

OLIVE

Behavioral Therapy for Troubled Kids Through Virtual Worlds

Greenleaf Medical and InWorld Solutions



“The potential demand for these kinds of programs is enormous. Every single school, group home, residential program, children’s psych unit, and juvenile prison facility in America is looking for — and already has a budget for — clinical materials that will reach out and grab their kids and engage them in treatment — and do it without boring them to death!”

Les Paschall, CEO, CFG Health Systems

Executive Summary

Greenleaf Medical, based in Palo Alto, Ca., is a medical product development company and consulting group that creates medical devices and software, and is a leader in the application of traditional virtual reality (VR) to tele-rehabilitation and the challenges of behavioral healthcare. Led by Dr. Walter Greenleaf, a research scientist focused on developing next-generation systems for neurorehabilitation and behavioral medicine, the company and InWorld Solutions are using Science Applications International Corporation’s (SAIC) On-Line Interactive Virtual Environment (OLIVE) to provide a powerful new medium of virtual environments where clinicians, patients, therapists, and families can meet, work together, and be an integrated part of an entire behavioral therapy care process and successful rehabilitation.

The Challenge: Changing the Course of Troubled Teens' Lives

Teens with behavioral, severe learning and psychiatric disorders, such as attention deficit disorder, oppositional defiant disorder, and the effects of psychological trauma, face numerous challenges in building productive lives. Greenleaf Medical and InWorld Solutions, cofounded by Dr. Greenleaf, created a new clinical virtual modality of treatment to positively change troubled teens' social behavior, break bad habits, and establish supportive relationships key to successful living. They also sought to eliminate the steep costs of long-term attendant care.

SAIC's powerful OLIVE software platform provides a dynamic, immersive and virtual environment, and persistent – always-on – meeting place in which the therapist, a peer group, and family members can work together, at the same time over the Internet with complete privacy, and learn transition and new life skills. OLIVE supports virtual world simulation-based behavioral therapy with realistic, life-like avatars and provides customized environments that are as familiar and as engaging as the popular video games and the on-line social networks, so much a part of the lives of young people. And once built in-world, the patient's home, school, office, and other surroundings are continuously available for meetings, discussions, and interaction over the Internet without requiring participants to be in the same location.

Target Audience

Troubled teens and young people who lack social support networks, and have strained family relationships, poor academic performance, substance abuse, low self-esteem, loss of hope, or even a history of incarceration.

The Solution

Using SAIC's OLIVE three-dimensional (3-D) software platform, Greenleaf and InWorld Solutions developed a computer-based approach for treating teen behavioral disorders using a multiplayer immersive environment called SECTER — the Simulated Environment for Counseling, Training, Evaluation, and Rehabilitation.

SECTER is intended to magnify and leverage the skills and experience of clinicians, not replace them. Through the use of computer-generated virtual environments, children and adolescents can be treated for a wide range of behavioral disorders.

Child and adolescent mental health therapy, conducted through the OLIVE medium, uses realistic 3-D avatars that mimic natural human interaction, and create a powerful, immersive virtual environment. SECTER facilitates interactive role-play, practice of interpersonal skills, exploration of past behavior, and drug and alcohol refusal skills. In addition to real-time capabilities for clinicians to interact with their client, SECTER uses OLIVE's fully automated 3-D playback tools including the ability to see events through the eyes of other participants. This built-in OLIVE feature supports the examination of sessions from multiple perspectives and enables discussion and exploration with patients that can lead to a faster and deeper understanding of the antecedents to patient problem behaviors.

Greenleaf Medical has partnered with CFG Health Systems, a New Jersey-based organization committed to treatment of mentally ill children, to develop new techniques and technologies for therapists

and clients that leverage the private, secure OLIVE virtual platform as a new modality to enhance their existing products and services. The Greenleaf-CFG partnership is focused on using this new technology as a way to bring better, integrated behavioral healthcare to customers at a lower, more affordable cost.

The Result

Greenleaf Medical and CFG Health Systems are developing new therapeutic products for mental health treatment with OLIVE's 3-D virtual world at the core. The first phase of research and development focused on treating boys with oppositional defiant disorder in a residential treatment facility in New Jersey. The scope is expanding to include coed residential programs and treating a broad range of psychiatric disorders with a focus on trauma.

While this interactive virtual worlds project for behavioral healthcare is ongoing, positive trends appear to be emerging with the use of OLIVE. These trends include improved data collection, relationships between counselors and the teens, and patient communication about their inner lives. While this work is in its early stages, it is clear that the session playback can be quite valuable.





“Once the boys are pulled into the ‘computer world, they become disarmed very quickly and respond to the various scenarios more naturally and authentically. Afterwards, I use playback as a basis for discussion in traditional individual therapy sessions.”

Hollis Evans, MSW, LSW

OLIVE Play-back Features Accelerate Therapy

OLIVE’s playback functionality reduces the cognitive and communicative load of session review so that the staff and patients no longer have to rely on a joint memory of events and interaction. Playback gives the students the opportunity and time to review their sessions in VR which supports the process of refining strategies that patients are expected to use in the real world. And playback helps reduce the anxiety that can exist around employing new skills beyond the therapeutic setting. The capabilities of the OLIVE virtual worlds platform suggest that adding VR to traditional in-person drug and alcohol educational programs may lead to faster and more complete integration of the teaching of life skills.

About OLIVE

OLIVE is a leader in providing enterprise-grade, private, virtual world (VW) environments that enable organizations to deploy their own secure VWs. Users collaborate over computer networks using OLIVE’s 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 realistic, context-specific, simulated environments with hypothetical or geospecific terrain.

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. OLIVE computer-generated, 3-D environments support a variety of collaboration, training, analysis, operations, experimentation, and socialization applications across virtually all industries, from healthcare and medicine, defense, homeland security, and emergency management, to energy, transportation, and higher education for U.S. government organizations, Fortune 500® companies, medical institutions, universities, and others.

OLIVE is part of SAIC’s simulation systems product line — The SimInsight™ Platform. OLIVE provides a branded platform to SAIC’s live, virtual, and constructive and convergence simulation portfolio, and enhances the company’s offerings to an expanding simulation marketplace.

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 and the environment, critical infrastructure, and health. The company's approximately 43,000 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 \$10.8 billion for its fiscal year ended January 31, 2010.

For More Information

Lisa Henderson, SAIC Director of Virtual Solutions

12901 Science Drive

Orlando, FL 32826

office: 407.243.2924 | mobile: 321.507.8422

email: lisa.m.henderson@saic.com

saic.com/olive | oliveinfo@saic.com

Visit us online at saic.com

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