

Skunk Works® And Arquimea Develop AI Capable ISR Platforms

PALMDALE, Calif., April 14, 2025 /PRNewswire/ -- Lockheed Martin Skunk Works® (NYSE: LMT), the global technology company's advanced aerospace development division, in collaboration with Arquimea demonstrated an anomaly detection capability for Intelligence, Surveillance, and Reconnaissance (ISR) platforms as they scan a mission area.

This cutting-edge capability reduces the number of scans by a sensor to identify unusual patterns or deviations from expected behavior in data, systems, or processes – specifically in the electro optical and infrared spectra – and dramatically improves the detection of changes in physical features. These approaches have proven valuable for predicting image characteristics that may not be visible from a single viewpoint.

Anomaly detection in electro-optical (EO) and infrared (IR) spectra enhances security, disaster response, environmental monitoring, and safety. It also helps detect hidden threats, wildfires, pollution, and equipment failures. This technology improves awareness, enables early warnings, and supports better decision-making.

"As a global technology leader, Lockheed Martin is collaborating with Spanish industry to drive innovation and transformation, strengthen deterrence, and foster a dynamic ecosystem for dual-use technologies," said Emanuele Serafini, Lockheed Martin's West Europe vice president. "Our work with Arquimea is on a pivotal research and development initiative, driving advancements in artificial intelligence and machine learning, which supports Spain's involvement in the development of these cutting-edge technologies."

In a series of demonstrations, the Skunk Works® and Arquimea team simulated a small uncrewed air system (UAS) flying through a jungle environment, identifying changes to physical features based on episodic memories trained into neural networks.

The system created unique views of the environment, even when the UAS had not previously observed the scene from a given angle. Stored memories are compared to new observations, and changes are analysed using machine learning to detect important irregularities.

This approach allows ISR platforms to do more than just compare images and helps AI systems handle situations they've never encountered before, supporting trustworthy AI. It also applies to autonomous flight and search algorithms.

Building on this progress, in 2025 Skunk Works® and Arquimea will explore how these techniques can improve other sensors and decision-making for autonomous systems.

"Skunk Works is dedicated to enabling crewed-uncrewed teaming to optimize operational flexibility, abbreviate data-to-decision timelines and improve pilot safety," said OJ Sanchez, vice president and general manager, Skunk Works. "We continue to invest in collaborative enablers to keep our customers ahead of emerging threats."

About Lockheed Martin

Lockheed Martin is a global defense technology company driving innovation and advancing scientific discovery. Our all-domain mission solutions and 21st Century Security® vision accelerate the delivery of transformative technologies to ensure those we serve always stay ahead of ready. More information at [Lockheedmartin.com](https://lockheedmartin.com).

About Arquimea

ARQUIMEA is a global technology company driven by innovation. We develop cutting-edge Artificial Intelligence, Quantum, Robotics and Biotechnology solutions and products for high-demand industries such as Aerospace and Defense & Security. Our research and development capabilities are supported by engineering operations in Pasadena, CA, and Spain.

SOURCE Lockheed Martin Aeronautics

<https://news.lockheedmartin.com/2025-04-14-Skunk-Works-R-and-Arquimea-Develop-AI-Capable-ISR-Platforms>