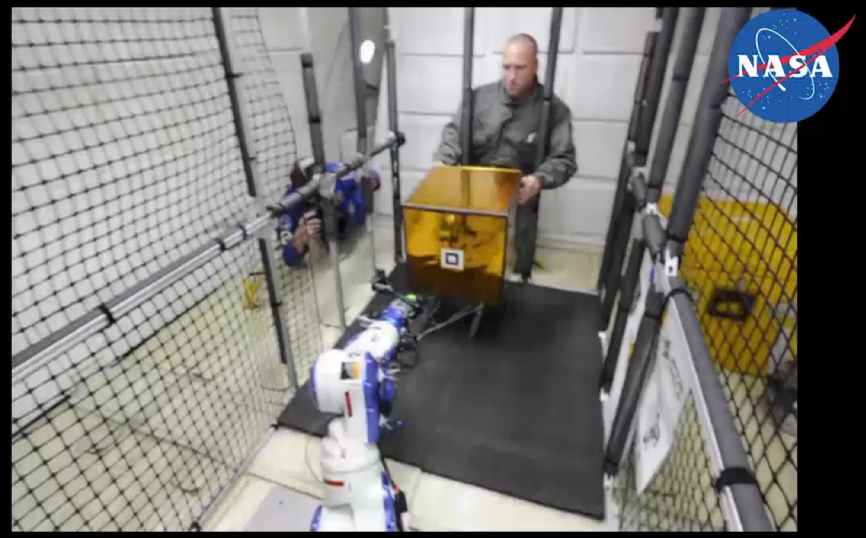


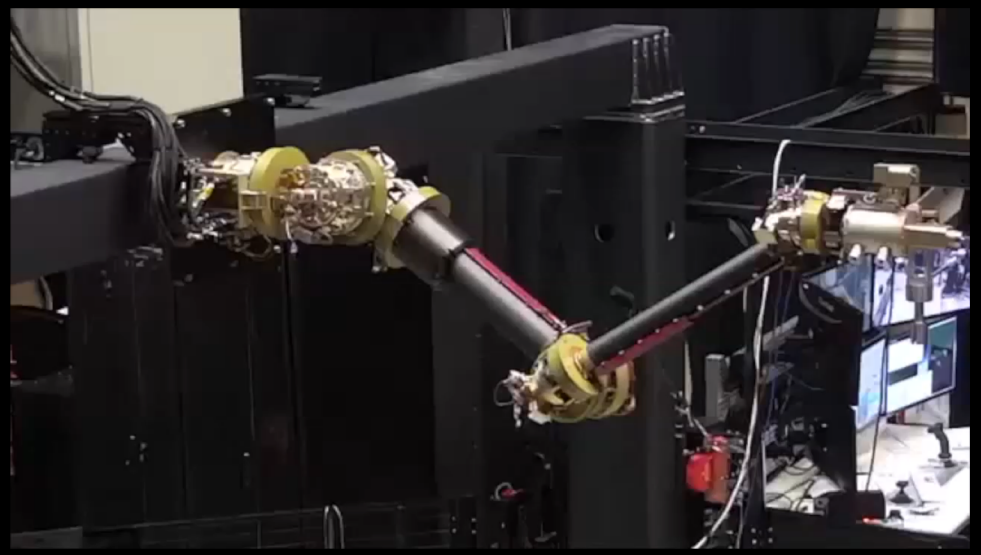


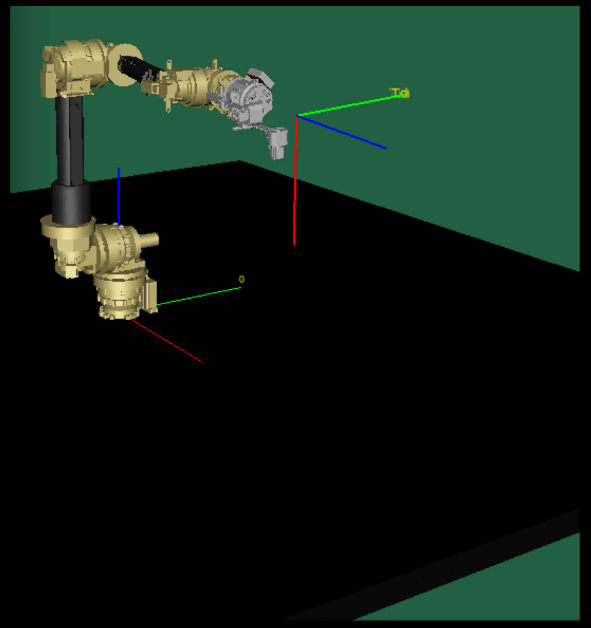


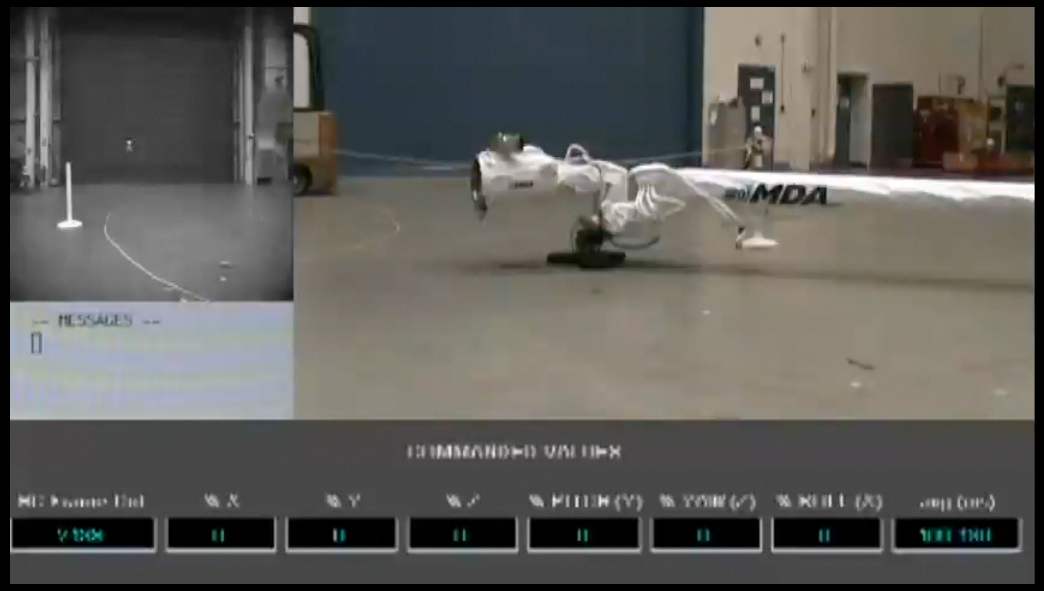


Practicing autonomous robotics on the ground



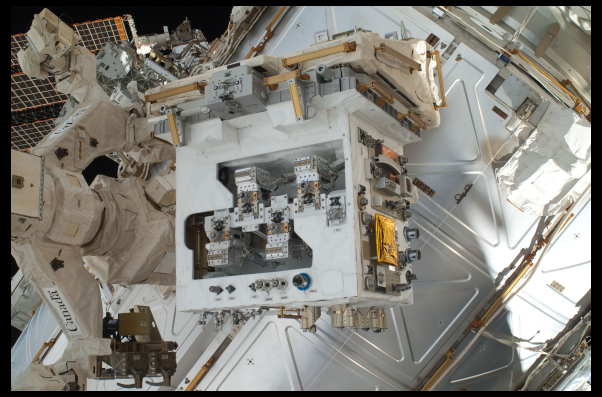


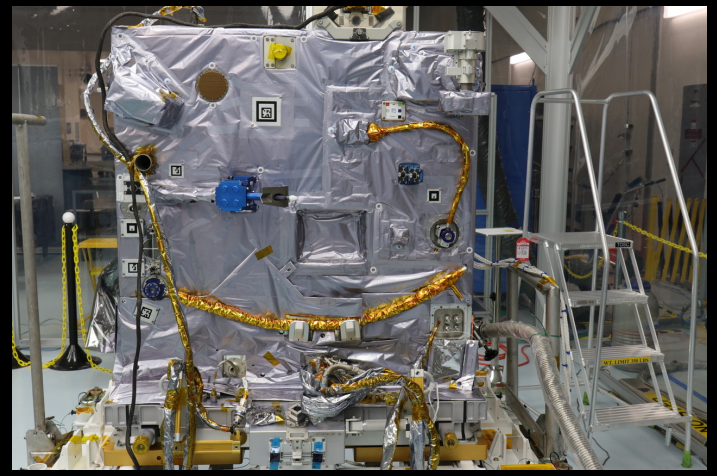


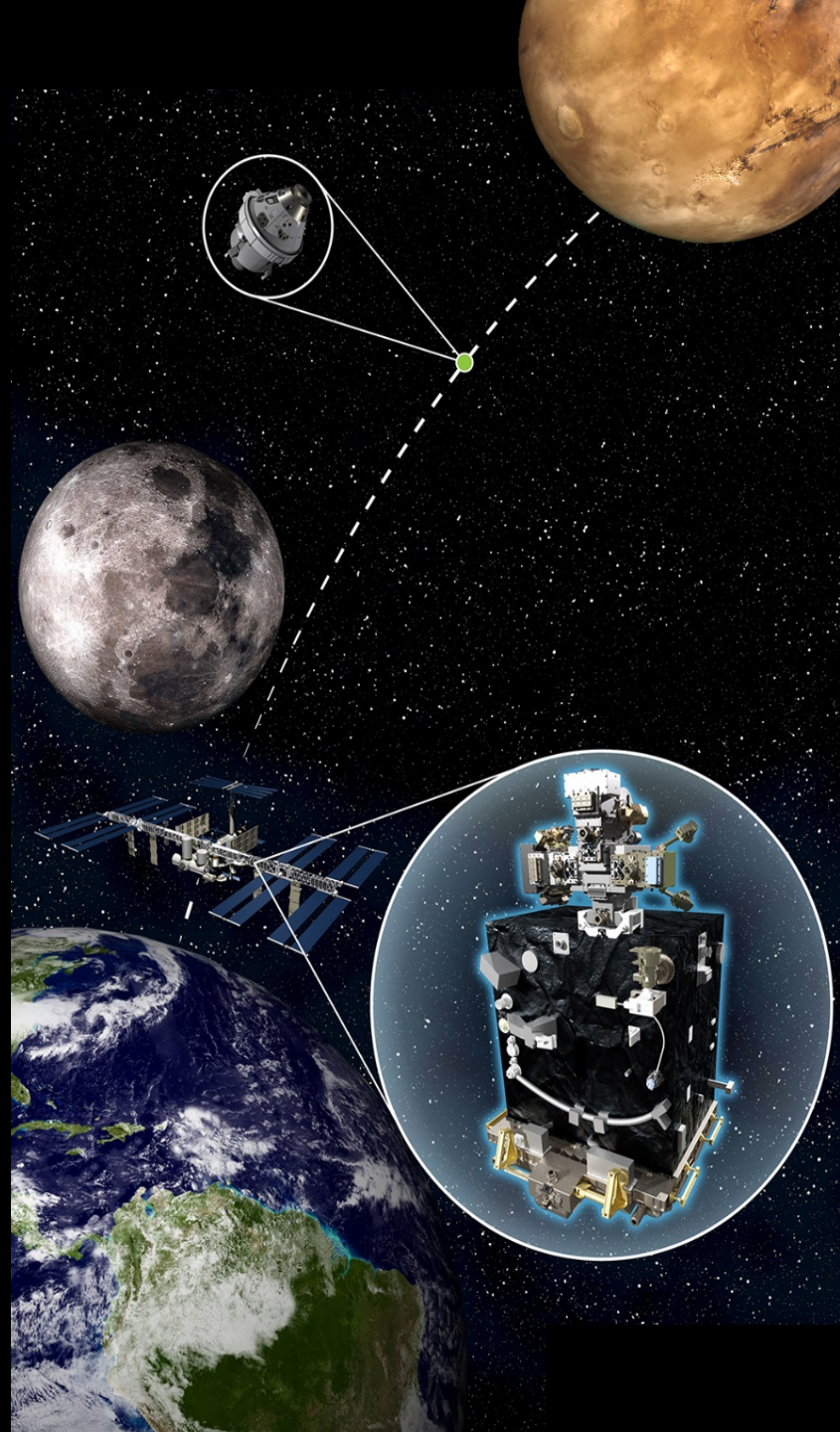


Practicing autonomous robotics in space on the Robotic Refueling Mission (RRM)

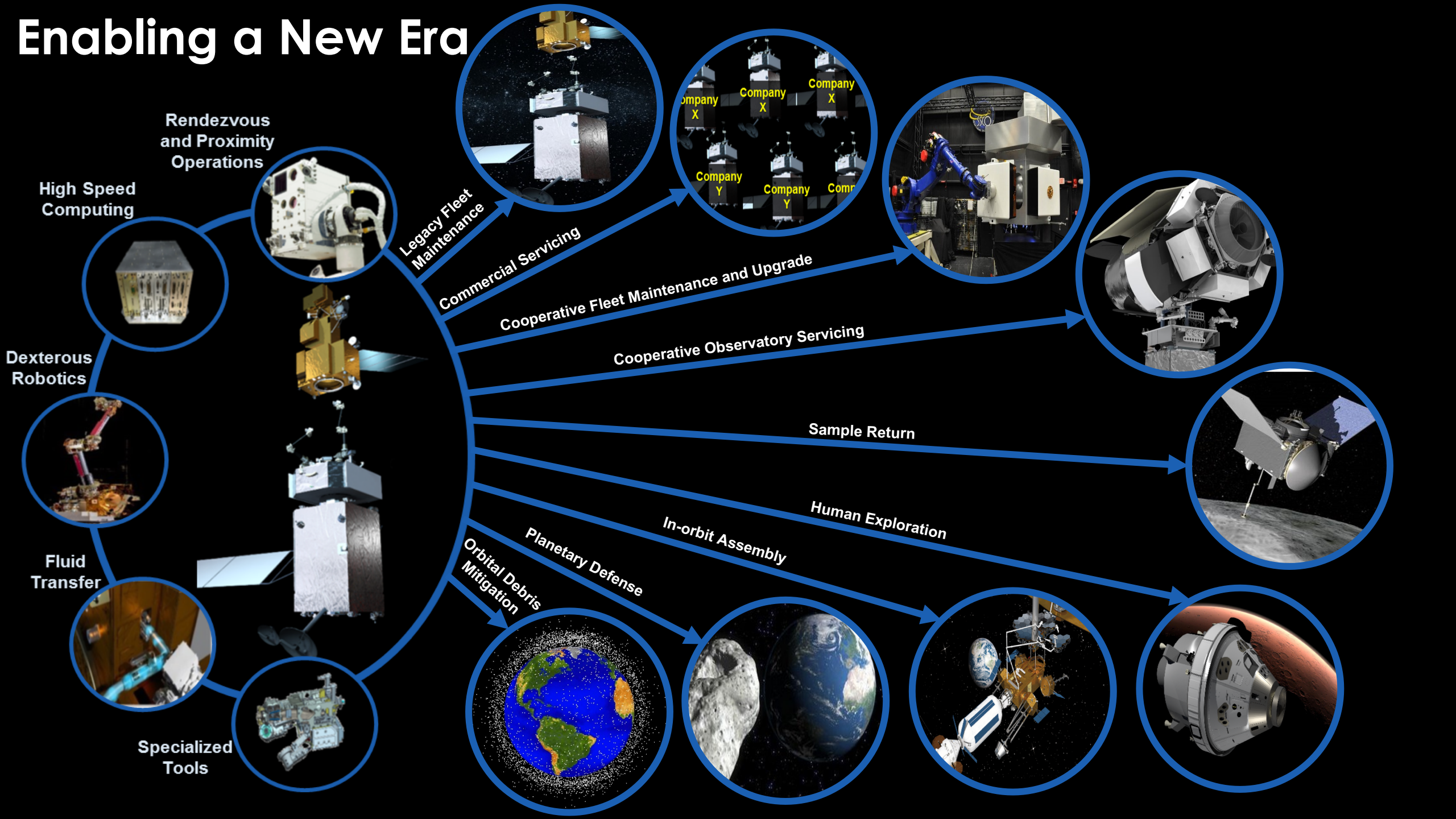
RRM is a multi-phased International Space Station technology demonstration that is testing tools, technologies and techniques to refuel satellites and transfer of cryogenic fluid in orbit, especially satellites not designed to be serviced. The ability to replenish this critical consumable is important for maintaining satellites and for enabling long duration space travel to destinations like the Moon and Mars.







Enabling a New Era



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