

MODELING SIMULATION & ANALYSIS (MS&A)



MILITARY SYSTEMS EFFECTIVENESS ASSESSMENT USING SIMULATION-BASED R&D

Operations Research / Operations Analysis

- Concept development, evaluation and trade studies at the engagement, mission, and campaign level including analytical wargaming
- Modeling, simulation & analysis for constructive, virtual, and HWIL simulations
- Autonomy Course Of Action (COA) software architecture development

Fundamental Research

- · Autonomy algorithm development
- · Power and thermal energy management

Mission Areas of Expertise

- · Air Combat (OCA/DCA/Strike) and air battle management
- · Air base air defense, ISR, and C2
- Autonomy and cooperative control of UAS
- Complex multi-domain combat operations in contested environments
- Mobility concepts and operational energy
- Integrated aerospace systems, and control theory



Point of Contact

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DCS has a 30-year history conducting MS&A for DoD customers. DoD customers rely on DCS for MS&A support. This 30-year history spans Air Force, Marine Corps, and Navy mission support for operations analysis though foundational research, model creation/development, operationally relevant simulations, and analytical tools to provide critical insights on emerging technologies and threats to the Warfighter to DoD and Intelligence Community decision makers. DCS is uniquely positioned to lead the industry though our interdisciplinary research and development capabilities.

SENSORS, ISR AND INTEL RESEARCH, ANALYSIS AND PRODUCTION

Sensor fusion, exploitation, and analysis

- · AFSIM model and scenario development
- Automatic target recognition
- · Autonomous sensor resource management and combat operations
- Operations analysis and Software development

Cyber physical sensing and cyber security

IoT exploitation

Automated, cloud-based signal exploitation

· Cloud-based system design architecture, MBSE, and data analytics

ISR collection planning and analysis

· Cloud applications and full stack web development

Intelligence Analysis and Production

- Processing, Exploitation, and Dissemination (PED) modernization support
- Intel analysis SME support







SYSTEM-OF-SYSTEMS SYNTHETIC ENVIRONMENT DEVELOPMENT & APPLICATIONS

Multi-Domain Military Systems Modeling

- Representations, interactions & scenarios for air / ground platforms, weapons, sensors, communication links, and cyber / EW
- Space systems (mission sequences, rendezvous operations, PNT, SATCOM)
- Human models (cognitive agents, situational awareness)

Military Systems Simulation

- Scenario development to model complex, contested, and battlespaces
- Interactive simulation and visualization tools (Operator-In-The-Loop, 3D modeling, virtual reality, distributed simulation)

Analysis and Applications

- MS&A adjudicated wargames
- Operations research leveraging constructive analysis
 and data analytics
- · AFSIM user and development training

DevSecOps Software Development

• Production-level agile development processes with integrated information security, continuous integration / continuous delivery (CI/CD), Certificate to Field (CtF), Risk Management Framework (RMF)



MAJOR CUSTOMERS

- USAF/AFMC/AFRL (Sensors, Human Effectiveness, Aerospace Vehicles, Digital Capabilities, Transformational Capability Office Kessel Run / C3BM)
- · US Navy
- Missile Defense Agency
- Air Force Nuclear Weapons Center
- National Ground Intelligence Center (NGIC)
- Naval Information Warfare Center (NIWC)
- Marine Corps Warfighting Laboratory (MCWL)
- DARPA/STO
- USAF/NASIC
- USSF/SSC



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