

Guest Editorial

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THIS IS THE SECOND ISSUE OF *CyberPsychology and Behavior* containing selected papers from the 1st Annual CyberTherapy: Advanced Technologies in the Behavioral, Social and Neurosciences Conference. The CyberTherapy conference evolved from the Advanced Technologies in Mental Health/Rehabilitation symposium that was held as part of the Medicine Meets Virtual Reality (MMVR) Conference for the past 6 years. This year's conference hosted attendees from all over the world, allowing international scientists to discuss and exchange ideas. The papers in these two issues represent just a portion of the amazing discoveries and research presented in January.

The first paper in this issue, by Alcañiz et al., concerns an Internet-based telehealth system for the treatment of agoraphobia. In the article, the authors present a complimentary treatment for agoraphobia that allows the patient to continue therapy from their own home. With progress controlled by a psychologist, the patient moves through levels in the virtual environment that can be accessed from a home PC. Information about the patient's experiences is stored in a database for the therapist to consult. This new system, as a supplement to in-office therapy, may increase the effectiveness of virtual reality (VR) therapy.

Next, Graham et al. discuss the development of a platform for conducting VR experiments in conjunction with functional magnetic imaging (fMRI). This allows researchers to examine how the brain functions during behavioral tasks in VR. Examples are presented involving human spatial navigation and data glove operation that illustrate the technical feasibility of the approach. Future research directions for combined use of VR and fMRI are also discussed.

In her article, Elena Libin introduces robotic psychology and robototherapy as a new research area. She examines the mechanisms underlying different

forms of computer-mediated behavior. In the article she discusses the concept, basic principles, structure, and contents of the newly designed Person-Robot Complex Interactive Scale (PRCIS), developed for the purpose of investigating psychological specifics and therapeutic potentials of multilevel person-robot interactions.

The next article, by Castelnovo et al., illustrates how computer-mediated communication (CMC) is revealing new tools that can be utilized in psychological treatment. The paper focuses on how e-therapy as a new modality can aid in the treatment of different psychological disorders. One highlight of e-therapy includes the convenience of the Internet and its ability to allow synchronous and asynchronous communication between patient and therapist.

Following this, Lee et al. put forward a study aiming at successful rehabilitation in activities of daily living. VR offers the potential to develop a human performance testing and training environment. Aiming to create an environment that relates to everyday life, the study involved a virtual supermarket that was developed in order to assess and train cognitive ability in these activities. Results presented reveal that VR does offer great promise in this field.

In addition, in their article, Mantovani et al. emphasize the importance of continuing education for medical professionals. By providing engaging, interactive stimuli, it is thought that the hands-on approach of VR is a potentially effective tool for this purpose. The paper examines the rationale for the use of VR in health-care education and training. The authors review significant research in this field and discuss future directions.

Subsequently, Ku et al. relate information concerning VR for the treatment of schizophrenia. Patients with schizophrenia have difficulty integrating visual, auditory, and tactile stimuli. The

authors present a study that suggests a VR system for the assessment of cognitive ability of schizophrenia patients in a multi-modal manner. The VR system can provide multimodal stimuli, enabling the therapist to evaluate the patient's abilities of multimodal integration and working memory. Results indicate that the VR system is comparable to traditional paper and pencil diagnostic tests, yet also provides some information related to the patients' behavior in a three-dimensional virtual environment.

Schifano et al. review the Psychonaut 2002 project, which is aimed to create a new and updated Web-based tool to examine the growing information about drugs available on the web. The goal of the project is to provide professionals from the drug addiction field with a means to access reliable, useful information. The preliminary results of the web search confirm that it is possible both to identify emerging trends in drug information dissemination and to provide information for prevention and appropriate intervention.

Roy et al. present a VR protocol used to treat social phobia. Graded exposure to feared social situations is fundamental to obtain an improvement of the anxious symptoms in this disorder. The paper reports a clinical protocol whose purpose is to assess the efficiency of VR therapy compared to Cognitive Behavioral Therapy or no treatment. The virtual environments used in the treatment reproduce four situations in which social phobics feel the most threatened: performance, intimacy, scrutiny, and assertiveness. Results of the clinical trial in a between-group design with 10 patients suffering from social phobia revealed that, with the help of the therapist, the patient learns adapted cognitions and behaviors with the aim of reducing her or his anxiety in the corresponding real situations.

Next, Morganti et al. describe the rationale and a preliminary rehabilitation protocol for investigating mental imagery as a means of promoting motor recovery in patients with a neurological disorder. The treatment strategy aims to produce strong imaginative responses using a technique that does not attempt to simulate the real-world motor behavior, but rather draws the patient's attention to its underlying dynamic structure. This is done by displaying highly stylized sketches of the motor behavior on a computer screen and gradually increasing the perceptual realism of the visualization. This strategy assumes that optimal learning is achieved when the patient is allowed to elaborate their own schema and sequences of movements, thereby con-

structing a personal image of the motor behavior to be trained.

Following this, Viirre examines a case study involving vertigo induced by a VR system. As a researcher was working with a desktop virtual environment, the system was displaying vector fields of a cyclonic weather system and incorporated a haptic display of the forces in the cyclonic field. Following a period of 10 minutes using the system, the user stopped and immediately experienced a sensation of postural instability for several minutes. Several hours later there was the onset of vertigo with head turns that lasted for several hours and was accompanied with nausea and motion illusions. Symptoms persisted mildly the next day and were still present the third and fourth day, but by then were only provoked by head movements. No other users of this system have reported similar symptoms. This case suggests that some individuals may be susceptible to the interaction of displays with motion and movement forces and as a result experience motion illusions.

In his article, Dr. Riva discusses the rationale behind the VEPSY UPDATED Project, which uses VR to treat several psychological disorders. The goal of the project is to develop PC-based VR modules to be used in clinical assessment and treatment of social phobia, panic disorders, male sexual disorders, obesity, and eating disorders. Riva's paper describes the clinical and technical rationale behind the clinical applications developed by the project and focuses its analysis on the possible role of VR in clinical psychology.

Finally, a paper by Brenda and Mark Wiederhold provides a 3-year post-treatment follow-up on a study that used VR to treat fear of flying. Of the participants in the VRGET with physiological monitoring and feedback who had flown successfully by the end of treatment, all had maintained their ability to fly at follow-up. Of the participants in the VRGET without physiological monitoring and feedback group who had flown successfully by the end of treatment, two were no longer able to fly. The one participant in the imaginal group who had flown successfully was also still able to fly. Results suggest that the addition of teaching self-control via visual feedback of physiological signals may serve to maintain treatment gains in long-term follow-up.

The 2nd Annual CyberTherapy 2004 Conference: Using Interactive Media in Training and Therapeutic Interventions has been set for January 2004. Friday, January 9th, consists of pre-conference workshops, and the conference will be held Satur-

day, January 10th, through Monday, January 12th, in San Diego, California. Please visit www.vrphobia.com/imi for further information and registration details. Abstract submission deadline is August 1st. Abstracts may be sent via e-mail to cyberpsych@vrphobia.com using guidelines on the vrphobia.com website.

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