

TMC Technologies and West Virginia University Win NASA SBIR Phase I Award to Advance Autonomous SmallSat Swarms Tech

Partnership combines TMC digital twin technology and WVU research expertise to advance autonomous spacecraft operations for future lunar missions.

PLEASANT VALLEY, WV, UNITED STATES, August 26, 2026 /EINPresswire.com/ -- [TMC Technologies](#) and [West Virginia University](#) (WVU) have been awarded a [NASA Small Business Innovation Research \(SBIR\)](#) Phase I contract to develop advanced autonomous health management capabilities for distributed small spacecraft operating in lunar and cislunar environments.



“

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*Jeff Edgell, TMC Technologies
President and CEO*

The six-month effort combines TMC's expertise in spacecraft digital twins, flight software development, and high-fidelity simulation with WVU's leadership in distributed satellite systems, mathematical optimization, complex networks, and autonomous spacecraft operations.

Together, the organizations will design and evaluate a layered architecture that enables individual spacecraft and satellite swarms to detect known and unknown faults, assess potential mission impacts, share health information across the network, and autonomously reconfigure operations to maintain mission performance.

"This effort is focused on giving distributed spacecraft the ability to understand what is happening, determine how it could affect the mission, and work together to respond," said Dr. Scott Zemerick, Chief Engineer at TMC Technologies. "TMC and WVU bring highly complementary

capabilities to this project. By combining realistic digital twin environments and flight software expertise with advanced optimization and distributed systems research, we can evaluate autonomous operations in realistic mission scenarios long before deployment in space."

High-Stakes Mission Support

"NASA's continued investment in innovative SmallSat technologies is helping shape the future of space exploration, and we are proud to partner with West Virginia University on this important effort," said TMC President and CEO Jeff Edgell.

"Autonomous spacecraft capabilities will be essential for supporting complex, high-stakes missions in lunar and cislunar environments where rapid decision-making and operational resilience are critical. This award reflects the strength of our partnership and our shared commitment to advancing technologies that will help NASA and the broader space community meet the challenges of tomorrow."

Combining Digital Twins and Space Systems Research

Research efforts at WVU will be led by Dr. Hang Woon Lee, Assistant Professor and Herbert P. Dripps Faculty Fellow in the Department of Mechanical, Materials and Aerospace Engineering and Director of the WVU Space Systems Operations Research Laboratory.

Dr. Lee's research integrates operations research, astrodynamics, and space systems engineering to improve the design and operation of distributed satellite systems. His work



Dr. Scott Zemerick, TMC Technologies' Chief Engineer



Jeff Edgell, TMC Technologies President & CEO

includes mathematical optimization, graph theoretic modeling, complex networks, satellite constellation reconfiguration, space traffic management, space domain awareness, and on-orbit servicing.

"Future lunar and cislunar missions will depend on networks of spacecraft that can adapt when individual vehicles or communications links experience degradation," said Lee. "This collaboration allows us to combine WVU's expertise in optimization and distributed satellite operations with TMC's realistic digital twin environment. Together, these capabilities provide a powerful platform for studying how spacecraft can cooperatively protect overall mission success."

Partnering for Success

The award further strengthens the partnership between two West Virginia organizations that are helping shape the future of spacecraft engineering and operations.

"This award highlights the tremendous value of collaboration between industry, academia, and government," said TMC Chief Strategist and Senior Vice President Denise Lindsey. "By combining TMC's expertise in digital twins, spacecraft software, and simulation with WVU's leading research in distributed satellite systems and optimization, we are creating a powerful foundation for future autonomous space operations. We are excited to continue building on our strong relationship with WVU while helping advance technologies that can support the next generation of SmallSat missions."

Representatives from TMC Technologies will be available during the 40th Annual Small Satellite Conference, August 23 through August 26, 2026, at the Salt Palace Convention Center in Salt Lake City, Utah, to discuss the project and demonstrate the company's SmallSat technologies, including FlexSat® and SSDT®.

- Booth 2100 in the main exhibit hall of the Salt Palace Convention Center for a live demonstration of the NASA Operational Simulator for Space Systems (NOS3), its commercial version Small Satellite Digital Twin (SSDT®), and FlexSat®.
- Speak directly with TMC engineers and program staff to learn how these technologies can revolutionize your mission development process.

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