

# Smarter thrives in outer space



## SAGA SPACE ARCHITECTS CUSTOMER STORY

SAGA Space Architects is a multi-disciplinary design studio, established by Danish space architects Sebastian Aristotelis and Karl-Johan Sørensen, with a dream of making outer space accessible for everyone.

They design outer-space habitats from a human perspective, believing that mental well-being and social sustainability are integral to supporting life in space. Their ambition is to prepare humans for the day when extra-terrestrial settlement becomes a reality.

“As architects we feel a certain responsibility for the lives of these future settlers, so we take it upon ourselves to fully immerse in the problem.”

### The Challenge: Thriving in Outer Space

SAGA's latest venture, LUNARK, is their most ambitious project to date. SAGA built the first analogue Moon habitat and transported it to the Arctic regions of Greenland, to endure the harsh conditions for three months.

The Arctic is closest to the Moon's environment, completely isolated, with extreme weather conditions, similar light levels, and a monotonous landscape.

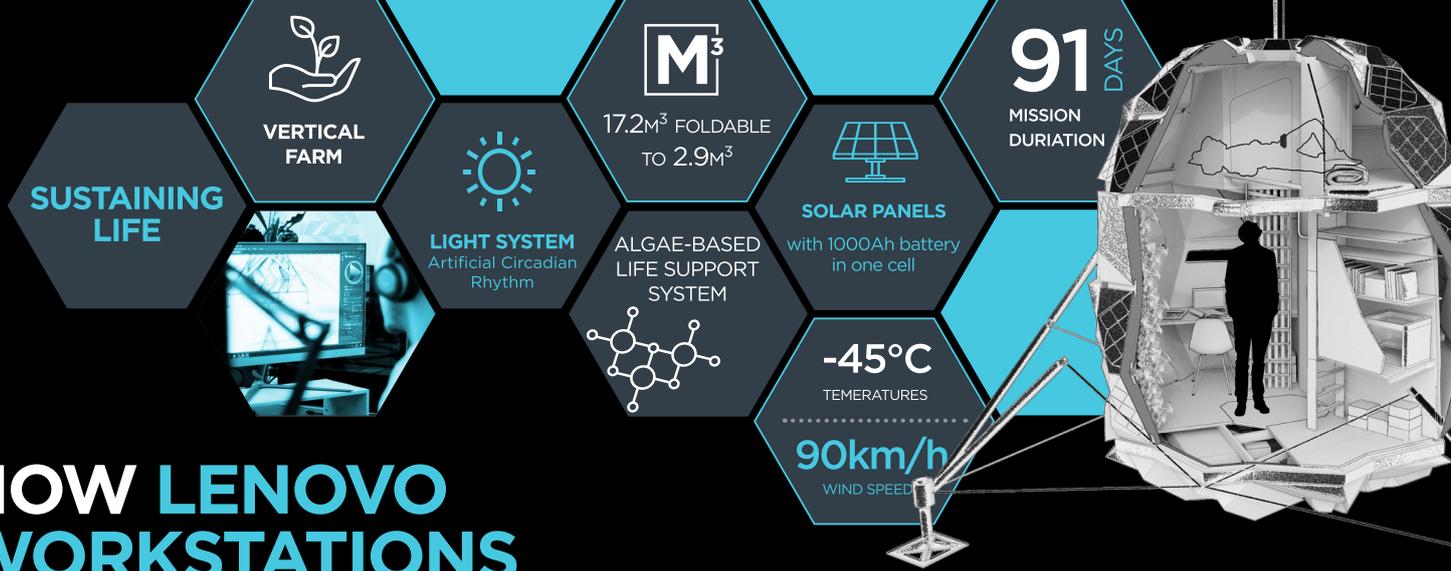
The habitat is a strong, lightweight, foldable structure, making it easy to fit in a rocket for transport to the Moon. Its design includes architectural countermeasures such as an algae-based life support system, dynamic circadian light systems, and a vertical farm, to deal with the psychological challenges and need for variety.



**SAGA**  
Space Architects

Smarter  
technology  
for all

Lenovo



# HOW LENOVO WORKSTATIONS TRANSFORMED THEIR PROCESS

Lenovo™ ThinkStation® and ThinkPad® P Series workstations, with the power of Intel® Xeon™ processors and NVIDIA® Quadro RTX™ graphics, make up SAGA's entire tech, enabling them to innovate in the fastest and most effective way.

## At the Desktop

SAGA needed a powerful workstation behind the scenes at every stage, from visualising the concept to modelling the build. Collaborating with scientists, engineers and polar experts they designed the most advanced, liveable Moon habitat. The P340's clock speeds allowed SAGA to render 3D models of the unfolding origami-style superstructure using CAD software and validation. ThinkVision® displays provided full colour gamut for high-impact imaging. After thousands of hours designing, researching and prototyping, construction started with a static mock-up of the habitat using MDF and 3D-printed ABS joints. The sensor network inside the habitat is monitored by the ThinkCentre® Nano, which can be deployed almost anywhere for ultimate flexibility.

## On the Go

Reliable technology is essential for planning and logistics, transporting the equipment, and during the expedition itself. The P53 enables the team to continue working on 3D modelling and rendering while in the Arctic, testing the architecture, themselves and the technology for future moon missions. The rugged durability of the P53 makes it the essential piece of kit for a mission to the Arctic and beyond into outer space. The ThinkPad P53 powers the SAGA team while on the go, allowing them to convert their ideas into high-impact images and videos for PR use, crucial for generating interest and funding.

“If anyone can build a durable laptop that will stand for this challenge then it's definitely **Lenovo.**” Simon Haan, CTO, Saga Space Architects.



## Specifications

**Processor:** Up to Intel Xeon W-1290P  
**Graphics:** Up to NVIDIA Quadro RTX 5000  
**Memory:** Up to 128GB DDR4  
**Storage:** Up to 12TB



## Specifications

**Processor:** Up to 9th Gen Intel Xeon  
**Graphics:** Up to NVIDIA Quadro RTX 5000  
**Memory:** Up to 128GB DDR4  
**Storage:** Up to 6TB

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