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G2 Ops to Develop AI-Enabled Modeling Prototype with National Leader in Space Supremacy Research and Development

Virginia Beach, VA, USA (07 August 2025) – G2 Ops was recently awarded a Small Business Innovative Research (SBIR) Phase II contract to deliver and operationalize a novel, artificial intelligence-enabled modeling capability with the Air Force Research Laboratory Space Vehicles Directorate (AFRL/RVE).

The AFRL/RVE supports key United States Space Force (USSF) missions, providing space-based capabilities to the warfighter and leading the nation in space supremacy research and development. A proven leader in Model-Based Systems Engineering (MBSE) innovation, G2 Ops aims to deliver a product for the USSF that optimizes the costly and time-consuming process of translating technical documentation into MBSE models.

Monarch.AIM, G2 Ops' proposed solution, is a digital engineering tool that leverages MBSE, space domain-specific Large Language Models (LLMs), and an advanced Artificial Intelligence/Machine Learning (AI/ML)-driven framework that will ingest complex technical documentation to automate the generation of system models. What's more, Monarch.AIM will enable compliance checking against Systems Engineering Assessment Model (SEAM) process requirements, which represent the Air Force's systems engineering standard.

"This is a complex effort that leverages advanced technologies to automate processes and streamline the development of critical models, while maintaining alignment with established standards," stated Matt Platt, G2 Ops Senior Software Engineer and the project's Principal Investigator. "G2 Ops is uniquely positioned to deliver on this initiative thanks to our deep expertise in cutting-edge MBSE methodologies and our proven ability to navigate complex technical challenges."

The precise models created by Monarch.AIM will leverage a domain-specific Space Domain ontology and curated metamodel along with the USSF's established reference model to support AI-driven data exchange and seamlessly integrate with existing simulation tools.

"The integration of AI-enabled modeling into MBSE workflows represents a major step forward in digital engineering maturity. By accelerating the generation of accurate, standards-based system models, we are improving engineering efficiency, supporting faster decision-making, and enabling mission advantage in the contested space domain," said Dr. Corren McCoy, Chief Data Strategist at G2 Ops.

This collaborative effort with the USSF will enable the integration of diverse space platforms in a common digital environment for warfighting simulation to predict and evaluate the space order of battle.

"This initiative will empower engineers to focus on strategic priorities, improve efficiency, and support the development of resilient and interoperable systems, ultimately driving measurable success for the USSF," Platt stated.

To support the integration of Monarch.AIM with established USSF engineering workflows, G2 Ops will also provide the necessary training, documentation, and technical support to operationalize the novel modeling capability.

The project is sponsored by SpaceWERX, a component of the AFRL and the dedicated innovation arm of the USSF. SpaceWERX empowers collaboration between warfighters and innovators across academia and the defense industrial base to accelerate capabilities and shape the future of space. This is G2 Ops' first prime contract supporting the USSF.

G2 Ops leverages over a decade of experience integrating Systems, Cybersecurity, and Software Engineering techniques to provide solutions to a growing list of Government and private customers. We combine cutting edge tools with innovative engineering practices, data analytics, and risk algorithms that enhance visibility into complex infrastructures, optimizing resiliency in system design and operations.

G2 Ops is a woman-owned small business led by an executive staff known for providing innovative solutions to solve our nation's most complex engineering challenges. G2 Ops has been named to the Inc. 5000 list of America's fastest growing companies each of the last 7 years (2018-2024) and has locations in Arlington, VA, Virginia Beach, VA, and San Diego, CA.