Robotics for Assembly, Operation and Sustainment of Mars Transit Vehicle

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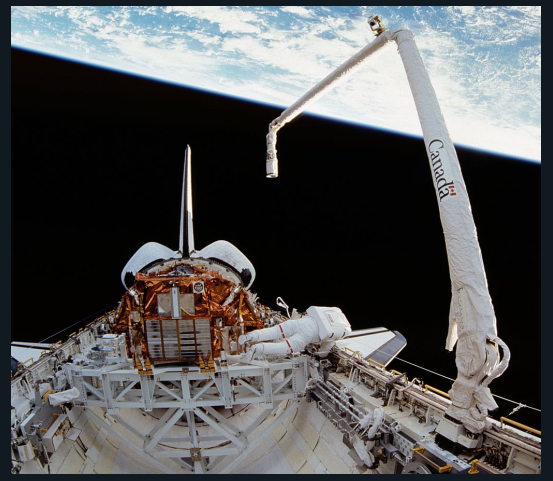
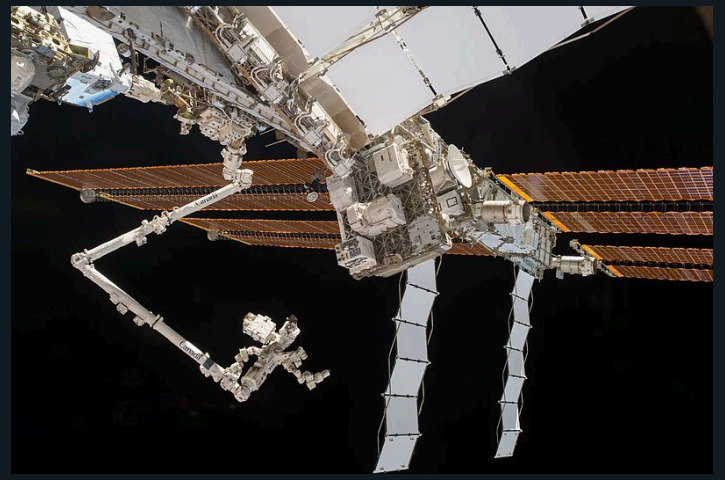
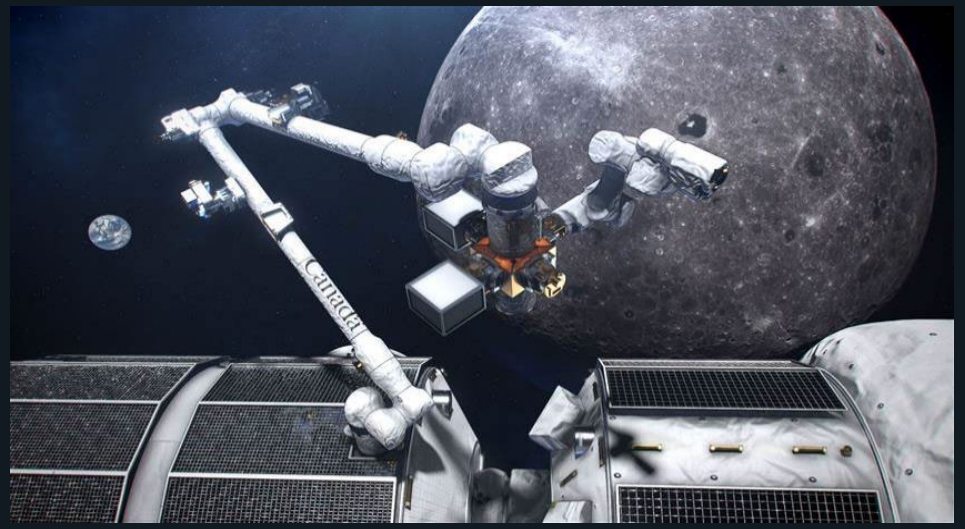
Robotics for Long Duration Missions

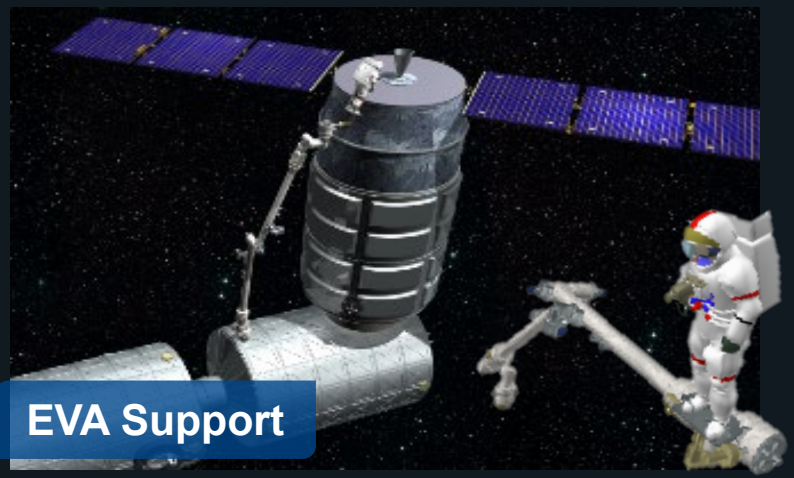
- Mars Transport Vehicle will require in-space assembly, repair and maintenance using advanced robotic systems and logistics
- Great experience gained by use of Canadarm system on Shuttle & ISS
- More experience to be gained using Canadarm system on Gateway





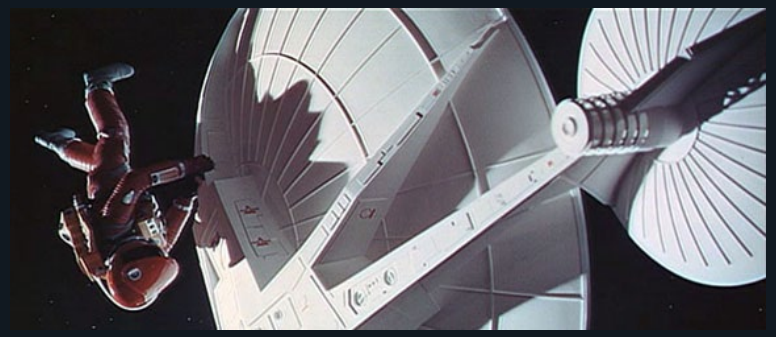


Some Needed Robotic Capabilities



Key Development Areas

- EVR and IVR Systems
- Interfaces, tools, dexterity (e.g., walking)
- Advanced perception and intelligence
- Diagnostics & Self-repair
- Logistics
  - Sparing/Staging strategy
  - Commonality/Modularity
  - Manufacture/Printing
  - Feedstock/Recycling (closed mass system)



Astronaut Bowman repairing main antenna *"2001: A Space Odyssey"*

NASA astronaut Garrett Reisman, anchored to Canadarm2. ISS construction - STS-132

THANK YOU

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