

10,000 SQUARE FEET FOR EXPERIMENTATION AND INTEGRATION



The MAPS facility is an integrated laboratory, established in partnership with the Civil Aviation Authority of Singapore (CAAS), designed to facilitate a long-term, collaborative program of research, development, and technology transition to support regional harmonization in aviation and transportation in the Asia Pacific region.

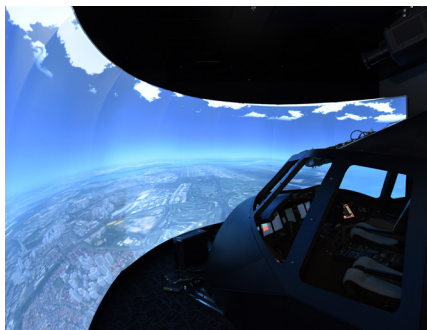
The 10,000-square-foot facility features MITRE-developed real-time and fast-time simulation tools, that comprise a fully connected cockpit simulator, wrap-around tower, area and approach air traffic controller workstations, with advanced traffic-flow management tools. Highly adaptable, each of these components can be reconfigured and integrated with partner facilities for end-to-end integration and consensus building across a diverse set of stakeholders and remote locations.

The lab also offers a collaborative research environment, from human-in-the-loop (HITL) experimentation to immersive simulations with virtual connectivity to the broader transportation stakeholder community.

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MAPS is a Research & Development Center operated by The MITRE Corporation, a U.S.-based applied research and advanced technology organization that serves as a trusted partner, proactively and objectively addressing our sponsors' most pressing challenges.

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Cockpit Simulator Lab

Our large, transport category airplane flight model includes a cockpit environment with customizable avionics equipment and an out-the-

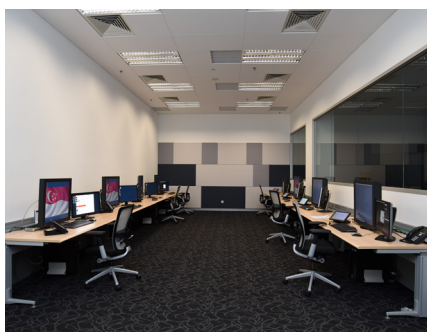
window projection system with a 210-degree field of view. It's suitable for flight deck-based experimentation focused on air traffic procedures, cockpit resource management, and flight deck human factors. It can simulate any existing or future airspace and airport environment.



Tower Simulator Lab

Our air traffic control tower simulator has an out-the-window display system that is fully customizable. The Tower can be used for surface and airborne procedure

investigation and testing of new or existing tower automation capabilities. In-house design allows ultimate flexibility to integrate any system and simulate any environment, present or future.



Controller Scopes

Designed to enable high-fidelity HITL experiments to validate fast time simulations, facilitate acceptance of new air traffic procedures, and collect data for safety

cases that support new concepts and separation standards. The Air Situation Displays, communications interfaces, and overhead information displays can be configured to replicate any ATM automation system and features required for experiments.

MITRE's extensive network of U.S. lab capabilities can be transferred to MAPS to meet sponsor needs

Immersion Lab

Extended/Augmented Reality tools and virtual environments created from 3D scans and models are combined with professional grade goggles and hand/headsets to provide an immersive experience. Individual and group experimentation can be done in any type of environment to inform airport and airspace design, space launch/re-entry, AAM/UAS integration, and human-machine interactions for safety and maintainability.

Learn more: <https://www.mitre.org/sites/default/files/2023-10/PR-23-3531-The-MITRE-Immersion%20Lab-Factsheet.pdf>



Resilient Cyber Aerospace Testbed (RCAT)

The RCAT lab conducts research and development to help secure aircraft electronic systems (avionics) against cyber attack. RCAT provides a collaborative cyber and avionics testbed for innovative system and platform research shared across government agencies, industry, and academia, while expanding expertise and capabilities throughout the entire aerospace ecosystem.

Learn more: <https://www.mitre.org/sites/default/files/2024-12/PR-24-3752-MITRE-Resilient-Cyber-Aerospace-Testbed-factsheet.pdf>



Artificial Intelligence Assurance and Discovery Lab

MITRE's AI Assurance and Discovery Lab mission is to discover and mitigate critical risks in AI-enabled systems that need to operate in increasingly complex, uncertain, and high-stakes environments. The lab features configurable space for risk discovery in simulated environments, AI red teaming, large language model evaluation, human-in-the-loop experimentation, and assurance plan development. The lab's physical space can be tailored and instrumented for specific mission scenarios and workflows.

Learn more: <https://www.mitre.org/focus-areas/artificial-intelligence/ai-assurance>



For more information about our labs, contact
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Through our public-private partnerships and federally funded R&D centers, we work across government and in partnership with industry to tackle challenges to the safety, stability, and well-being of our nation

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