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Jet Propulsion Laboratory
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Robotic System Engineer | Section 347 | Robotic Manipulation and Sampling Group

Jet Propulsion Laboratory, California Institute of Technology

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Limbi – New approach to in-space assembly



Project Significance

NASA will want to build larger and more complex structures in space. Limbi robots might be the solution. They offer minimal complexity and high capability.

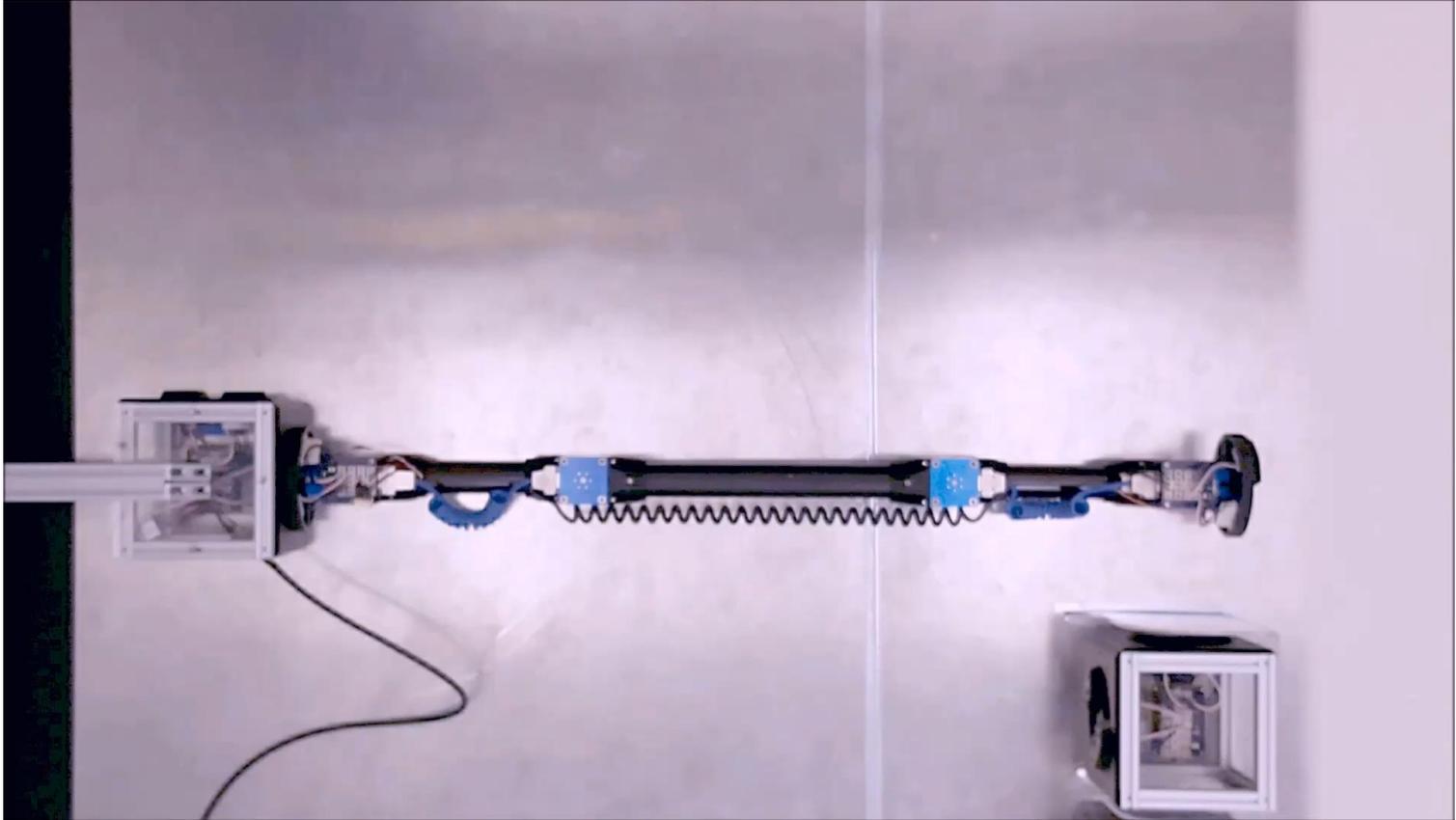
Role

Task Manager

Achievements

1. Developed Limbi concept: self-mobile, self-reconfigurable robots for in-space assembly, planetary/lunar assembly, and satellite servicing.
2. Led development of first Limbi prototype
3. Demonstrated concept at live demo for DARPA program manager
4. Provisional patent for Limbi concept

Limbi – Modular Assembly Demo

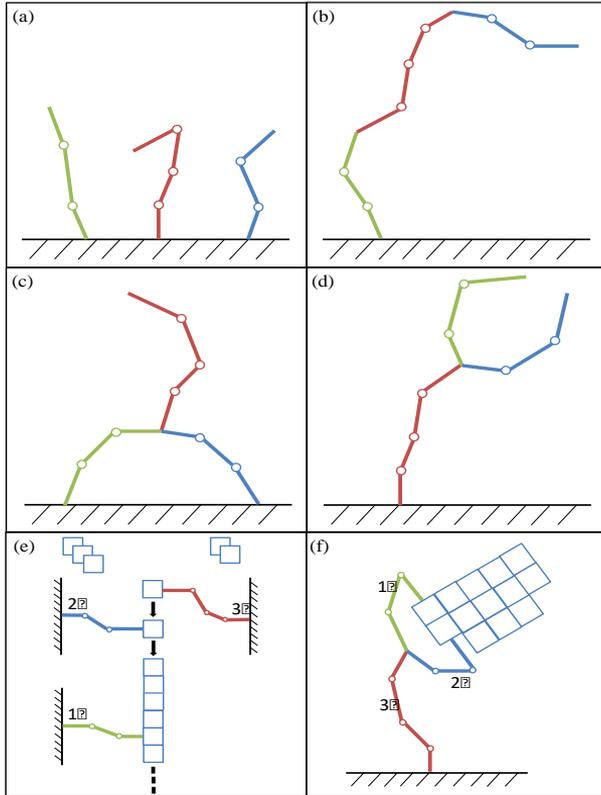


March 6th, 2017

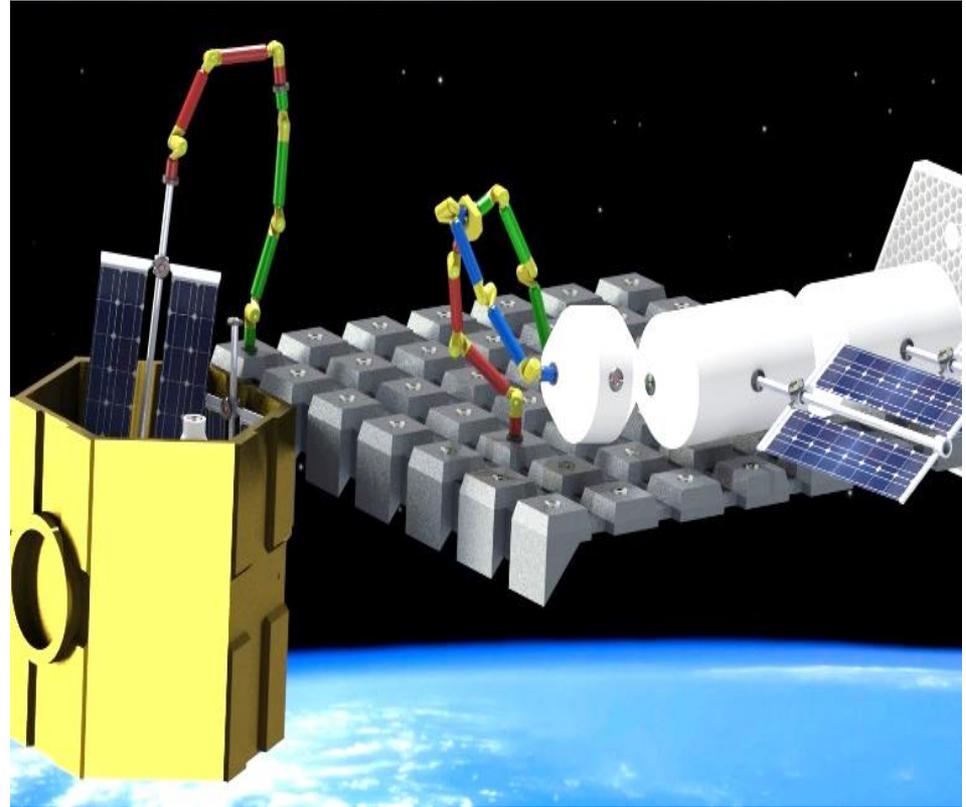
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Limbi – Teams working together

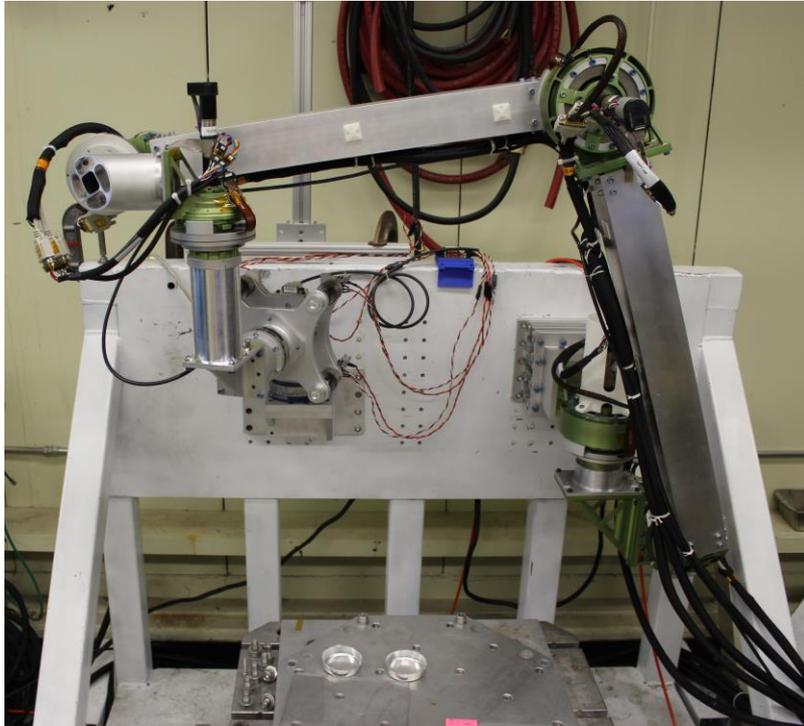


Set of example multi-Limbi configurations



Concept for a Limbi team staffing an in-space factory

Mars 2020 Docking Autonomy



Mars 2020 Docking Testbed

Project Significance	Autonomy enables reliable, repeatable, docking for Mars 2020 – a necessity. We can provide guarantees of either reaching the desired state or failing in a safe manner.
Roles	Docking Software and Testing CogE
Achievements	<ol style="list-style-type: none">1. Programmed iterative docking algorithm2. Manage one of two Mars 2020 Robotic Arm testbeds3. Designed high-throughput test architecture and used it to plan and analyze 535 docking tests4. Mars 2020 SCS “Rock Star”



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