



## On-Line Interactive Virtual Environment (OLIVE)

Enterprise-grade, real-time, 3-D interactive world for collaboration, training, education, data visualization and more

**SAIC**

**SimInsight**

# OLIVE... Transforming the Virtual Into Real-Life

Distributed global operations, escalating travel costs, emerging threats, competition, and demand for faster, real-time decision-making in a rapidly changing world are driving government organizations, academia, and corporations to find new ways to collaborate, learn, train, operate, and rehearse. Intuitive, interactive, three-dimensional (3-D) environments are the future for providing a fast, effective, and inexpensive means to meet these challenges by enabling distributed users to connect and collaborate just as they would in the real world.

Real-time, 3-D interactive environments are becoming a fully viable communication medium where large numbers of users represent and control themselves as 3-D characters, called avatars, and transparently interface with other participants. Avatars provide users with the ability to communicate and interact, similar to the real world, in a persistent, anytime accessible, networked world. When a fully featured user interface is added to the virtual world (VW), the result is an environment that supports distributed, multi-user collaboration.

## **OLIVE Delivers Leading-Edge Virtual Technology**

SAIC's OLIVE is a powerful software platform that allows organizations to deploy their own secure VWs. Users collaborate over computer networks using a video game-like 3-D user interface that provides access to a variety of functionality and media. OLIVE-based VWs bring together physical presence, action, voice, data, and media in photo-realistic, context-specific, simulated environments with hypothetical or geospecific

terrain. OLIVE computer-generated, 3-D synthetic environments support a variety of collaboration, training, analysis, operations, experimentation, and socialization applications across virtually all industries.

With over 10 years of development behind it, OLIVE is one of the most advanced VW environments available today and the winner of numerous awards, including the 2008 Virtual Worlds Innovation Award for the Enterprise.

The OLIVE software platform provides:

- A vast library of art assets, including samples of most types of objects, room interiors, avatar clothing, and animations for use in any VW effort
- A set of integrated software modules and tools that work together to instantiate highly realistic virtual environments where users interact with one another
- Multimedia sharing, scalable computing, and network-enabled connectivity that allows a complete IT-ready system for developing and supporting multiplayer, interactive VWs
- Architecture and capabilities that are secure and proven – a critical consideration in making long-term investment decisions



Executive Conference and Virtual Presentations

### **OLIVE Supports Enterprisewide VW Implementations**

OLIVE's technology supports VW implementations in defense, homeland security, emergency management, healthcare, energy, transportation, and higher education for U.S. government organizations, Fortune 500® companies, medical institutions, universities, and others.

Today SAIC is providing the OLIVE software platform to support the U.S. Department of Agriculture under its Virtual Government project and assist in the development and hosting of a reliable, private VW solution that is able to operate using firewalled or classified networks and integrate with legacy and emerging technologies in federal government organizations.

# OLIVE Applications for Collaboration, Training, Operations, Medical Education and More



## Collaboration

From in-depth, private, secure conversations; remote team discussions; brainstorming; project management reviews; and leadership presentations to sales meetings; panel discussions; partner forums; and more – whenever and wherever groups of personnel need to simultaneously collaborate and make critical decisions – OLIVE enhances engagement of all participants. OLIVE can reduce travel and other costs, compared with alternative communication technologies, and build teams and networks.

OLIVE's media dashboard supports the simultaneous presentation of a variety of desktop applications onto in-world screens—PowerPoint® slides, streaming videos, white boarding, web-based learning, and more. OLIVE enables remotely located collaborators to view the same rich, multimedia content and make decisions together.



## Training and Learning

OLIVE enables immersive, online, cross-cultural education and training, accelerating learning and the integration of new knowledge and behaviors. Remote users can receive instructor-led, web-based, or Sharable Content Object Reference Model (SCORM®)-compliant training, using a variety of media sharing, and actively participate in 3-D, experiential, learning scenarios.

Independent of scale, solutions built on the OLIVE platform can be integrated with existing learning management systems, 3-D content, data sets, and toolsets to create powerful collaboration and simulation environments. Unlike most interactive 3-D environments, OLIVE provides the ability to integrate real, geospecific terrain – actual city streets, combat zones, and other areas of interest.



### Operational Applications

OLIVE accelerates the distribution and exchange of real-time, critical information to support better, faster decision-making, and command and control for distributed personnel. Using built-in collaboration tools and multimedia sharing, all logged-in participants can see the same applications, data, and images on different screens in the VW, right on their desktops. As operational or emergency situations unfold, critical information can be provided real-time to geographically dispersed collaborators, creating an integrated, shared situational awareness for review, discussion, and decision-making.



### Specialized Applications

OLIVE's open, non-proprietary, service-oriented architecture provides virtually unlimited possibilities for the development of customized, distributed collaboration applications. Developers can build their own solutions and replicate their organization's actual operating environment and processes around the OLIVE platform. They can also create new and innovative use cases, such as market research tools, ground-breaking behavioral therapy techniques, medical team simulation training, emergency management, and more.

# Innovative OLIVE Teammates



## Cognitive Cultural Avatars for Face-To-Face Interaction Training

With its award-winning virtual human technology, Vcom3D, Inc., brings authentic cultural avatars (ACAs) to the OLIVE platform. ACAs are high-fidelity, lifelike, expressive human characters. ACAs display realistic facial expressions, accurate lip-synching, and culturally accurate, gestural behaviors – all of which are informed by an extensive, continuously expanding culture knowledge base.

Vcom3D builds cultural scenarios on the OLIVE platform, compatible with OLIVE's artificial intelligence application programmer's interface, that provide the experience of interacting with foreign nationals. Vcom3D's methodology includes:

- Authentic cultural content based on an expanding cultural knowledge base with continuously updated and current information on a variety of cultures, customs, and a core of subject matter experts
- Virtual cross-cultural immersion with photo-realistic, plug-and-play avatars and learning applications that model the culturally influenced, cognitive and physical behaviors which warfighters must recognize and respond to in face-to-face interactions with non-Western populations

Vcom3D provides innovative tools and processes for rapid development and flexible, on-the-fly customization of content for evolving needs. Vcom3D's plug-and-play cultural avatars and learning applications are delivered on a personal computer (PC) or Mac®, and Apple Inc. or Android® mobile devices. Vcom3D creates and distributes immersive instructional content and operational support aids for our nation's warfighters.

### **Online Behavioral Virtual Therapy Healthcare System**

InWorld Solutions online cognitive behavioral healthcare system uses OLIVE's immersive, 3-D, interactive platform and life-like, human avatars to deliver a new virtual therapy modality of treatment to military personnel and veterans with mild traumatic brain injury, post traumatic stress disorder, and complex psychological health issues. The therapy rapidly engages participants, efficiently overcomes individual emotional barriers to therapy, and accelerates therapeutic progress by providing playback from multiple perspective that supports faster, deeper understanding of behaviors. InWorld Solutions' use of OLIVE delivers improved, integrated behavioral healthcare to personnel at a lower, affordable cost.

InWorld Solutions was the first to develop an online behavioral healthcare application in virtual environments. The InWorld system was selected by the National Intrepid Center of Excellence in Bethesda, Md., to provide clinical behavioral therapies to personnel in the VW.

### **Distributed Medical Team Training and Simulation**

GaMeTT™, developed by MYMIC LLC, creates distributed team training solutions using OLIVE to deliver individual practice and team performance exercises in an immersive, avatar-based virtual environment. Participants log in to GaMeTT from their own office or home to work collectively and collaboratively, optimizing training time and team interaction. GaMeTT utilizes OLIVE's game-based technology to produce realistic, visually engaging scenes, user-friendly interfaces, and intuitive user commands.

MYMIC evaluated GaMeTT in July 2010 during the National Guard annual training and patriot exercises at Volk Field in Wisconsin. The training scenario involved a bomb explosion in Afghanistan and the handling of military and civilian casualties. In the training exercise, Air National Guard medical units, organized under the Emergency Medical System (EMEDS), collaborated using GaMeTT to handle a variety of incoming injured patients and provide them simulated basic medical care. The exercise made extensive use of OLIVE's emergency management and medical content, including physiological models which enhance realistic, medical team training simulations and incorporate a sophisticated patient model that calculates the conditions, behaviors, and responses of patient avatars.

GaMeTT will be expanded to deliver other team training capabilities using OLIVE. Some of these include chemical, biological, radiological, nuclear and high-yield explosives (CBRNE); enhanced response force package; Counterdrug Task Force; EMEDS; Medical Reserve Corps; and health and medical emergency response teams.

# OLIVE Benefits and Features



From inception, OLIVE was developed as an enterprise-grade, 3-D interactive virtual software platform for conducting secure, private discussions, decision-making, training, and operations - not for socializing, shopping, or other activities common to most VW technology today. OLIVE's benefits, features, and design reflect its business purpose and enterprise application today.

## Real-Time, 3-D Interactive Remote Collaboration

OLIVE provides the benefits of leading remote collaboration functionality along with a fully integrated, open simulation platform that enables extension and customization to any organization's specific requirements. OLIVE delivers all of the key components out-of-the-box for standing up a private interactive VW, including:

- Hundreds of customizable avatars with associated animations

- Fully integrated voice over internet protocol (VoIP)-based spatial audio
- A wide variety of pre-developed, industry-specific content
- Built-in application sharing
- Record and playback of key activities conducted in-world of any session, from any point in time or point of view

OLIVE revolutionizes collaboration, meetings, training, rehearsals, and operations by delivering an immersive user experience superior to audio and web conferencing systems, without the cost and need for the specialized and location-based equipment of telepresence solutions. OLIVE-based 3-D interactive environment can deliver high return on investment for commercial enterprises, corporations, government, agencies, academia, and organizations across the world.

## Enterprise IT Ready

### DIACAP Secure

OLIVE is among the few DoD Information Assurance Certification and Accreditation Process (DIACAP)-ready software platforms that is qualifying for certification to deploy and operate on secure government networks such as .mil, other defense and sensitive sites.

### Behind-the-Firewall and Security Support

Unlike most VW platforms, OLIVE runs fully behind or through firewalls, using a single, open port of your choice, configured through OLIVE's network multiplexer feature with an option to run secure socket layer

encryption for increased security. This enables a secure, private environment for critical decision-making, training, and operations.

### **Mid-Range PC and Linux® Platform Requirements**

OLIVE is designed to run on mid-range or better PC technology on the customer side, using a scalable, multiprocessing, service-oriented, computing architecture on the server. Low-cost, commodity PC technology provides broad access for operation and management of large virtual environments.

### **User Authentication**

OLIVE provides a single sign-on for users with integration to authentication systems like Lightweight Directory Access Protocol and accelerates participant access to VW applications.

### **Development Via Software Development Kit (SDK)**

#### **Non-Player Character (NPC) Support**

OLIVE provides the ability to integrate with industry-leading, third party, artificial intelligence packages through an application programmer's interface to support NPCs or other real-time data feeds.

#### **Custom Content**

OLIVE can import an organization's existing 3-D objects from Autodesk® 3ds Max® or static models via COLLABorative Design Activity (COLLADA) from other 3-D modeling tools, enabling an organization's objects and operations to be replicated in the VW.

### **Custom Terrain**

OLIVE's paged terrain format supports very large-area and multi-resolution actual terrain data in a World Geodetic System (WGS-84)-compliant, geospatially referenced format.

### **Scene and Scenario Editors**

Using OLIVE content packs, organizations can mix and match terrain scenes, objects, and loadable "actives" to create reusable, realistic, or imagined settings. Users can configure scenarios with their own role-based positions and preset clothing for repeatable training exercises or practice sessions.

### **Physiology Model**

OLIVE enhances realistic, medical team training simulations with a sophisticated patient physiological model that calculates the conditions, behaviors, and responses of patient avatars.

### **COTS Standards**

OLIVE uses industry standard COTS formats for all content to support importation of customer assets, and accelerate organizations' access to their own customized VWs. This enables customers to quickly port their unique assets into OLIVE without redevelopment.

### **Legacy Link**

OLIVE provides interface through a distributed interactive simulation gateway to enable the easy integration of legacy systems and content.

# OLIVE Features

## Collaboration and Training Functionality

### Rich Media

OLIVE's media dashboard enables remotely located collaborators to view the same rich, multimedia content together. Unlike most other virtual software technology, OLIVE supports the simultaneous presentation of a variety of desktop applications onto in-world screens—PowerPoint slides, streaming videos, white boarding, web-based SCORM content for learning, and more.

### Telephony

OLIVE increases access to its interactive worlds by enabling phone-based attendees without access to a PC to hear and be heard in the VW.

### Presence

OLIVE users are always informed about who is present in-world and their status. Users can see who is talking through the appearance of radio waves over each speaker's head.

### Record and Replay

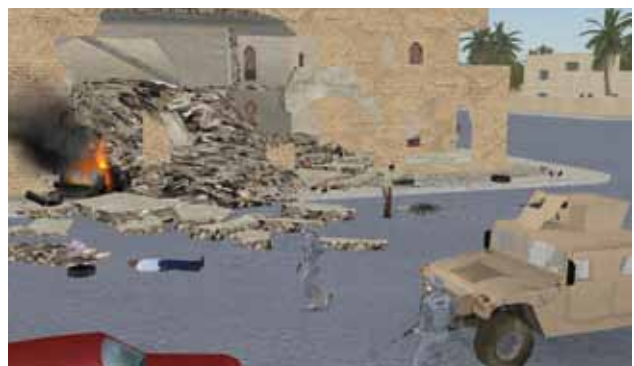
OLIVE allows organizations to conduct replays of completed sessions for debriefing participants or performing after action reviews. Trainees can receive real-time feedback from instructors or subject matter experts.



Emergency Medical Technician Administering Cardiopulmonary Resuscitation at Train Station



Irate Customer Scenario—Part of Complaint Management Training



Improvised Explosive Device Explosion with Fatalities in Afghanistan

## **Engaging, Immersive User Experience**

### **Photo-realistic, Cognitive Culture Avatars**

OLIVE provides avatars with photo-realistic appearances of actual people, including automated gestures and voice-activated lip synch, to deliver an immersive and personalized experience and increase the power and impact of the user experience. OLIVE teammate Vcom3D brings ACAs to the OLIVE platform with realistic facial expressions and culturally accurate, gestural behaviors informed by an extensive culture knowledge base. Users can personalize the in-world appearance of any OLIVE avatar using OLIVE content packs or customized content.

### **High Quality Audio**

OLIVE delivers clear, crisp, and spatially accurate voice communication that supports free-flowing conversation in-world.

### **Industry-Specific Content**

OLIVE provides pre-developed, high-quality 3-D content, including avatar clothing and gear, vehicles, meeting rooms, classrooms, buildings, cities, rural scenes, and more. With OLIVE, users can change or create clothing, equipment, surroundings and more, whenever the need arises, without having to purchase new items as required in other interactive VWs.

### **Integrated Social Networking**

OLIVE links private or public personal profiles to avatars to help build relationships quickly or use links to connect to social networking sites, blogs, wikis, or content repositories.

### **Easy-to-Use, Role-Based User Interface**

OLIVE's design and training tools enable end users to learn OLIVE in minutes, using an intuitive, graphical user interface. Power users, including instructors or moderators, have access to advanced, role-specific controls, and courseware.

# OLIVE Options for Users and Developers

## User Deployment Offerings

OLIVE provides seven user deployment offerings, including a perpetual license, maintenance and annual hosted services for organizations that are ready to provide 3-D interactive world services or user applications. The user offerings provide an affordable, cost-effective path to scale concurrent user growth and the confidence of indefinite license ownership.

The hosting service enables a low-cost, low-risk approach to using OLIVE VW applications without the purchase of a license, server hardware and software, and ongoing data center maintenance. Organizations can choose either hosting of their unique application on SAIC's secure OLIVE cloud facilities or OLIVE's out-of-the-box VW applications.

## Content Packs

OLIVE's expanding industry and governmental application content packs currently support a variety of VW implementations, including organizational collaboration and meetings; government and defense operations, and exercise training; first responder and public sector; healthcare, medical, and life sciences operations; energy management; and transportation logistics.

## Developer Offerings

OLIVE's three developer offerings provide organizations with access to the extensive OLIVE SDK and bundled support and training to develop specific applications and run pilots using VW technology. The offerings include perpetual license and maintenance service.



Field Emergency Room



Flight Line/Ramp Operations



Cultural Training for Combat



Check Point Operations Training



Aerial View of Washington, DC



First Responder Training

### **OLIVE Functionality Modules**

SAIC offers six optional OLIVE functionality modules that can enhance telephony, the photorealism and physiology of life-like human avatars, and interaction with legacy systems.

### **Training**

OLIVE also offers seven different training classes and programs, from beginner and advanced users to administrators and developers.

# Comprehensive Support



## Support for Development and Deployment of VW Applications

SAIC provides professional services to support development, deployment, and hosting of VW solutions. Our experienced team of engineers, 3-D artists, operations personnel, and OLIVE teammates, deliver a wealth of specialized expertise. We can help optimize content and develop it cost-effectively to reduce time to market and lower risk through our support, training programs, and knowledge transfer.

SAIC also provides comprehensive training and courseware for organizations that want to develop and host their own virtual environments using the OLIVE platform.

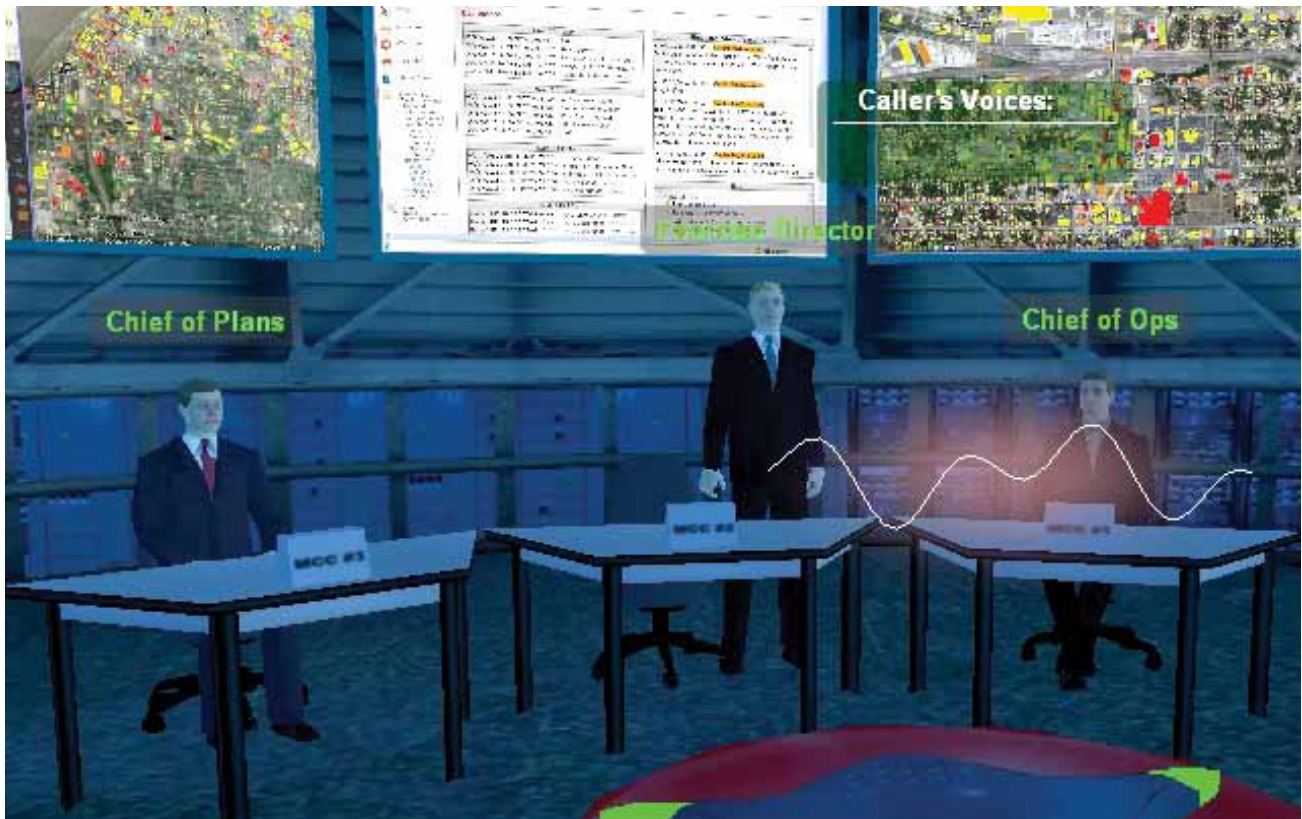
Contact SAIC to learn how OLIVE VWs technology can improve your results, reduce costs, and increase individual performance. Request an OLIVE demo, obtain pricing, and discuss the use of our 3-D interactive world for your organization today at [oliveinfo@saic.com](mailto:oliveinfo@saic.com)



Cultural Awareness Training



Tactical Training



Emergency Preparedness Exercise

## About SAIC

SAIC is a FORTUNE 500® scientific, engineering, and technology applications company that uses its deep domain knowledge to solve problems of vital importance to the nation and the world, in national security, energy & environment, health and cybersecurity. The company's approximately 41,000 employees serve customers in the U.S. Department of Defense, the intelligence community, the U.S. Department of Homeland Security, other U.S. Government civil agencies and selected commercial markets. Headquartered in McLean, Va., SAIC had annual revenues of approximately \$11 billion for its fiscal year ended January 31, 2011.

## For More Information

**Lisa M. Coe**, Director, Virtual Solutions Sales

12901 Science Drive

Orlando, FL 32826

office: 407.243.2924 | mobile: 321.507.8422

email: [lisa.m.henderson@saic.com](mailto:lisa.m.henderson@saic.com)

[saic.com/olive](http://saic.com/olive) | [oliveinfo@saic.com](mailto:oliveinfo@saic.com)

Visit us online at [saic.com](http://saic.com)



NATIONAL SECURITY • ENERGY & ENVIRONMENT • HEALTH • CYBERSECURITY