



Revolutionary Imaging Technology Lab

Fly the Mission, then Launch the Payload

AT A GLANCE

What is it?

The Revolutionary Imaging Technology (RIT) Lab enables electro-optical (EO) payloads with on-board image processing to develop, test, and validate algorithms using simulated overhead scenes.

How does it work?

The focal point of the RIT Lab is the 20' x 15' video wall that displays dynamic scenes of overhead imagery at specified orbital parameters. The video wall's nearly daylight-level brightness, high resolution, and low latency refresh rates make it ideal for hardware-in-the-loop testing of imaging payloads.

Other dynamic scene simulation sources are under development.

What will it accomplish?

The changing space economy enables capable small sat imagers with on-board processing to be proliferated at low cost. All sectors of aerospace (military, intelligence, civil, commercial) can leverage this to improve resiliency, reduce latency, and increase coverage.

The RIT Lab will accelerate the maturation of on-board image processing by providing a controlled environment where algorithms can be prototyped and evaluated in a rapid manner. Flying the mission in the lab reduces on-orbit risk and maximizes mission value after launch.

Point of Contact

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Use Cases and Applications

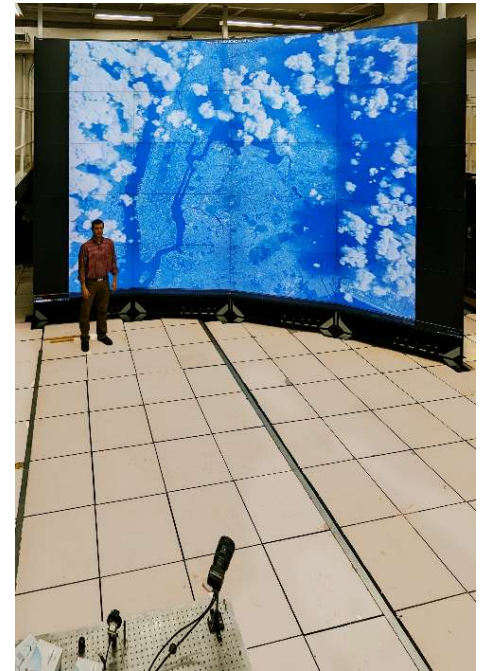
- On-board image processing algorithm exploration
- Algorithm hardware-in-the-loop testing
- Rapid flat-sat prototyping and experimentation
- Camera / focal plane concept development
- Flight hardware functional testing
- On-orbit payload "operational twinning" to develop while you "fly"
- On-orbit scenario re-creation and anomaly resolution
- Government-owned and operated payload verification and validation

Video Wall Capabilities

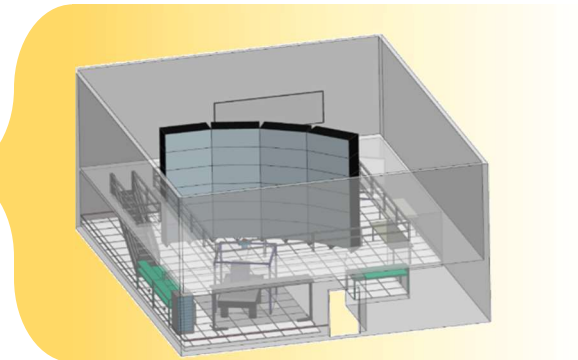
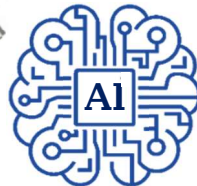
- Dynamic overhead scene generation
- Tailorable to any orbit and resolution
- High resolution designed for large format focal planes
- Near daylight-level brightness
- Low latency refresh rates

EO Payload Test Capabilities

- Optical table with spacecraft bus disturbance sources (solar arrays, wheels, etc)
- Adjacent to full integration and environmental test capabilities (TVAC, vibe, EMI)
- Portable clean tents and hoods available (up to class 100)



Dynamic Overhead Scene Simulation with Payload Under Test



NRL's RIT Lab enables Rapid Development and Test of Imaging Payloads with On-board Processing