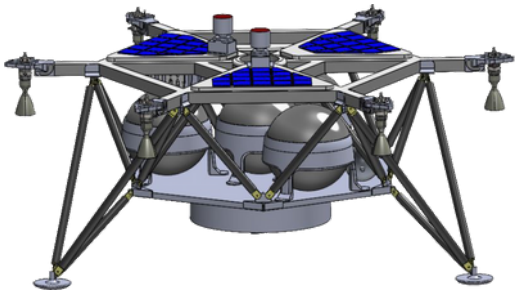
WeSpace Technologies - Reimagining Lunar Surface Exploration

Lunar exploration has seen a resurgence of missions in recent years, with numerous countries as well as private companies launching missions to explore its surface. These recent missions are just the beginning of a renaissance in Lunar exploration. NASA has been leading the way with the introduction of its Artemis program, along with the Artemis accords. These accords provide the framework for long-term sustainable exploration of the Lunar Surface and beyond.

As part of this new vision for Lunar exploration, there is a need for the creation of new technologies and systems. Following the success of the Commerical Crew program for the launch of astronauts and payload to the International Space Station, NASA is once again using a similar model for Lunar Exploration. To that end, NASA created the Commercial Lunar Payload Services Program (CLPS). Through this framework, commercial companies will “perform science experiments, test technologies, and demonstrate capabilities to help NASA explore the Moon.” One commercial company, WeSpace, is looking to not only contribute to this new chapter but bring a fundamentally new approach to Lunar Exploration.

A New Vision for Lunar Exploration

Founded in 2019 and winner of the 2023 Space Tech Summit Israel Innovation Award, WeSpace is building the next generation of Lunar exploration vehicles to revolutionize unmanned Lunar Exploration. Unlike conventional rovers which traverse terrain using wheels, WeSpace is designing a “Lunar Hopper " that will take off and land and “hop” between different locations. This design has many advantages, according to Yigal Harel, We Space’s CTO. Harel explains that while wheel-based rovers are constrained by the terrain and can only cover relatively small distances in the immediate vicinity of their landing site, a hopper can operate in much more challenging conditions. For example, In a recent discovery by NASA’s Lunar Reconnaissance Orbiter, Lunar lava tubes have a constant temperature of 17 C (63 F), making them perfectly suited for human habitats. Harel says that with conventional rovers it would be simply impossible to explore these tubes. However, with one of their Hoppers, entering and exploring one of these tubes would now be possible.



A Design of WeSpace’s Lunar Hopper (Credit: WeSpace)

WeSpace's team of engineers includes several alumni of the Beresheet lunar lander, and the design of this new Lunar Hopper very much reflects this design heritage. The Hopper is built in a similar configuration to the Beresheet lander, however as Harel explains, their Hopper is built with an eye towards scalability, with the design being able to expand or shrink based on a customer's requirements. This scalability is already being incorporated in the design phase allowing WeSpace to serve the greatest number of customers. On top of this, the Hopper will be able to house a variety of science payloads based on customer specifications such as spectrometers, ground penetrating radar, and more.

A New Lunar Economy

WeSpace has big plans as it pioneers the new domain of "Moon as a Service" product offerings. As Northern Sky Research explains, instead of the traditional models of space exploration, whereby governments or large private companies build everything needed for a particular mission, a new economy is emerging whereby private companies offer different capabilities to customers "as a service." To that end, explains Harel, WeSpace is already in talks with prospective companies to fly their Hopper on some of the earliest upcoming Lunar Missions, to assist in lunar exploration. According to EUROCONSULT, it is forecasted that there will be 140 Moon missions before 2030, creating ample opportunities for WeSpace's Hoppers to be deployed to assist customers in completing mission objectives.

About WeSpace

WeSpace Co-founder and CTO Yigal Harel (Credit: WeSpace)

Having worked on the Beresheet lander at SpaceIL, Co-founders Yifat Feffer and Yigal Harel decided to look to the future of lunar exploration and founded WeSpace Technologies in 2019. An alum of the first cohort of Starburt's Astra accelerator, in partnership with Israel Aerospace Industries, the company's vision is to become a leading enabler of lunar exploration technology. Focusing on creating Autonomously Flying Robotic Systems to aid in exploration and prospecting, WeSpace hopes to unlock invaluable insights into in-situ resources such as water, metals, and minerals. WeSpace is committed to the vision of not only revolutionizing lunar exploration but the exploration of other deep-space planets as well. Their unwavering commitment is to exceed their customers' expectations, particularly in the most challenging and inaccessible regions where their unparalleled capabilities thrive, such as lunar lava tubes and permanently shadowed regions.

Driven by their unwavering commitment to humanity's advancement, WeSpace Technologies strives to carve a prominent path within the burgeoning space economy, harnessing the power of innovation and exploration to unlock boundless opportunities for the betterment of all. They invite supporters to join them, as together they venture into the cosmos, pushing the boundaries of possibility and igniting a new era of discovery.

About the Israel Innovation Award

One of the highlights of the annual Space Tech Summit is the SpaceTech Awards. Each year the Space Tech Summit holds a startup competition that serves as a thrilling showcase of the best and the brightest new companies in the DeepTech and Space industries. Innovative startups from around the world compete to win funding, recognition, and the chance to showcase their technology to industry leaders and investors. This competition serves as a platform for the next generation of deep tech and space entrepreneurs, with the potential to bring new solutions to world challenges. In the most recent 2023 Space Tech Summit, IDDK, a Japanese company won first place for their Micro Imaging Device. WeSpace won second place, along with winning the award for Innovation and Israeli Entrepreneurship in Space. Learn more about the SpaceTech Summit here