



VOYAGER
SPACE

JEFFREY MANBER
President, International and Space Stations
Voyager Space

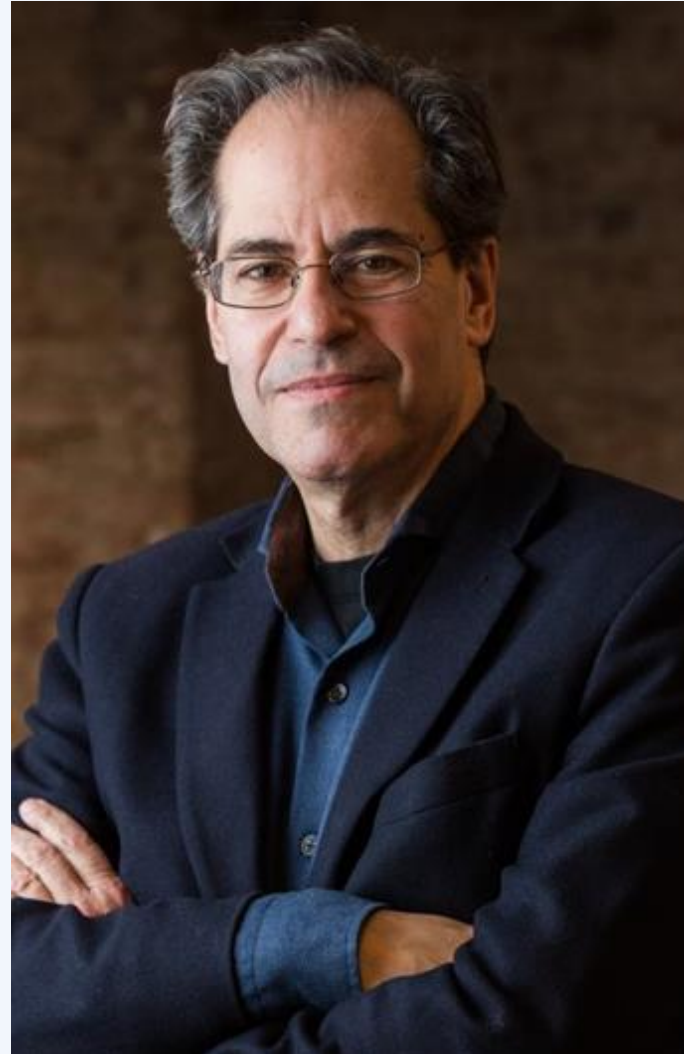
JEFFREY MANBER

PRESIDENT, INTERNATIONAL & SPACE STATIONS
VOYAGER SPACE

Jeffrey Manber served at the CEO of Nanoracks from 2009-2021 where he broke barriers for access to space and oversaw the growth of numerous commercial ISS programs, including the development of the first commercial Airlock. Most recently, he was appointed as President of International and Space Stations at Voyager Space. Jeffrey also continues to serve as Chairman of the Board for Nanoracks.

As the only American to ever work officially for the Russian space program, his prior experience includes serving as Managing Director of Energia USA, the American arm of RSC Energia. In 1991, he carried over the first commercial contract between NASA and the Soviet Union to use Soyuz as an escape vehicle for Space Station Freedom. Later, Jeffrey represented the Russian space organizations when the basic contracts to realize the International Space Station were negotiated.

As CEO of MirCorp, which leased the Russian space station Mir, he oversaw the first ever commercially funded crewed mission, of over 70 days, to the Mir space station. Jeffrey also co-developed the first fund dedicated to commercial space on Wall Street (Shearson Lehman) and has served as an advisor to numerous companies and governments. In 2012, Jeffrey was awarded the NASA Exceptional Public Achievement Medal.

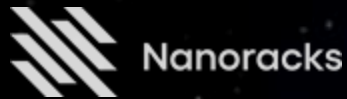


WE ARE A FULL STACK SPACE STATION INFRASTRUCTURE PROVIDER

THE VOYAGER TECH ECOSYSTEM



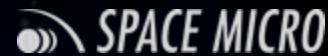
ROBOTICS & DOCKING: Altius will provide electro-permanent magnet fittings and docking adapters to make automation simpler, docking safer, and ultimately grow customer utilization



UTILIZATION & GROWTH: Nanoracks will bring 12 years of space station operation and mission-design experience while focusing on customer capture and experience. Nanoracks' Bishop Airlock will be installed shortly after initial operations to grown science and commercial capabilities & reduce costs of waste disposal.



PRECISION MACHINING: The Launch Company will fill critical gaps in commercial utilization technologies, building satellite deployers, external mounts, payload interfaces, and other hard-to-acquire precision parts.



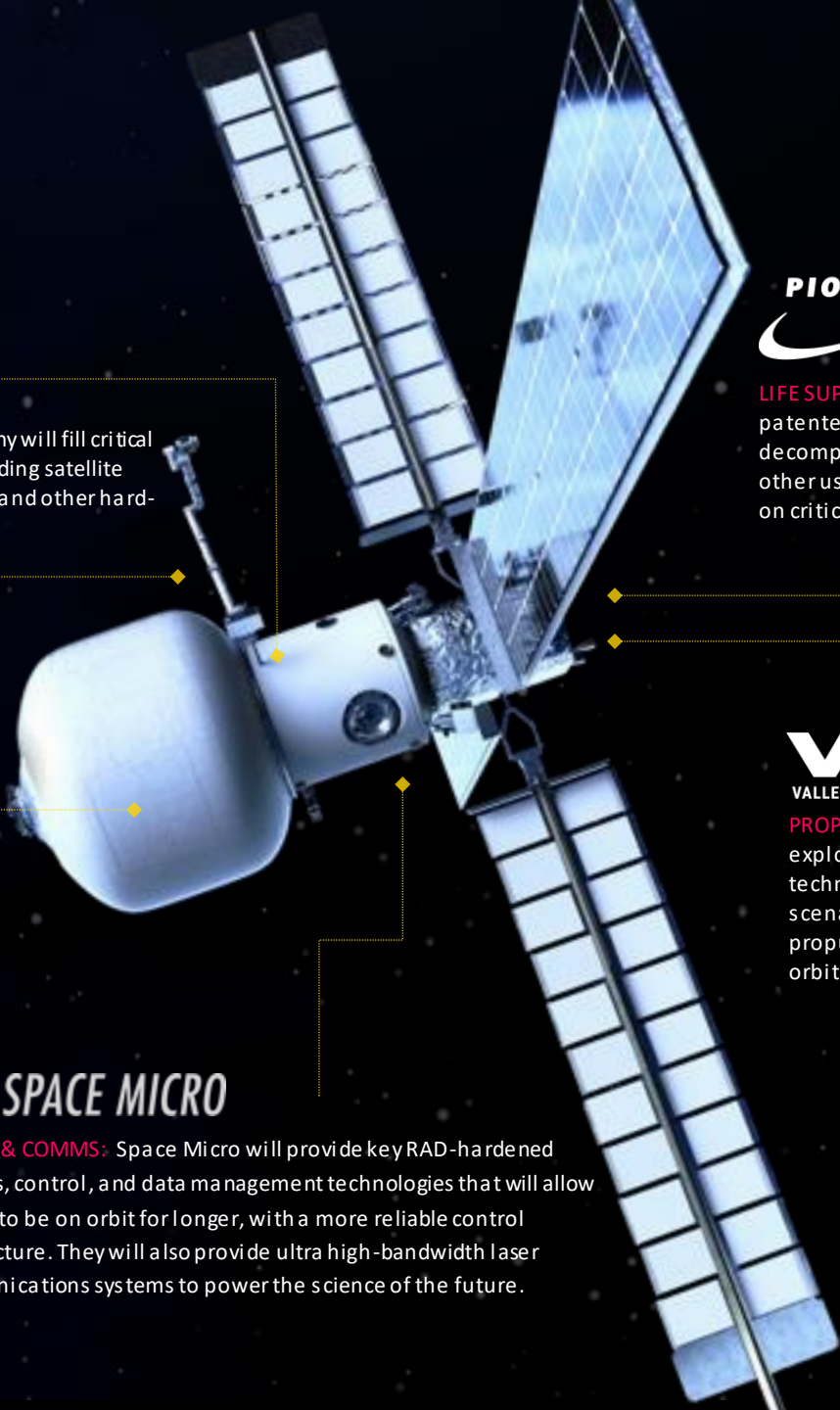
BRAINS & COMMS: Space Micro will provide key RAD-hardened avionics, control, and data management technologies that will allow Starlab to be on orbit for longer, with a more reliable control architecture. They will also provide ultra high-bandwidth laser communications systems to power the science of the future.



LIFE SUPPORT: Pioneer Astronautics will utilize patented waste gas recycling technologies to decompose organic wastes onboard into fuel and other useful materials, helping reduce the strain on critical life support systems.



PROPULSION: Valley Tech Systems will explore utilization of their control thruster technology to provide high propulsion in scenarios requiring rapid emergency propulsion, like collision avoidance with orbital debris.



CLD AWARD

Background

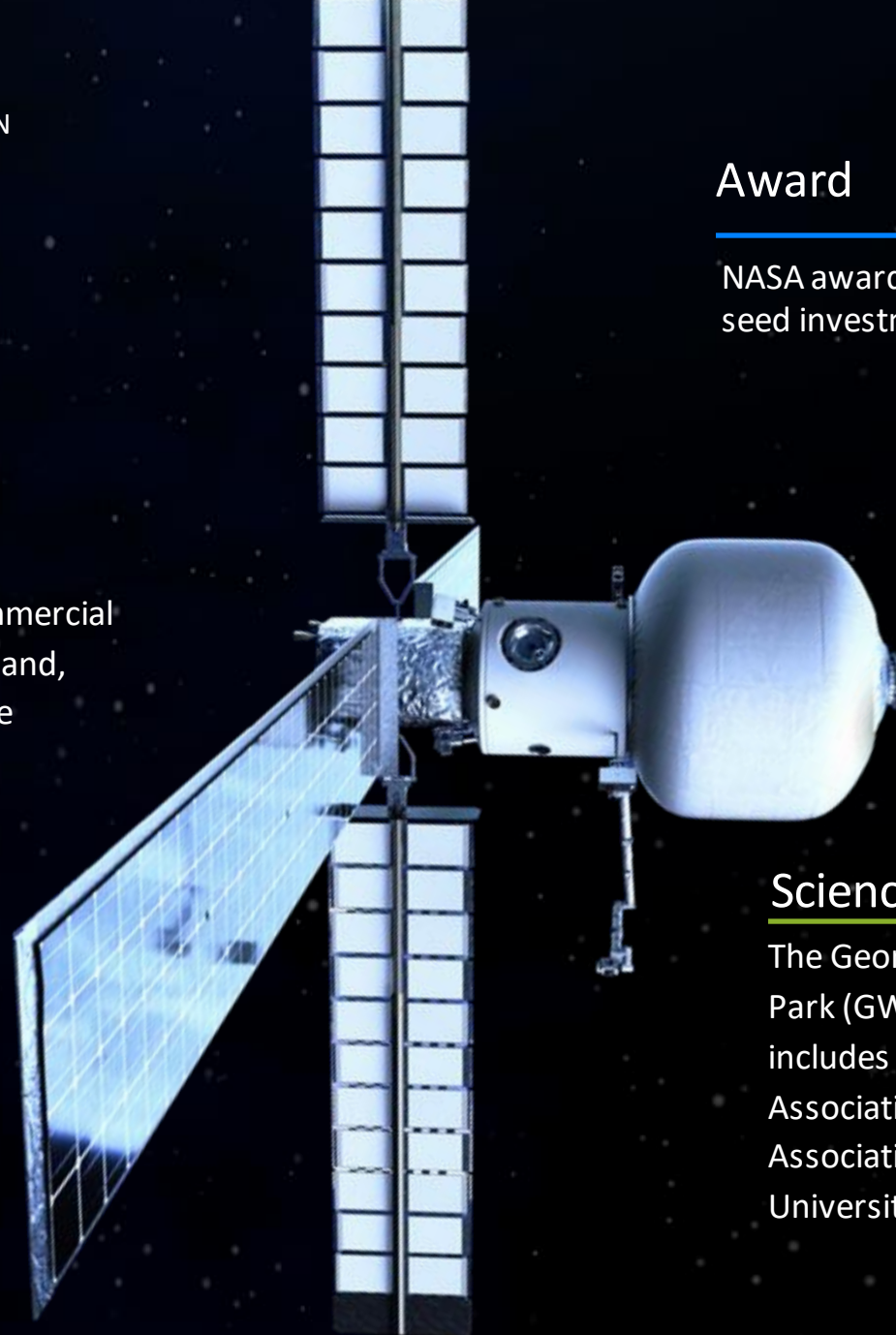
Nanoracks spent the last decade mastering the commercial operation of space stations, meeting customer demand, charting market growth, and self-investing in private hardware on the International Space Station.

Award

NASA awarded Voyager/Nanoracks \$160m in seed investment for Starlab concept development.

Science Park

The George Washington Carver Science Park (GWC) is at the core of Starlab. The team includes The Universities Space Research Association, ZIN Technologies, the International Association of Science Parks, and The Ohio State University.



VOYAGER'S NEXT GENERATION CREWED SPACE STATION

STARLAB

NASA selected Voyager and Nanoracks as one of three companies to pave the way to a new era of commercial, privately owned space stations. A significant reason for this selection was Voyager's ability to grow into a full-stack space-station provider

ROBOTIC ARM

Supports cargo and external payloads

INFLATABLE HABITAT

Crew quarters and George Washington Carver Science Park (340m³ volume)

METALLIC DOCKING NODE

Regenerative ECLSS system that continuously hosts up to four astronauts, accommodate up to six

Accommodates multiple visiting vehicles

ONE LAUNCH

Starlab will deploy from one single launch in 2027

PROPULSION

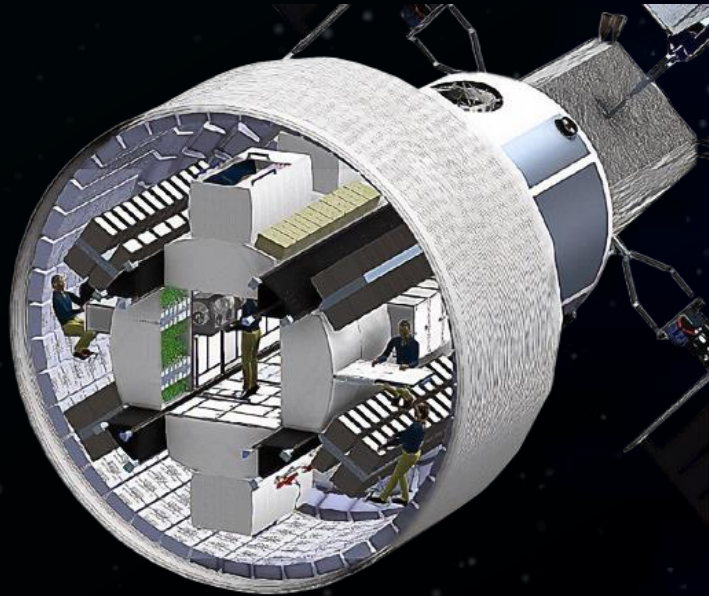
60kW Power and Propulsion Element



THE FIRST SCIENCE PARK IN SPACE

GEORGE WASHINGTON CARVER SCIENCE PARK

The George Washington Carver (GWC) Science Park, the first science park in space, forms the core of Starlab. Named after the great American scientist, the GWC Science Park was founded to honor of his legacy of scientific discovery for the benefit of life on Earth. The GWC is the first in-space member organization of the International Association of Science Parks (IASP). Science Parks are a proven business model for industrial and scientific innovation.



OUR PROCESS

The GWC Science Park will be reconfigurable – allowing for scientific components to be upgraded, replaced, or expanded as researcher requirements change. Nanoracks has developed a specific process for gathering and reacting to academic, industry, and government input.

LABORATORIES

The GWC Science Park will feature dedicated laboratories for biology, plant habitation, physical sciences, and materials research. There will also be an open workbench area and room for commercial projects.

HISTORY

Named after the great American scientist, the GWC Science Park was founded to honor of his legacy of scientific discovery for the benefit of life on Earth. Starlab hopes to continue his tradition of research, especially in the fields of agriculture and sustainability.

THE FUTURE

GWC will host and manage dedicated student programming managed by DreamUp and OSU; Terrestrial analogs will allow for students on Earth to see and feel what its like to conduct science in space.

Future Concerns

DoD vs Commercial

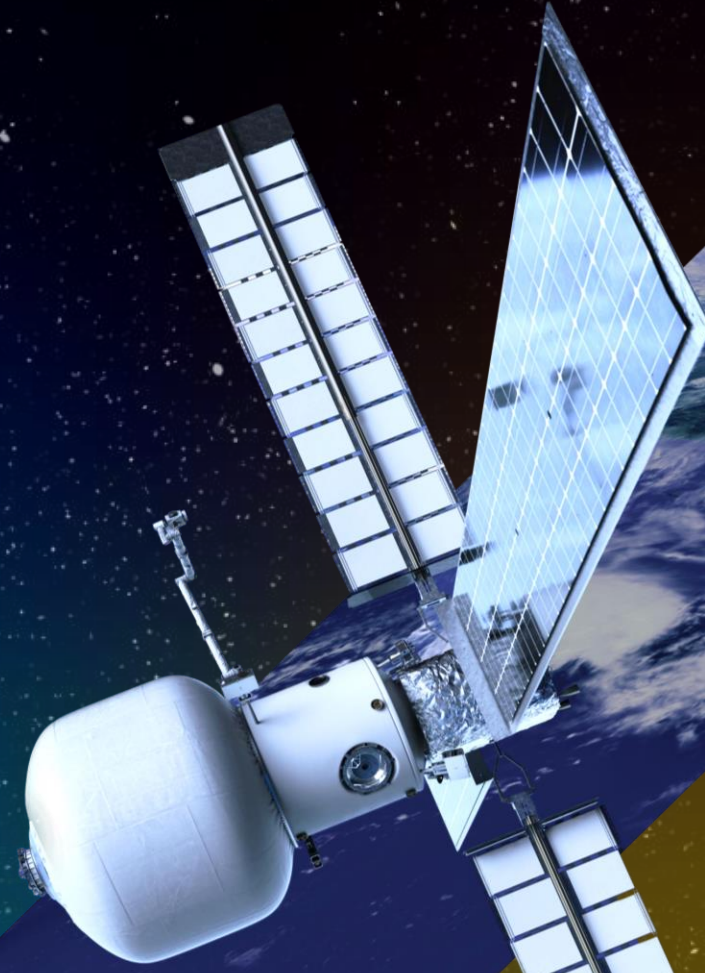
Breaking away from the institutionalized culture of the Aerospace industry

International

Incorporating the international ecosystem into our future

SPACS

Trends in Aerospace capital sources



Backup Slides



JEFFREY MANBER
President, International and Space Stations
Voyager Space

OUR PORTFOLIO



Nanoracks

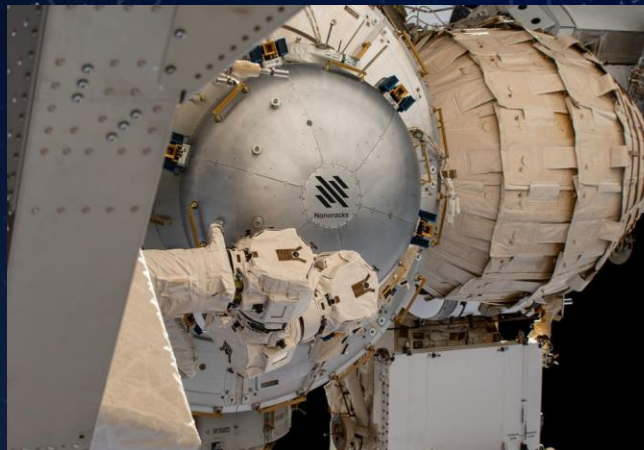
Nanoracks, a leading global commercial space services provider. Nanoracks owns and operates private hardware on the International Space Station and has launched over 1,300 research experiments, deployed over 300 small satellites, and installed the Bishop Airlock.

Today, Nanoracks leverages over a decade of experience to develop new commercial space systems in direct response to customer needs. These space systems include converting commercial launch vehicle upper stages into functional secondary platforms, building new habitable space stations, supplying payload and crew airlock systems and services infrastructure, and more.

SPACE STATION INFRASTRUCTURE



BISHOP AIRLOCK



MISSION MANAGEMENT



OUR PORTFOLIO

THE LAUNCH C O M P A N Y

The Launch Company is a leader in developing the systems, hardware, and processes to accelerate NewSpace companies to orbit. Their mission is to develop the world's first multi-user launch site to service the dozens of new rockets under development around the world. They are building to that goal by delivering designs, flight-critical hardware, and ground support equipment to leading rocket companies around the U.S. By focusing on automation and servicing as many vehicle configurations as possible, they help make the business case for affordable, resilient access to space that makes launching rockets as routine as commercial air travel.

The Launch Company's Alaska-based team is led by founder Ben Kellie and comprises NewSpace veterans with dozens of combined launch and landing experiences on land, in air, and at sea. They are focused on building a diverse, forward-thinking company that tackles the biggest challenges in aerospace.

SPACE & TECHNOLOGY



TEAM



CULTURE



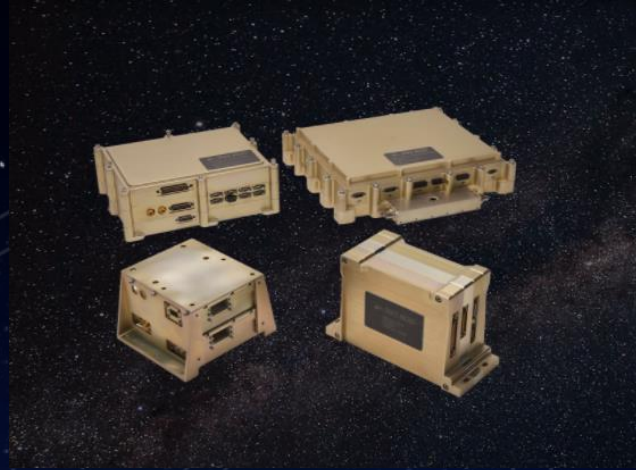
OUR PORTFOLIO



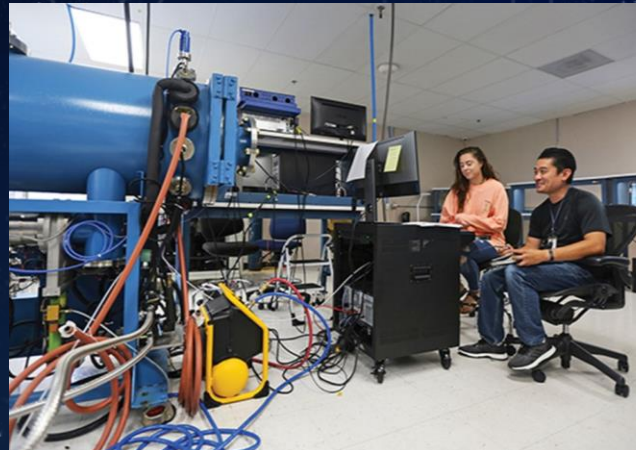
Space Micro Inc., based in San Diego, CA, is an engineering-driven business focused on technology advancement for high-reliability satellite subsystems. The company leverages commercial technology in the design and manufacture of affordable, high-performance, radiation hardened communications, electro-optics, and digital systems for use in commercial, civil, and military space applications around the world.

Space Micro solutions include Telemetry, Tracking and Command (TT&C) transmitters, mission data transmitters, star trackers, space cameras, image processors, Command & Data Handling (C&DH) systems and high data rate laser communications systems.

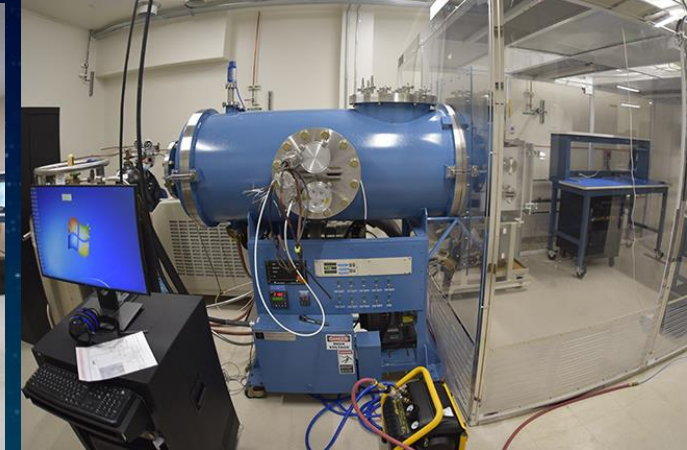
COMMUNICATIONS SYSTEMS



TEAM



FACILITIES

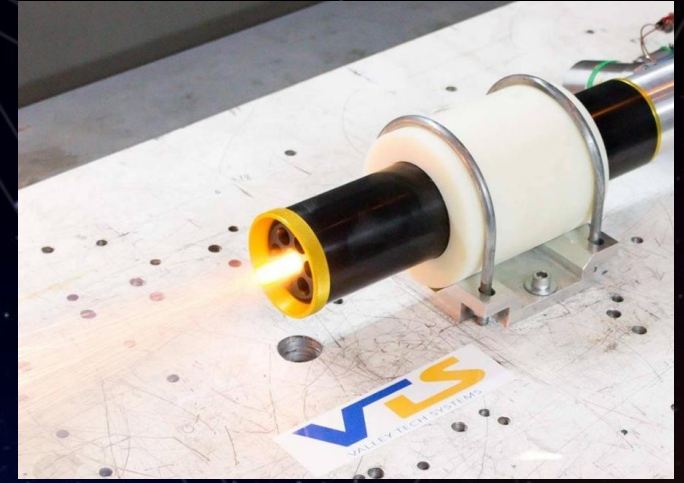


OUR PORTFOLIO



Valley Tech Systems is an innovative engineering company that is leading the way in controllable solid propulsion and open architecture airborne intelligence, surveillance and reconnaissance (ISR) technologies. VTS' cutting-edge solutions address technology needs across the U.S. Government and commercial space industry.

PROPULSION TECHNOLOGY



TEAM



DEFENSE

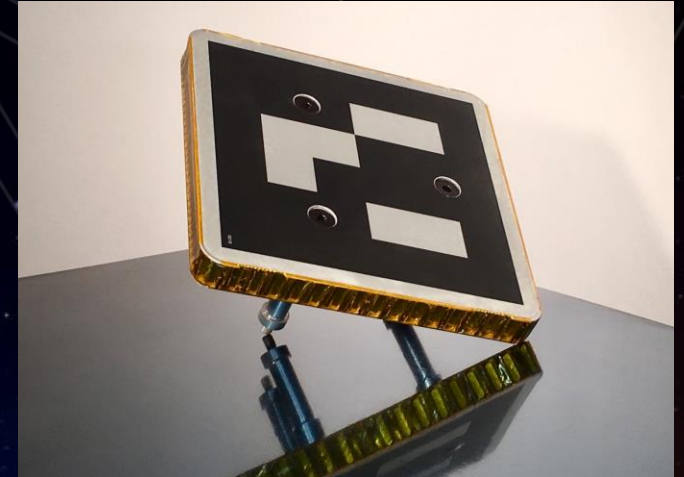


OUR PORTFOLIO



Altius is a space robotics and technology company with expertise in ElectroPermanent magnets, orbital rendezvous and capture robotics, active debris removal, spacecraft mechanisms, assistive telerobotics, in-space propellant transfer, satellite servicing, and on-orbit assembly and manufacturing. Altius' mission is to support sustainable space exploration and provide cost-effective and reliable satellite servicing and end-of-life services.

ELECTROPERMANENT MAGNETS



TOOL CHANGER



ON ORBIT SERVICING



OUR PORTFOLIO



Founded in 1996 by Dr. Robert Zubrin, Pioneer Astronautics is an aerospace research and development company focused on creating new technologies to help open the space frontier. Over the course of its 24-year history, the company has executed over 70 successful R&D programs for NASA, the Department of Defense, the Department of Energy, and private corporations.

While its programs have covered a wide range of applications ranging from rocket propulsion to life support systems to high altitude balloon technology, Pioneer's central focus has been in the area that NASA calls "In Situ Resource Utilization" (ISRU).

CHEMICAL FACILITIES

