

In This Issue

20th Annual CyberPsychology,

CyberTherapy & Social Networking

Conference Abstracts

June 2015,

La Jolla, California

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Letter from the Secretary General and Editor-in-Chief

Professor Dr. Brenda K. Wiederhold

Welcome to the 20th Annual CyberPsychology, CyberTherapy & Social Networking Conference!

I am pleased to welcome you to the 20th Anniversary of the CyberPsychology, CyberTherapy & Social Networking Conference (CYPSY20). Jointly organized by the Interactive Media Institute, in collaboration with the Virtual Reality Medical Institute and International Association of CyberPsychology, Training, & Rehabilitation (iACToR), the conference is an international networking and sharing platform for researchers, clinicians, policymakers and funding agents to share and discuss advancements in the growing disciplines of CyberTherapy & by this year's Conference Coordinator, Julie Lebrun, with special assistance by William Zhu, Min Lin, Emily LaFond and Clemence Braissand, I would like to extend my gratitude for contributing their time and resources.

Of course the conference would not have been possible if not for the generosity from our sponsors and supporters who continue to believe in our mission. My sincere thanks to the eHealth Week Riga 2015, European Coordination Committee of the Radiological, Electromedical, and Healthcare IT Industry (COCIR), European

"CYPSY20 was honored to host participants from 16 countries interested and dedicated to enhancing public awareness of how technology can overcome obstacles and increase access to top quality healthcare for all citizens."

CyberPsychology as well as explore how a variety of health technologies are changing individual behavior, societal relationships, and interpersonal interactions. CYPSY20 is honored to host participants from 16 countries interested and dedicated to enhancing public awareness of how technology can overcome obstacles and increase access to top quality healthcare for all citizens. We hope to truly "Transform Health and Well-Being".

I would like to extend a special "thank you" for all those who made the conference possible. First and foremost I would like to thank my Conference Co-Chairs, Professors Giuseppe Riva and Mark D. Wiederhold, for all of their hard work and dedication in making CYPSY20 a success. My many thanks to our Scientific Committee Chairs, Professors Willem-Paul Brinkman, Jose Gutierrez-Maldonado, and Stéphane Bouchard as well as the members of this year's Scientific Committee. This year's scientific program is bound to be outstanding thanks to their immeasurable commitment. Our Website Chair, Professor Pedro Gamito, and his team once again helped bring our mission and work to the foreground this year. And, finally, to the Interactive Media Institute, Virtual Reality Medical Center and Virtual Reality Medical Institute's teams, led Commission, Hanyang University Institute of Aging Society, International Association of CyberPsychology, Training, and Rehabilitation, Interactive Media Institute, International Society for Telemedicine and eHealth, Istituto Auxologico Italiano, Mary Ann Liebert Inc., National Institute of Health, PocketLab.io, Springer, Université du Québec en Outaouais, Virtual Reality Medical Institute, Virtual Reality Medical Center, and WorldViz.

Looking forward, CYPSY21, will be held in June 2016 at Dun Laoghaire Institute of Art, Design & Technology, in Co. Dublin, Ireland. As a scientific community we have achieved so much in these past 20 years; thank you for helping us celebrate by attending! I sincerely hope that you find this year's conference an interesting and intellectually stimulating event, and I look forward to your active participation in the coming years. Together we will play a part in transforming healthcare through technology!

Prof. Brenda K. Wiederhold, Ph.D., MBA, BCB, BCN Chief Executive Officer, Interactive Media Institute President, Virtual Reality Medical Institute



Letter from the Conference Co-Chair

Prof. Giuseppe Riva, Ph.D., M.S., M.A.

Welcome to the 20th Annual CyberPsychology,CyberTherapy & Social Networking Conference!

The Dawn of Virtual Reality in Health Care: Medical Simulation and Experiential Interface

The promise of virtual reality in health care has always been enormous. The first health care applications of VR started in the early 1990s by the need of medical staff to visualize complex medical data, particularly during surgery and for surgery planning. Actually, surgery-related applications of VR fall mainly into three classes: surgery training, surgery planning and augmented reality for surgery sessions in open surgery, endoscopy, and radiosurgery. A couple of years later, the scope of VR applications in medicine has broadened to include neuropsychological assessment and rehabilitation with applications ranging from the treatment of anxiety disorders, post-traumatic stress disorders, eating disorders and obesity.

The '90s and '00s saw great hopes that virtual reality was poised to sweep health care and change everything. But it didn't. Though researchers could immerse themselves in more complex virtual environments, the chasm between that digital experience and the complexity of real life – using a VR system in a hospital without a dedicated technician was a real challenge – was just too great. Now, the situation is changing quickly. The rise of Oculus Rift (https://www.oculus.com/en-us/), after a successful Kickstarter campaign in 2012 followed by its \$2 billion purchase two years later, is a clear sign of renewal. Moreover, the shift of virtual reality from PC to mobile phones, thanks to both the Oculus designed Gear VR headsets for Samsung phones and the Google Cardboard project (https://www.google.com/get/cardboard/), are going to transform health care tools and experiences.

For physicians and surgeons, the ultimate goal of VR is the presentation of virtual objects to all of the human senses in a way identical to their natural counterpart. As noted by Professor Richard Satava, as more and more of the medical technologies become information-based, it will be possible to represent a patient with higher fidelity to a point that the image may become a surrogate for the patient – the medical avatar. In this sense, an effective VR system should offer realistic body parts or avatars that interact with external devices such as surgical instruments as near as possible to their real models.

However, there is another way of using VR in health care. Clinical psychologists and rehabilitation specialists use VR to provide a new human-computer interaction paradigm in which users are no longer simply external observers of images on a computer screen, but active participants within a computer-generated three-dimensional virtual world. Within the virtual experience, the patient has the possibility of learning to manage a problematic situation related to his/her disturbance. The key characteristics of virtual environments for these professionals are both the high level of control of the interaction with the tool without the constraints usually found in computer systems, and the enriched experience provided to the patient.

For both sides, a critical advantage is that virtual environments are highly flexible and programmable. They enable the therapist to present a wide variety of controlled stimuli, and to measure and monitor a wide variety of responses made by the user. This flexibility can also be used to provide systematic experiential training that optimizes the degree of transfer of training or generalization of learning to the person's real world environment. If these experiences will be provided through our own mobile phones, the dawn of virtual reality will finally rise.

Prof. Giuseppe Riva, Ph.D. President, International Association of CyberPsychology, Training & Rehabilitation (iACToR) Istituto Auxologico Italiano, Italy

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CYPSY20 SPONSORS

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Highlights of the 20th Annual CyberPsychology, CyberTherapy & Social Networking Conference

By Pietro Cipresso

The 20th Annual CyberPsychology, CyberTherapy & Social Networking Conference (CYPSY20), the official conference of the International Association of CyberPsychology, Training & Rehabilitation (iACToR), was held in La Jolla, CA from June 29th to July 2nd, 2015. Organized by the Interactive Media Institute and the Virtual Reality Medical Institute the conference hosted prominent academic, government, and industrial participants from Europe, North America, South America, the Middle East and Asia. The wide variety of representatives from 16 countries served as Scientific Chairs and on the Scientific Committee, bringing an impressive range of expertise to the foreground. iACToR's Professor Brenda K. Wiederhold, Prof. Giuseppe Riva and Dr. Mark D. Wiederhold, served as Conference Chairs. CYPSY20's Scientiic Committee was led by Professors Stéphane Bouchard, Willem-Paul Brinkman and José Gutiérrez-Maldonado. Additionally Professor Pedro Gamito acted as Website Chair.

Preconference workshops explored the applications for biofeedback and Heart Rate Variability to enhance therapeutic and research outcomes examining theoretical and practical applications of dealing with stress and anxiety drawing on pilot data, case studies, and preliminary findings. The workshops, coordinated by Professor Stephen Theiler with Alexandra Alipan and Louise La Sala, proved successful and allowed participants to exchange ideas and research objectives in an exciting and relevant manner. As well, a full-day Clinician Training Program was offered for CE credit by Dr. Dennis Wood. The program used a hands-on approach to teach participants how to use VR and biofeedback to help those with Posttraumatic Stress Disorder (PTSD).

CYPSY20 officially began following the welcome remarks by the Conference Co-Chairs and with two interesting symposium for the first morning. Louise La Sala chaired the social networking symposium and Professor Jose Gutierrez-Maldonado chaired the early innovators symposium. In the afternoon, Dr. Pietro Cipresso chaired the new methods and instruments symposium, followed by the PTSD symposium chaired by Dr. Dennis Wood. The first day speeches concluded with the Keynote address on Transformations of Self in Virtual Reality by Professor Jeremy Bailenson, from Stanford University.

Following the engaging presentations developers and scientists had the ability to demonstrate their work and converse with interested spectators and colleagues at a poster session and Cyberarium. The Cyberarium gave researchers the opportunity to experience their colleagues' work first hand and to generate valuable feedback.

On Day 2 of the Scientific Conference, Professor Homero Rivas from Stanford University delivered his Keynote Address about scaling healthcare delivery through digital health. After Professor Rivas rousing address, another session of oral presentations began, starting with the stress and anxiety symposium chaired by Professor Brenda K Wiederhold, followed by another clinical applications symposium chaired by Professor Andrea Gaggioli. The second morning concluded with the Award Ceremony. Prof. Jang-Han Lee from Chung-Ang University, Seoul, South Korea, won the 11th Annual CyberTherapy Lifetime Achievement Award and Dr. Silvia Serino received the Clinical Cyberpsychology New Investigator Award. The Young Minds Research Awards for best Student Poster was presented to Mooah Lee. The afternoon of day 2 started with the Social networking and cyberbullying session chaired by Professor Stephen Theiler, followed by the invited address of Dr. Dave Warner, who delighted the audience with his 20-year Retrospective on VR.

The last day of the Scientific Conference began with the invited address from Professor Giuseppe Riva who also chaired the eating disorders and obesity symposium. Following Professor Willem-Paul Brinkman chaired the early innovators symposium. In the afternoon, Professor Stephane Bouchard gave an invited address and chaired the presence symposium.

Funding Opportunities were then given by Dr. Erik Viirre, Medical and Technical Director of the Qualcomm Tricorder XPRIZE and the Nokia Sensing XCHALLENGE. Finally, an invited address was given by Professor Mark D Wiederhold, who also chaired the pain symposium.

The Scientific Conference concluded with the Wrap-up and CYPSY21 Update to be held 27-29 June 2016 in Dublin, Ireland, jointly organised by the Interactive Media Institute in collaboration with Dun Laoghaire Institute of Art, Design & Technology (IADT), the Virtual Reality Medical Institute and the International Association of CyberPsychology, Training, & Rehabilitation (iACToR).

> Pietro Cipresso, Ph.D. Senior Researcher Istituto Auxologico Italiano p.cipresso@auxologico.it

Highlights of the 20th Annual CyberPsychology, CyberTherapy & Social Networking Conference



Prof. Jang-Han Lee (Chung-Ang University, Seoul, South Korea) won the 11th CyberTherapy Lifetime Achievement Award



20 years of CyberTherapy



Participants during a networking break



Scientific chairs



Mooah Lee won the Young Minds Reasearch Award for the best Student Poster



Silvia Serino received the Clinical Cyberpsychology New Investigator Award

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Cybertherapy – the provision of healthcare services using advanced technologies – can help improve the lives of many of us, both patients and health professionals, while tackling the challenges to healthcare systems.

Virtual Healers

Brenda K. Wiederhold, Ph.D., MBA, BCIA

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Virtual Reality in the Mental Health arena is barely over a decade old. Because VR is still such a young and focused field, the members of its community have come together as a tight-knit family. In Virtual Healers, Dr. Brenda K. Wiederhold, herself a pioneer of VR, sits down in casual one-on-one interviews with more than a dozen of the top researchers of this select group.



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Virtual Healing

Brenda K. Wiederhold, Ph.D., MBA, BCIA

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Along with aliens and time travel, virtual reality (VR) is often thought of as a science fiction dream. Though it was developed nearly five decades ago, the use of VR in the private sector, particularly in the field of patient care, has become a possibility only in the past decade. As programmers are creating more detailed and interactive environments, the rapid advancement of technology combined with decreasing costs has turned VR into a promising alternative to traditional therapies.

> Virtual Reality Resources By Brenda K. Wiederhold, PhD, MBA, BCIA

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VIRTURL BERLITY RESOURCES

We, at the Interactive Media Institute, realized early on that it was relatively difficult for professionals wanting to break into the Virtual Reality (VR) field to locate relevant information. While the material was out there, there was no clear organizational structure or database to link it. To solve this problem, we have put together Virtual Reality Resources, a relevant compilation for researchers and clinicians alike.



CyberTherapy Conference Archives 1996-2005 A Collection of all abstracts from the past 10 years of CyberTherapy By Brenda K. Wiederhold, PhD, MBA, BCIA

\$ 29.95

A decade ago, CyberTherapy, then still in its infancy, only existed as a specialized Virtual Reality and Behavioral Healthcare Symposium at the Medicine Meets Virtual Reality (MMVR) Conference. It is now clear that in 1996, we had only begun to realize what promise might lie ahead for both VR technology and the CyberTherapy Conference.

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ABSTRACTS

Abstracts: 20th Annual CyberPsychology, CyberTherapy & Social Networking Conference

Oral Presentations Social Networking Symposium

Using a Facebook Group as an Adjunct to a Pilot mHealth Physical Activity Intervention: A Mixed Methods Approach

Megan A. PUMPERA^{a,1}, Jason A. MENDOZA^{a,b}, Alina ARSENIEV-KOEHLER^a, Matthew HOLM^a, Alan WAITE^a, and Megan A. MORENO^{a,b} ^a Center for Child Health, Behavior and Development at Seattle Children's Research Institute

^b Department of Pediatrics at the University of Washington School of Medicine

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Abstract. In the United States, most adolescents do not obtain the recommended amounts of physical activity for optimal health. Around 80% of adolescents own a mobile device, and social media is frequently used by adolescents on mobile devices. Few studies have examined the use of social media as part of an intervention to promote physical activity. The purpose of this study was to evaluate the use of a Facebook group as part of a mHealth physical activity intervention trial. Adolescents, ages 14-18 years, were recruited for a four week physical activity intervention using the FitBit Flex. Participants were also given the option to join a private Facebook group where they could interact and were given badges for fitness

accomplishments. The research assistant moderator posted on the Facebook group an average of 25.3 times (SD=7.2). Post-intervention, participants completed a phone interview about their experience. Of 30 intervention participants (avg. age 16.0 (SD=1.1), 60.0% female), 17 opted to join the Facebook group (avg. age 16.3 (SD=1.2), 47.0% female) of which 10 completed a qualitative interview. Participants averaged 4.9 interactions (SD=8.7) on the Facebook group wall throughout the intervention. From the interview responses, major themes included enjoying the badge feature of the Facebook group and wanting more content and interaction. In conclusion, participants used and enjoyed having the Facebook group, particularly the badge feature of the group, as an adjunct to the physical activity intervention.

Bridging Minds: A Mixed Methodology to Assess Networked Flow

Carlo GALIMBERTI^{a,1}, Alice CHIRICO^a, Eleonora BRIVIO^a, Elvis MAZZONI^c, Giuseppe RIVA^{a,b}, Luca MILANI^a and Andrea GAGGIOLI^{a,b}

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° Department of Psychology, Alma Mater Studiorum, University of Bologna, Italy ¹Corresponding Author Carlo GALIMBERTI carlo.galimberti@unicatt.it

Abstract. The main goal of this contribution is to present a methodological framework to study Networked Flow, a bio-psychosocial theory of collective creativity applying it on creative processes occurring via a computer network. First, we draw on the definition of Networked Flow to identify the key methodological requirements of this model. Next, we present the rationale of a mixed methodology, which aims at combining qualitative, quantitative and structural analysis of group dynamics to obtain a rich longitudinal dataset. We argue that this integrated strategy holds potential for describing the complex dynamics of creative collaboration. by linking the experiential features of collaborative experience (flow, social presence), with the structural features of collaboration dynamics (network indexes) and the collaboration outcome (the creative product). Finally, we report on our experience with using this methodology in blended collaboration settings (including both face-to-face and virtual meetings), to identify open issues and provide future research directions.



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Our mission is to bring together top researchers, policy makers, funders, decision makers and clinicians, pooling collective knowledge to improve the quality, affordability, and availability of existing healthcare.

Ultimately, through international collaboration with the most eminent experts in the field, we are working to overcome obstacles and increase access to top-quality healthcare for all citizens. By enhancing public evereness of the possibilities that technology offers, we move toward changing and improving healthcare as it currently exists.

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Investigating The Mediating Effects of Personality On the Relationship Between Internet And Job Satisafaction Hyondong Kima^{a,1} ^{1a}Dongguk Business School-Seou

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Abstract. This study investigates the significance of Internet addiction on the interrelated relations between personality and job satisfaction. In a sample of 764 Korean workers, the study findings indicated that Internet addiction was negative related to job satisfaction; personality also partially mediated the relation between Internet addiction and job satisfaction. Recognizing the growing influence of Internet addiction is critical to support the job satisfaction of individual workers.

Early Innovators Symposium

Testing Concordance Between Traditional Paper- Based Assessment And Computer-Based Assessment For Flying Phobia

Cristina BOTELLA^{a,c,1}, Antonio RIERA DEL AMO^a, Daniel CAMPOS^a, Adriana MIRA^a, Soledad QUERO^{a,c}, Juana BRETÓN-LÓPEZ^{a,c} and Rosa M. BAÑOS^{b,c}

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Abstract. The literature shows that computer-based and Internet-based treatments are effective. Furthermore, several researchers suggest that surveys via the Internet can be an effective way for collect information from users. Then, Internet based psychological assessment can be a suitable alternative to more traditional paper-based assessment strategies. However, to date there are few studies suggesting that selfassessments can completely replace the diagnosis made by the clinician through structured interviews? We have developed an Internet-based program for Flying Phobia (FP), which includes an assessment protocol and a treatment protocol. The aim of this work is to compare the concordance of a clinician-administered interview versus a computer-based assessment protocol for FP.

Explaining Work Exhaustion From a Coping Theory Perspective: Roles of Techno-Stressors and Technology-Specific Coping Strategies Fulvio GAUDIOSO^{a,1}, Ofir TUREL^b, and Carlo GALIMBERTI^a ^a Department of Psychology, Università Cattolica del Sacro Cuore, Milan, Italy

^b Department of Information Systems, California State University, Fullerton, USA

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Abstract. The purpose of this study is to theoretically develop and empirically examine a general coping theory model, which explicates the indirect effects of key job-related technostressors on job exhaustion. Through this study, we show that techno-stress creators are detrimental to employee well-being and should be treated accordingly. Specifically, we first argue that key techno-stress creators on the job, namely techno- invasion and techno-overload, drive unpleasant states such as work-family conflict and distress. Next, we rely on general coping theory and argue that people respond to these states differently, but with both adaptive and maladaptive technology-specific coping strategies. Adaptive coping behaviors are argued to ultimately reduce work exhaustion, and maladaptive coping strategies are argued to increase it. The proposed model was tested and validated with structural equation modeling techniques applied to self- reported data obtained from a sample of 242 employees of a large organization in the United States. Implications for theory and practice are discussed.

Trait and State Craving as Indicators of Validity of VR-based Software for Binge Eating Treatment

Joana PLA-SANJUANELO^{a,1}, Marta FERRER-GARCIA^a, José GUTIÉRREZ-MALDONADO^a, Ferran

VILALTA-ABELLA^a, Alexis ANDREU-GRACIA^b, Antonios DAKANALIS^c, Fernando FERNANDEZ-ARANDA^d, Adela FUSTÉ-ESCOLANO^a, Joan RIBAS-SABATÉ^b, Giuseppe RIVA^e,

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Abstract. The aim of this study was to establish whether virtual reality (VR) exposure to food cues is able to produce craving levels consistent with state-craving and trait- craving as assessed by the Spanish and Italian versions of the State and Trait Food Craving Questionnaires (FCQ-T/S). The results were compared in 40 patients with eating disorders (17 with binge eating disorder, 23 with bulimia nervosa) and 78 healthy control subjects without eating disorders. Controls and patients with higher levels of trait-craving and state-craving both showed a greater desire to eat during VR exposure. Results also showed that trait and state craving assessed by FCQ-T/S were able to predict the total mean craving experienced during exposure to the VR software in both clinical and control samples. These findings present preliminary evidence about the validity of a new virtual reality-based application for cueexposure treatment in patients with eating disorders.



A Case Study in the Wild.

Nicola DÖRÍNG^a, Katja RICHTER^{a,1}, SCHEIDIG^b, Klaus DEBES^b

Design Group

Robotics Lab

¹Corresponding Author Katja RICHTER Katja.Richter@tu-ilmenau.de

Abstract. Older people tend to have Augmented Reality Eyeglasses difficulties using unknown technical Luciano GAMBERINI^{a,b}, Valeria devices and are less willing to ORSO^{b,1}, Andrea BERETTA^b, Giulio ^b Psychology Department, Catholic University of accept technical shortcomings. JACUCCI^c, Anna SPAGNOLLI^{a,b} and Milan, Largo Gemelli, 1, 20123 Milan, Italy Therefore, a robot that is supposed Romina RIMONDI^b to support older people in managing * Human Inspired Technology Research Center, daily life has to adapt to the users' University of Padua needs and capabilities that are very b Department of General Psychology, heterogeneous within the target University of Padua group. The aim of the presented case ° Department of Computer Science, University study was to provide in-depth insights of Helsinki on individual usage patterns and acceptance of a mobile service robot ¹Corresponding Author in the wild (i.e. in the users' homes). Valeria ORSO Results from three cases (users aged valeria.orso@studenti.unipd.it 67, 78, and 85, living in their own apartments) are reported. Findings on Abstract. Augmented reality based daily living at home.

Individuals

Gieun LEE^{a,1}, Jang-Han LEE^{a,1}

University

¹Corresponding Author Gieun Lee lee.gieun82@gmail.com

20 healthy control group recruited mounted display examined is to specific situations to simulate, and

Robotic Companions for Older People: and screened from University, comfortable to wear regardless of ^a TU Ilmenau, Media Psychology and Media three movement processes enhanced visual fatique emerged. the positive affective state of all ^b TU Ilmenau, Neuroinformatics and Cognitive depressive participants, indicating the possibility of the emotion regulation.

New Methods and Instruments Human- Centered Simulation For <u>Symposium</u>

Evaluating User Experience of * Applied Technology for Neuro-Psychology Lab,

usability and user experience illustrate applications have been experimented that the robot has considerable with in various contexts. Typically, the potential to be accepted to support interaction is supported by handled devices, which, in specific scenarios, may hinder the interaction and spoil the experience of use, as the user is systems can arise from simple forced to hold the device and to keep rules. However, while engineers' The Effects of Motor Behavior on her eyes on it at all times. The recent simulations can be performed in Emotion Regulation in Depressive launch on the market of light-weight, the physical world using robots, for unobtrusive head-mounted displays social scientist this is impossible. For may change this circumstance. decades, researchers tried to improve ^aDepartment of Psychology, Chung-Ang Nevertheless, investigations are simulations by endowing artificial needed to understand if such headworn devices effectively outperform rules that emulated human behavior handheld devices in terms of comfort also by using artificial intelligence and pleasant experience of use. Here we present two experiments aimed at assessing the comfort of wearing Abstract. This study aimed to a head-worn, see-through AR viewer investigate the effects of the execution, in both a controlled and a natural platform where experiments can be observation, and imagery emotional setting. Besides the comfort of performed by simulated artificial body movements on positive emotion wearing the device, aspects related worlds in the following manner: 1) regulation in depressive individuals. to the user experience were also agents' behaviors are regulated by Participants for the study were 20 investigated in the field evaluation. the behaviors shown in Virtual Reality high depressive individuals group and Our findings suggest that the head- involving real human beings exposed

Seoul, South Korea. All participants the context of use. Interestingly in performed, observed, and imagine the field trails, participants did not Horst-Michael GROSS^b, Christof whole body dynamic movements express concern for the impression SCHRÖTER^b, Steffen MÜLLER^b, of positive emotion (happy) in three they would have made on other people Michael VOLKHARDT^b, Andrea sessions which learned before the and the experience of use was overall experiment. As hypothesized, all pleasant. Possible issues related to

> Virtual Reality For Artificial Intelligence: Social Science

Pietro CIPRESSO^{a,1}, Giuseppe RIVA^{a,b}

IRCCS Istituto Auxologico Italiano, Via Pellizza da Volpedo 41, 20149 Milano, Italy

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Abstract. There is a long last tradition in Artificial Intelligence as use of Robots endowing human peculiarities, from a cognitive and emotional point of view, and not only in shape. Today Artificial Intelligence is more oriented to several form of collective intelligence, also building robot simulators (hardware or software) to deeply understand collective behaviors in human beings and society as a whole. Modeling has also been crucial in the social sciences, to understand how complex agents with simple and complex (AI). To include human beings and their real intelligence within artificial societies is now the big challenge. We present an hybrid (human-artificial)



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2) technology transfers these rules into the artificial world. These form a closed-loop of real behaviors inserted into artificial agents, which can be used to study real society.

Virtual Reality's Core Value for AEC Zach GOEPEL^{a,1} ^aWorldViz LLC

¹Corresponding Author Zach GOEPEL goepel@worldviz.com

Abstract.Virtual reality is becoming, and will continue to become a more mainstream tool that is creating value and solving problems thru numerous applications in many new industries. One of the key industries where the implementation of VR is particularly valuable and efficient even today, is within the design, construction, and training of medical spaces. Author describes the current applications and values that are being offered to the medical design communities, focusing on the core value of VR: a true sense of presence. Author describes different technical systems in place today, their advantages and disadvantages, and how the sense of presence that these systems create provide time, money, and waste savings to owners, contractors/designers, and endusers alike.

Julia BYRNE^{a,1}, Horace H. S. IP¹,Kate Shuk-Ying LAU¹, Richard Chen LI¹ ,Amy TSO² ,Catherine CHOI²

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Abstract. In this paper we introduce The Interactive Sensory Program for Affective Learning (InSPAL) a pioneering virtual learning programme

designed for the severely intellectually disabled (SID) students, who are having cognitive deficiencies and other sensory-motor handicaps, and thus need more help and attention in overcoming their learning difficulties. Through combining and integrating interactive media and virtual reality technology with the principles of art therapy and relevant pedagogical techniques, InSPAL aims to strengthen SID students' pre-learning abilities, promote their self-awareness, decrease behavioral interferences with learning as well as social interaction, enhance their communication and thus promote their quality of life.

Results of our study show that students who went through our programme were more focused, and the ability to do things more independently increased by 15%. Moreover, 50% of the students showed a marked improvement in the ability to raise their hands in response, thus increasing their communication skills. The use of therapeutic interventions enabled a better control to the body, mind and emotions, resulting a greater performance and better participation.

A Head Worn Augmented Reality Viewer as an Aid Tool in an Urban Environment: Assessing Comfort and User Experience

Luciano GAMBERINI^{a,b}, Valeria ORSO^{b,1}, Andrea BERETTA^b, Giulio JACUCCI^c, Anna SPAGNOLLI^{a,b} and Romina RIMONDI^b

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Abstract. Augmented Reality has already been exploited in the treatment of psychological disorders. Aspects related to specific characteristics of the mixed-reality experience (e.g., Sense of Presence) have proved to be important factors affecting the therapeutic outcome. On the other hand, aspects related to the

user-device interaction (e.g., User Experience and Wearability), cannot be ignored, as undergoing a therapy while wearing an uncomfortable device, may shift the attention of the user from the treatment to the shortcomings of the device, threatening the therapeutic outcome. Here were present two experiments aimed at assessing the comfort of wearing a head-worn see-through device in both in the laboratory and in the field. Besides wearability, aspects related to User Experience were also investigated in the field evaluation. Preliminary results suggest positive evaluations from both the in laboratory and in the field experience.

IPAD as Endoscopic Surgical Trainers José L. MOSSO VÁZQUE^{a,1}, Gregorio T. OBRADOR^a

^aUniversidad Panamerica School of Medicine, Mexico City, Mexico

¹Corresponding Author Jose Luis Mosso Vazquez jmosso@up.edu.mx

Abstract. We present surgical experience with endoscopic trainers with smart phones, tablets, and Wii game at the Faculty of Medicine at the Universidad Panamericana, Mexico City, Methodology. Two specific holders were designed and built to hold real laparoscopic tools. Results. 268 undergraduate students have used serious game trainers since 2010 and they performed the followings 4 surgical procedures, laparoscopy, nephrectomy, splenectomy and appendectomy on animal model. Conclusions. Students developed hand-eye coordination and, time reduced to make knots and sutures. We suggest serious game as complementary and useful tool for teaching introduction and for warm up for endoscopic surgery in the career of medicine for undergraduate students. Our program of surgery includes endoscopic surgery in the second and fourth year of the career and conventional endoscopic tools were used as complement at the end of each course of one month.

InSPAL: A Novel Immersive Virtual Learning Programme



PTSD Symposium

GETSmart: Guided Education and Training via Smart Phones to Promote Resilience Michael J. ROY^{a,1}, Krista B. HIGHLAND^a, Michelle A. COSTANZO^a ^aCenter for Neuroscience and Regenerative Medicine and Department of Medicine, Uniformed Services University, Bethesda, MD, USA

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Abstract: Posttraumatic stress disorder (PTSD) is common in U.S. military service members (SMs)

returning from Afghanistan and Iraq. SMs with PTSD symptoms that fall short of meeting full diagnostic criteria also experience devastating effects on their quality of life and daily functioning. Though evidence based treatments are indicated for those meeting diagnostic criteria. less attention has been given to interventions for those with subthreshold symptoms. The advent of novel technologies affords a unique opportunity to meet these intervention needs. Here we describe the feasibility and preliminary findings testing a smartphonebased intervention program to reduce PTSD symptoms in postdeployment SMs. Participants were randomized to a control or intervention condition. Those in the intervention condition engaged in one Skype session and six weeks of daily directive text messages guiding application (app) use. Apps primarily included those developed by the Department of Defense or VA. Participants completed the PTSD Checklist online at baseline, post-intervention, and 3- month follow-up. Overall, participant feedback was positive, regardless of treatment condition. Preliminary findings (with 10% of the overall target population having enrolled) indicate PCL scores decrease significantly from baseline to post-intervention, and these effects are maintained at 3-month follow-up. Additional analyses will be performed upon completion of the study. The present findings demonstrate the feasibility and acceptability of a smartphone-





based resiliency training program for those with subthreshold PTSD.

Virtual Client: Interactive Dialogue Training for Mental Health Professionals Working with Veteran Populations

Sara OZUNA^{a,1}, Dax BERG^a, Anthony M. HASSAN^a, Jan NISSLY^a, Sara KINTZLE^a, Eyal FRUCHTER^a, Alice KIM^a ^aCenter for Innovation and Research on Veterans and Military Families (CIR) at the University of Southern California (USC)

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Abstract. The advancement of technology and online accessibility has drastically changed the landscape for learning and training in clinical educational settings. Many courses can now be presented online so that students, as well as professionals, have greater ease of access to the different types of educational materials available. The creation of a military virtual client (currently being developed at CIR) can greatly benefit future mental health professionals lacking military background, who will be working with the ever-growing population of military veterans returning from war. However, with the limitations of true and open artificial intelligence (AI) currently not existing, we have had to look to alternate modes of technology to encompass an authentic virtual reality (VR) experience. We believe that one substitute for true and open AI is to incorporate gaming techniques from the gaming industry into virtual patients (VP) to make a credible and authentic conversation experience. VPs have "the potential to deliver education to large numbers of students at a relatively low cost which will be important in addressing the challenges that will face medical education in coming decades" (Bateman, Allen, et. al). In the mental health field, particularly in sub concentrations working with military veterans, VPs can be used to further clinicians' training, experience, and

exposure to specialized populations. VPs allow students to practice and strengthen their clinical reasoning skills, by relying on the model of VP implementation, which is centered on cognitive condition and constructed activity, ultimately leading to cognitive change within the student (Bateman, Allen, et. al).

Importance of Virtual Reality to Virtual Reality Exposure Therapy, Study Design of a Randomized Trial Robert N. MCLAY^{a,1}, Alicia BAIRD^b, Jennifer MURPHY^c, William DEAL^b, Lily TRAN^b, Heather ANSON^b, Warren KLAM^b and Scott JOHNSTON^c ^a University of California San Diego

^b Naval Medical Center San Diego, Directorate for Mental Health

 $^{\circ}$ Naval Center for Combat and Operational Stress Control

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Abstract. Post Traumatic Stress Disorder (PTSD) can be a debilitating problem in service members who have served in Irag or Afghanistan. Virtual Reality Exposure Therapy (VRET) is one of the few interventions demonstrated in randomized controlled trials to be effective for PTSD in this population. There are theoretical reasons to expect that Virtual Reality (VR) adds to the effectiveness of exposure therapy, but there is also added expense and difficulty in using VR. Described is a trial comparing outcomes from VRET and a control exposure therapy (CET) protocol in service members with PTSD.

If You Build It, They Will Come, But What Will Wounded Warriors Experience? Presence in the CAREN Krista Beth HIGHLAND^{a,1}, Sarah E. KRUGER^b and Michael J. ROY^a

^aUniformed Services University, Bethesda, MD, USA

^bNational Intrepid Center of Excellence, Bethesda, MD, USA ¹Corresponding Author Krista Beth HIGHLAND krista.highland.ctr@usuhs.edu

Abstract. Military service members (SMs) are surviving complex battlefield injuries at higher rates than ever before. Cutting-edge technologies are increasingly being employed to improve assessment and treatment of these complex injuries. The Computer Assisted Rehabilitative Environment (CAREN) is a comprehensive immersive environment, featuring a treadmill, curved panoramic screen, audio array, and infrared cameras to capture movement. While the CAREN has been progressively incorporated in treatment and research. little has been reported regarding participants' subjective experiences, particularly in relation to the signature wounds of the Iraq and Afghanistan wars, traumatic brain injury (TBI) and posttraumatic stress disorder (PTSD). Here we report participant presence, in a cohort of SMs with complex, frequently dual-diagnosis injuries (N=148; 95% TBI; 58% PTSD) engaging in CAREN-driven treatment. Using a presence questionnaire, participants rated aspects of the CAREN on a 7-point Likert scale and a presence score was calculated. The average presence score was 46.83 (SD=6.04; possible score range 7-63), with 95% of participants reporting scores >36. Those with motion sickness and eye discomfort reported lower presence. Whereas those with PTSD reported higher presence. Presence did not vary according to TBI severity. The CAREN is a well-liked and accepted treatment tool for SMs with complex injuries. However, presence may be adversely affected by CARENassociated symptoms.

Stress and Anxiety Symposium

Non-inferiority Trial of the Efficacy of Telepsychotherapy for Generalized Anxiety Disorder: Interim Results S. BOUCHARD^{a,1}, A. MARCHAND^b, P. GOSSELIN^c, M. DUGAS^d and G.

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Abstract. This is a multisite randomized non-inferiority trial comparing the efficacy of individual cognitivebehavior therapy (CBT) for generalized anxiety disorder (GAD) delivered faceto-face or by videoconference. The target sample size is 120 patients with a primary diagnosis of GAD and interim results are presented here with 81 participants. All patients received 15 CBT sessions delivered according to a standardized manual already well validated for GAD. Patients were randomly assigned to one of two treatment modalities and, in the case of videoconference, randomly assigned to one of the remote sites. The two hypotheses are that: (a) CBT delivered through videoconference will be as effective (i.e., not significantly inferior) as traditional face-to-face CBT; (b) receiving CBT by videoconference will be more practical for patients (e.g., less travel time) than having to come to the clinic to receive CBT face-to-face. Repeated measures ANOVAs con-firmed that both treatments were effective [e.g., Penn State Worry Questionnaire (PSWQ) F = 101.35, p < .001]. The Condition X Time interactions revealed very small effect sizes, suggesting that non- inferiority analyses will be significant with the target sample size (actually, if differences on the PSWQ were significant, they would favor the superiority of videoconference).

NO-FEAR Airlines: A Computer-aided Self-help Treatment for Flying Phobia

Soledad QUERO^{a,d,1}, Daniel CAMPOS^a, Antonio RIERA DEL AMO^a, Juana BRETÓN-LÓPEZ^{a,d}, Miquel TORTELLA-FELIU^b, Rosa M. BAÑOS^{c,d}, Cristina BOTELLA^{a,d}

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° Universidad de Valencia

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y Nutrición (C IB ERO BN) ¹Corresponding Author Soledad Quero squero@uji.es

Abstract. TIn vivo exposure is the treatment of choice for specific phobias. However, this treatment is linked to a number of limitations in its implementation. Therefore, it is important to develop strategies for improving treatment adherence, acceptance, and dissemination of evidence-based treatments. Information and Communication Technologies. specifically. computerized programs boast remarkable advantages in treating flying phobia. N O- F E AR Airlines is a Computer-aided Self-help Treatment for this problem which can be selfapplied via Internet. N O- F E AR Airline's treatment protocol comprises three therapeutic components: psychoeducation, exposure and overlearning. Exposure is carried out through 6 scenarios that are composed by images and real sounds related to a flight in process. The aim of the present work is to describe N O- F EAR Airline's program.

A Pilot Study Using Mindfulness-Guided- Relaxation & Biofeedback to Alleviate Stress in a Group Stephen THEILER^{a,1} ^aSwinburne University of Technology, Melbourne

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Abstract. The following study investigated the efficacy of a mindfulness intervention to reduce staff stress at a university in Melbourne that was undergoing a restructure and relocation. Using mindfulness guidedrelaxation that incorporated positive emotions, controlled breathing and biofeedback monitors, 13 university staff recorded their sympathetic and parasympathetic activity over a four week period. They also supplied qualitative reflections of their experience. After one session of guided-relaxation and biofeedback there were significant increases in parasympathetic activity. For those people that continued practicing guided-relaxation by listening to a digital recording of the session, these gains continued to increase.

Decision Making and Cognitive Behavioral Flexibility in an OCD Sample: a Study in a Virtual Environment Filippo LA PAGLIA^{a,1}, Caterina LA CASCIA^a, Rosalinda RIZZO^a, Giuseppe RIVA^b, and Daniele LA BARBERA^a ^a Department of Experimental Biomedicine and Clinical Neuroscience, University of Palermo, Italy

^b Applied Technology for Neuro-Psychology Lab, Istituto Auxologico Italiano, Milan, Italy

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Abstract. Neuropsychological disorders are common in Obsessive-Compulsive Disorder (OCD) patients. Executive functions, verbal fluency and verbal memory, shifting attention from one aspect of stimuli to others, mental flexibility, engaging in executive planning and decision making, are the most involved cognitive domains. We focus on two aspects of neuropsychological function: decision making and cognitive behavioral flexibility, assessed through a virtual version of the Multiple Errand Test (V-MET), developed using the NeuroVR software.

Thirty OCD patients were compared with thirty matched control subjects. The results showed the presence of difficulties in OCD patients with tasks where the goal is not clear, the information is incomplete or the parameters are ill-defined.

Wounds of War

A Subseries of the NATO Science for Peace and Security Series - E: Human and Societal Dynamics

Latest volumes:

New Tools to Enhance Posttraumatic Stress Disorder Diagnosis and Treatment



Vol. 108 of NATO Science for Peace and Security Series - E: Human and Societal Dynamics Editor: B.K. Wiederhold September 2013, 232 pp., hardcover

ISBN 978-1-61499-188-5 Price: €108 / US\$157 / £92

Invisible Wounds of War

The number of cases of post traumatic stress disorder (PTSD) affecting both combat veterans and survivors of armed conflict has increased in recent years. Exposure to traumatic events can cause PTSD, and the serious consequences of this disorder can often lead to impulsive and destructive behaviors such as drug abuse and uncontrollable anger. Combat related PTSD is also one of the strongest contributing factors to the high suicide risk in returning troops.

This book will provide a valuable resource for all those whose work involves dealing with post traumatic stress disorder.

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Pain Syndromes – From Recruitment to Returning Troops Wounds of War IV

Vol. 91: NATO Science for Peace and Security Series - E: Human and Societal Dynamics Editor: B.K. Wiederhold July 2012, 252 pp., hardcover ISBN: 978-1-60750-985-1 Price: €120 / US\$174

In October 2011, twenty-seven scientists and representatives from NATO and partner countries met in Südkärnten, Austria for a threeday NATO Advanced Research Workshop entitled "Wounds of War: Pain Syndromes – From Recruitment to Returning Troops." The book addresses four key questions:

1. Vulnerability to Pain syndromes: Are certain types of people at a higher risk for pain syndromes (background, ethnicity, childhood trauma, etc.)?

2. Diagnosis and Assessment Issues of Pain Syndromes: Which methods are used to diagnose and assess pain?

- 3. Treatment of Pain Syndromes: What are the latest treatment and therapy opportunities for soldiers who experience pain syndromes?
- 4. Clinical Updates on Pain Syndromes: What can we learn from recent clinical updates on pain syndromes?



Coping with Blast-Related Traumatic Brain Injury in Returning Troops Wounds of War III

Vol. 86 : NATO Science for Peace and Security Series - E: Human and Societal Dynamics Editor: B.K. Wiederhold November 2011, 224 pp., hardcover ISBN: 978-1-60750-796-3 Price: €120 / US\$174

It has been shown that those who have served in both combat missions and peacekeeping operations are at increased risk for Traumatic Brain Injury (TBI). Research suggests that this may result from their "wounds of war". Some wounds may be "invisible", such as depression, stress, and chronic pain, while others, such as physical disabilities, are more obvious. The aim of this publication, is to critically assess the existing knowledge and to identify directions for future actions.



Military post traumatic stress disorder (PTSD) is a common and disabling consequence of war, terrorism and natural disasters which presents an increasing problem for service men and women around the world. It has been shown that those who serve in both combat missions and peacekeeping operations are at greater risk of developing PTSD as a result of the 'wounds of war'. These wounds may take the obvious form of physical disabilities, but 'invisible' wounds, such as depression, anxiety, stress and chronic pain may also lead to an increased risk of PTSD. This book presents full papers, focused on the key presentations from the NATO Advanced Research Workshop, Wounds of War: Coping with Posttraumatic Stress in Returning Troops, held in October 2009. These papers critically assess existing knowledge in the field and identify directions for future action. The book addresses the five key issues of PTSD: vulnerability, diagnosis and assessment, prevention, treatment and associated disorders. While PTSD may be an invisible illness, its effects are certainly not invisible. Countries must work together to develop prevention and treatment strategies which ensure that service men and women everywhere are able to assimilate back into society to lead productive lives and enjoy the freedom they fought to protect. The purpose of this book is to contribute to this process.

Lowering Suicide Risk in Returning Troops Wounds of War

Vol. 42: NATO Science for Peace and Security Series - E: Human and Societal Dynamics Editor: B.K. Wiederhold August 2008, 224 pp., hardcover ISBN: 978-1-58603-889-2 Price: €115 / US\$167



Lowering Suicide Risk in Returning Troops: Wounds of War discusses the topic of increased suicide risk in service men and women around the world. Research has shown that those who have served in both combat missions and peacekeeping operations are at an increased risk for suicide. Research suggests that this may result from their 'wounds of war'. Some wounds may be more 'invisible'; such as depression, posttraumatic stress disorder, and chronic pain, while others are more visibly apparent; such as physical disabilities. Whatever the wound, however, it seems they may all lead to an increased risk of suicide. In this book, many aspects of military suicide and how to effectively deal with this issue are discussed. Specifically, some of the questions raised are: How do we detect those who are vulnerable to increased suicide risk, possibly due to a combination of genetics and past environmental insults? How do we most appropriately assess for increased risk? Once detected, how do we help to decrease that risk? Are there pre-deployment training methods we can employ to help 'inoculate' individuals against increased risk? Are there in-theater and post-deployment methods most appropriate for dealing with this risk?

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<u>Other Clinical Applications</u> <u>Symposium</u>

Confronting Auditory Hallucinations Using Virtual Reality: The Avatar Therapy

Mar RUS-CALAFELL^{a,1}, Philippa GARETY^a, Tom WARD^a, Geoff WILLIAMS^b, Mark HUCKVALE^b, Julian LEFF^b, Thomas KJ CRAIG^a

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Abstract. The AVATAR therapy is a computer-based intervention which aims to reduce the frequency and severity of voices. The approach is based on computer technology which enables each patient to create an avatar of the entity (human or nonhuman) that they believe is talking to them. The therapist promotes a dialogue between the patient and the avatar in which the avatar progressively comes under the patient's control. Using real-time voice conversion delivery software, the therapist can modify the relationship between the patient and his/her voice. The innovation of this new intervention is discussed in the present paper as well as the advantages of using a computer based system. The subjective view of the technology from a participant's point of view is also presented.

Movement-based VR Gameplay Therapy for a Child with Cerebral Palsy Sharon STANSFIELD^{a,1}, Carole DENNIS^b, Hélène LARIN^c, Courtney GALLAGHER^d

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Abstract. This paper presents a singlesubject feasibility study of a motionbased VR game designed to provide benefits similar to constraint-induced movement therapy for children with cerebral palsy, while providing a more eniovable experience. The game was designed to encourage the child to perform the desired therapeutic movements by allowing him to interact with the game using only his moreaffected arm. The study used an AB design: Performance across baseline and intervention phases was assessed to determine whether the intervention resulted in changes to repeated measures. Results of the study showed that compared with baseline measurements done prior to his game experience, the participant's postintervention performance showed improvement in speed of reach, dissociated movement, and bilateral integration of upper extremities in functional tasks. The child's mother, as well as one of his therapists, reported better performance outside of the study environment as well.

Rehabilitation Tool: A Pilot Study on a New Neuropsychological Interactive Training System

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Abstract. Over the past 20 years, research has led to the development of new technologies to improve the quality of life of brain damaged user. Introduction of new neuropsychological rehabilitation tools based both on the new knowledge on brain plasticity and on the latest developments in computer sciences is both necessary and scientifically challenging for health professionals, particularly neuropsychologists. Here we present a pilot study in which the use of a new Apple© iPad® software for neuropsychological rehabilitation, has demonstrated high level of appreciation and efficacy in cognitive rehabilitation.

Teaching-Learning: Stereoscopic 3D Versus Traditional Methods in Mexico City

Laura MENDOZA OROPEZA^{a,1}, Ricardo ORTIZ SÁNCHEZ^b, Raul OJEDA VILLAGÓMEZ^b

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Abstract. In the Faculty of Dentistry, we use stereoscopic 3D teaching method that has risen in the last year. That is why it is important to know whether students can learn better with that strategy. The objective of the study is to know if the 4th year students of the degree of bachelor in dentistry learn more effectively with the use of stereoscopic 3D compared to the traditional method in Orthodontics. First, we selected the course topics. The traditional method was used through images that were projected by slides through a canyon. For the stereoscopic 3D method, we used videos in digital stereo projection ("passive" polarized 3D glasses). The main topics were on supernumerary teeth, included and diverted from their guide eruption. After, we used an exam with 24 items, validated by expert judgment in Orthodontics teaching. The results of the data were compared between the two educational methods for determined effectiveness using the model before and after measurement with the statistical package (SPSS 20 version). The results presented for the 9 groups of undergraduates of dentistry were collected with a total of 218 students for 3D and traditional methods. We found a



mean 4.91, SD 1.4752 for the pretest, with the analysis of variance between groups. The results show that 3D has a significant difference between the two teaching methods and has a strong association between the two methods. The findings suggest that the stereoscopic 3D method leads to improved student learning compared to traditional teaching.

<u>Social Networking and</u> <u>Cyberbullying</u>

Defining Cyberbullying: A Multiple Perspectives Approach Alexandra ALIPAN^{a,1}, Jason SKUES^a, Stephen THEILER^a, Lisa WISE^a ^a Swinburne University of Technology, Melbourne

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Abstract. To date, there has been a lack of consensus among researchers, practitioners, and laypersons about the definition of cyberbullying. Researchers have typically applied the key characteristics of intent to harm, power imbalance, and repetition from the definition of traditional bullying to cyberbullying, but how these characteristics transfer from the real world to a technologymediated environment remains ambiguous. Moreover, very few studies have specifically investigated how cyberbullying is defined from the perspective of bullies, victims and bystanders. To this end, this article will propose a three-part definition of cyberbullying, which incorporates the perspective of bullies, victims and bystanders.

How To Protect Children From Internet Predators: A Phenomenological Study Alexander Rodney^{a,1} ^a University of Phoenix

¹Corresponding Author Alexander Rodney

Abstract. Teenage Internet users are the fastest growing segment in

the Internet user population. These teenagers are at risk of sexual assault from Internet predators. This phenomenological study explored teacher and counselors' perceptions of how to prevent this sexual assault. Twenty-five teacher and counselor participants were interviewed. A modified van Kaam method was used to analyze the data and develop themes. Participants stated that mainly the lack of parental support and social networking website were the circumstances leading to teenage Internet sexual assault, while teen needs and gratification usually played a role in teen encounters with predators on the Internet. There were 5 emergent themes in this phenomenological study and those themes were; lack of parental support, social networking websites and chat rooms, teenage need for relationships, instant gratification among teenagers, improved parental support.

Modeling Aggression and Bullying: A Complex Systems Approach

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Abstract. Almost daily, we read about the devastation and lasting consequences of bullying, and feel a greater impact when we hear of another child taking their life or the lives of others. What makes bullying behaviors so insidious is they cut across people, age, cultures and nations. These behaviors remain difficult to study and direct experimentation remains ethically and morally prohibitive. Therefore, we turn to computational models and simulate the natural complex social systems using the human element. If approached well, these models may yield emergent behaviors providing insight into the interactions around bullying. This

paper discusses our complex systems model, and evaluates the viability of modeling bullying. Results of our implementation are described and future opportunities are identified.

Teens, Children, and Social Media: Helping Parents Keep Up Kristen ABBONDANTE^{a'} ^aBoys Town Center for Behavioral Health

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Abstract. With the rise in social networking sites and technological advances (e.g. smart phones, tablets, gaming systems, etc.), parenting has become even more challenging in the 21st century. The scope of parenting has expanded far beyond the

playground. Conversations have shifted from who are your friends to whom are you friending? Tweeting, streaming, selfies, and hashtags have become nouns and verbs in everyday language. Due to these changes, clinicians have experienced an influx of referrals related to social media (e.g. sexting, inappropriate relationships, cyberbullying, etc.). The aim of the paper is to identify trends in children/adolescent social media use, review evidence-based interventions, and discuss the implications for working with parents and their children in a clinical setting. A literature review was conducted to examine current research related to youth social media use and parental interventions. Research suggests that although youth are communicating in new ways via social networking, children and adolescents have continued their involvement and connection with their family, friends, school, and community. Most parenting strategies used to improve communication and compliance can be applied to social media. Although technology has changed the way we communicate, it has not changed the way we parent.



Chasing the 'Like': Adolescent use of Social Networking Sites in Australia Louise LA SALA^{a,1,} Jason SKUES^a, Lisa WISE^a and Stephen THEILER^a ^aSwinburne University of Technology, Melbourne

¹Corresponding Author Louise LA SALA Ilasala@swin.edu.au

Abstract. The current study investigated how adolescents behave on Social Networking Sites (SNSs) and how they interpret the feedback they receive online from others. Thirty-four Australian adolescents (26 girls, 8 boys) aged 13 to 17 years participated in the study. Five semi-structured focus groups (3 mixed groups, 2 all-girl groups) were conducted to explore how adolescents perceive their own and others' SNS behaviours, the motivation underlying these behaviours, and the expected outcomes related to particular behaviours. Teenagers reported that they spend a good deal of time planning their SNS posts, felt that the information they posted was a true reflection of them as a person, and thus interpreted feedback ("likes") as measuring their self-worth. In contrast, some teenagers were perceived as "chasing the like" for status and popularity while not caring about how accurately their posts represented them as a person. A potential gender bias in these findings is discussed.

ReachOut.com – An Online Early Intervention Service Facilitating Help-Seeking Amongst Young Australians. Atari METCALF, Kerrie BUHAGIAR ReachOut.com by Inspire Foundation, Sydney, Australia

¹Corresponding Author

Abstract. While one in four young Australians experience mental health difficulties, only 35% of those experiencing psychological distress seek professional help. ReachOut. com is a web-based service that aims to improve mental well-being as well as prevent and intervene early in the onset of mental health problems in young people aged 14-25 years. A key objective of the service is to facilitate mental health help-seeking. An annual user survey provides an in-depth profile of the demographic characteristics and mental health status of young people who use the service, provides an understanding of how and why they visit, and considers the contribution of the service in improving mental health outcomes. The 2013 annual survey included 1,631 service users. The survey results suggest that ReachOut plays an important role in positively influencing young people's helpseeking intentions. A high proportion of first time (41%) and repeat visitors (53%), who were experiencing high or very high levels of psychological distress indicated they were more likely to seek support from at least one other professional source of help after visiting ReachOut, despite having not previously accessed any form of professional support. As seeking help early in symptom development, and from appropriate sources, is critical to reducing both the severity and duration of mental health problems, ReachOut is playing a critical role in facilitating early intervention amongst young people, which is likely to assist in improving mental health outcomes.

The Relationship between Personality, Loneliness and Instant Messaging Use for Recreational Purpose Yu GUO^{a,1},Yiwei LI^a, and Naoya ITO^b

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¹Corresponding Author Yu GUO guoyucuc@gmail.com

Abstract. To shed light on the understanding of recreational using behaviors within mobile communication, this study analyzed data collected from 784 Instant Messaging (IM) users in China to examine both the direct and indirect relationships between personality, loneliness and differentiated recreational purposes. A factor analysis of the IM usage demonstrated two facets of recreational purposes, which were the use of IM for recreational activities and for selfreactions. Structural equation modeling was performed to test the model in which personality predicted perceived loneliness through the two purposes. Our results demonstrated a statistically positive relationship between loneliness and the use of IM for self-reaction, while the purpose of recreational activities showed no significance. Findings as well indicated that individuals who scored higher on extroversion and consciousness were more likely to use the IM for enjoying recreational activities without generating loneliness, and those who scored higher on agreeableness were prone to be less lonely through smartphone recreational the consumptions. In contrast, IM users higher in neuroticism would be more in favor of self-reactive use that might cause more loneliness in life.

The Identity Mapping Project: Demographic Differences in Patterns of Distributed Identity

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Abstract. The advent of cloud computing and a multi-platform digital environment is giving rise to a new phase of human identity called17 "The Distributed Self." In this conception, aspects of the self are distributed into a variety of 2D and 3D digital personas with the capacity to reflect any number of combinations of now malleable personality traits. In



this way, the source of human identity remains internal and embodied, but the expression or enactment of the self becomes increasingly external, disembodied, and distributed on demand. The Identity Mapping Project (IMP) is an

interdisciplinary collaboration between psychology and computer Science designed to empirically investigate the development of distributed forms of identity. Methodologically, it collects a large database of "identity maps" -computerized graphical representations of how active someone is online and how their identity is expressed and distributed across 7 core digital domains: email, blogs/personal websites, social networks, online forums, online dating sites, character based digital games, and virtual worlds. The current paper reports on gender and age differences in online identity based on an initial database of distributed identity profiles.

Eating Disorders and Obesity Symposium

The Usefulness of a Haptic Virtual Reality Environment to Predict Anti-Fat Attitudes

Line TREMBLAY^{a,1}, Melina ROY-VAILLANCOURT^a, Brahim CHEBBI^a, Stephan BOUCHARD^b, Michael DAOUST^a, Moriah THORPE^a,

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Abstract. We report an experiment using of a haptic virtual reality application to measure and predict anti-fat attitude in participants interacting with avatars of different weight and gender. ^aDepartment of Personality, Assessment, and Psychological Treatments,, Universitat de Barcelona

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Abstract. Enhancing the ability to perform differential diagnosis and psychopathological exploration is important for students who wish to work in the clinical field, as well as for professionals already working in this area. Virtual reality (VR) simulations can immerse students totally in educational experiences in a way that is not possible using other methods. Learning in a VR environment can also be more effective and motivating than usual classroom practices. Traditionally, immersion has been considered central to the quality of a VR system; immersive VR is considered a special and unique experience that cannot achieved by three-dimensional (3D) interactions on desktop PCs. However, some authors have suggested that if the content design is emotionally engaging, immersive systems are not always necessary. The main purpose of this study is to compare the efficacy and usability of two low-cost VR systems, offering different levels of immersion, in order to develop the ability to perform diagnostic interviews in eating disorders by means of simulations of psychopathological explorations.

External Eating as a Predictor of Cue-Reactivity to Food-Related Virtual Environments

Marta FERRER-GARCIA^{a,1}José GUTIÉRREZ-MALDONADO^a, Joana PLA-SANJUANELO^a, Ferran VILALTA-ABELLA^a, Alexis ANDREU-GRACIA^b, Antonios DAKANALIS^c, Fernando FERNANDEZ-ARANDA^d, Adela FUSTÉ-ESCOLANO^a, Joan RIBAS-SABATÉ^b, Giuseppe RIVA^e, Carmina SALDAÑA^a, and Isabel SÁNCHEZ^d

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 Applied Technology for Neuro-Psychology Lab., Istituto Auxologico Italiano

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Abstract. The objective of this study was to assess the association between external eating style and food craving experienced during exposure to food cues in virtual reality (VR) environments in both clinical and non-clinical samples. According to the externality theory, people with external eating experience higher reactivity when exposed to food cues, which in turn increases the probability of overeating. Forty patients with eating disorders (23 with bulimia nervosa and 17 with binge eating disorder) and 78 undergraduate students were exposed to 10 different food cues in four VR environments (kitchen, dining room, bedroom, and café). After 30 seconds of exposure to each VR environment, food craving was assessed using a visual analog scale. External, emotional and restrictive eating styles were also assessed using the DEBQ. The results showed a strong association between external eating and cue- elicited food craving. After controlling for the presence of eating disorder diagnosis, external eating was the best predictor of reported food craving. The results lend support to the externality theory but highlight the need for further research in specific patterns of functioning in patients with bulimia nervosa and binge eating disorder.

Effect of Telephone Calls and Text Messages on Goal Attainment in a eHealth Coaching Service Eleonora BRIVIO^{a,1}, Fabiana GATTI^a,

Carlo GALIMBERTI^a, Paolo GAMBINI^b, Maurizio BINELLO^b

 ^a Centro Studi e Ricerche di Psicologia della Comunicazione, Dept. of Psychology, Università Cattolica del Sacro Cuore, Milan, Italy
 ^b Wellness&Wireless, Reggio Emilia, Italy

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Virtual Reality to Train Diagnostic Skills in Eating Disorders. Comparison of Two Low Cost Systems.

José GUTIÉRREZ-MALDONADO^{a,1}, Marta FERRER-GARCÍA^a, Joana PLA-SANJUANELO^a, Antonio ANDRÉS-PUEYO, Antoni TALARN-CAPARRÓS



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Abstract. Yukendu is a personal mobile coaching service that supports people in reaching good levels of psychological and physical wellbeing through the use of an app and a telephone-based relationship with a health coach. The aim of this contribution is to describe the results obtained in a sample of 171 clients (female, n=150) and investigate the main factors in attaining their healthrelated goals. Results show that 61, 98% (n=106) of the sample attained the results they wanted totally or partially. The regression model (number of phone calls, text messages, plan duration, achieved weight loss) accounts for 56,9% of data variance in achieved weight loss. Significant predictors of achieved weight loss are average number of calls (B=.388, p<.05), texts exchange (B=.331, p.<.05) and plan duration (B=.291). These results suggest therefore that in the first phase of health behavioral change, eHealth coaching efficacy lies primarily in the communication between coach and coachee.

The Experience of Cyberstalking Emma SHORT^{a,1}, Sarah LINFORD^{b,} Jacqueline M. WHEATCROFT^b and Carsten MAPLE^a

^a National Cyberstalking Centre, University of Bedfordshire, UK ^bDepartment of Psychological Sciences, Witness Research Group, University of Liverpool, UK ¹Corresponding Author

Emma Short

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Abstract. Cyberstalking (CS) can have major psychosocial impacts on individuals. Victims report a number of serious consequences of victimization such as increased suicidal ideation, fear, anger, depression, and posttraumatic stress disorder (PTSD) symptomology. Research is largely limited to quantitative outcome research. This study examines the diversity of experiences reported by people who define themselves as having been cyberstalked. Thematic analysis was used to explore 100 CS victim narratives, gathered by means of an online survey questionnaire designed to capture structured text

responses. Five emergent themes were evident in the data: control and intimidation; determined offender; development of harassment; negative consequences; and lack of support. Findings identify similarities and differences to traditional stalking, along with the necessity of support for victims and illustration of the negative impacts this form of harassment produces.

Early Innovators Symposium

Language in Online Dating Texts: Trait Identification, Homophily, and their Effect on Attraction. Nicola FOX HAMILTON^{a,1}, Chris FULLWOOD^a, Grainne KIRWAN^b ^a University of Wolverhampton ^b Institute of Art, Design and Technology, Dun Laoghaire

¹Corresponding Author Nicola FOX HAMILTON nicolafox@gmail.com

Abstract. Research has indicated that online daters may pick up on language cues connected to personality traits in online dating profile texts, and act upon those cues. This research seeks to investigate the level of accuracy of detection of personality in dating profile texts, and the extent to which perceived or actual similarity of personality has an effect on attractiveness of the author. An online survey was conducted collecting the Ten Item Personality Inventory (TIPI) for each participant and text author, a peer-report TIPI score by participants for each text author, and an attractiveness rating on a Likert scale for each author. Participants correctly identified Extraversion, though the effect size was small. Contrary to the hypotheses, participants preferred texts when written by an author with a personality they perceived as dissimilar to their own, specifically in Openness and Conscientiousness, and no relationship was found between actual similarity of personality and attractiveness. Online daters may choose partners with complementary or desirable traits rather than similar



traits, or other factors in attraction may be more salient in the initial stages of determining attraction.

The Role of Expectations in Game-Based Training Christine KREUTZER^{a,1}, Clint BOWERS^a ^a Psychology Department, University of Central Florida, United States

¹Corresponding Author Christine KREUTZER christine_kreutzer@knights.ucf.edu

Abstract. The present work seeks to examine the importance of expectancies in computer-mediated treatment and training programs. Two studies examining the role of patient and trainee expectations are presented. Study 1 investigated how expectations of a training game for military surgical teams influence training performance outcomes. The findings have implications for the administration of game-based treatment and training systems. Study 2 explored how pre-treatment expectancies influence posttreatment reactions to a game-based intervention for post-traumatic stress disorder (PTSD). Results indicate that self-efficacy plays a mediating role in the relationship between expectancies and reactions. Together, these studies offer implications regarding the critical role of attitudes towards game-based training and treatment mechanisms.

Combining Face-to-face Therapy with Computerized Techniques: A Therapists' Attitudes Survey Jonathan G. SHALOM^{a,1}, Roee ISRAEL^a and Nira SHALOM^b

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^b Bar-Ilan University, Israel

¹Corresponding Author Jonathan G.SHALOM shalomj@post.bgu.ac.il

Abstract. Therapists' attitudes towards the use of computerized therapies have been the focus of numerous studies. Nevertheless, little is known about therapists' perception



Understanding the Effects of Interactive Technologies on Behavior and Society

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Achieving Success Through Virtual Reality and Cognitive-Behavioral Therapy By Dr. Brenda K. Wiederhold, PhD, MBA, BCIA

This book is written as a starting point toward helping the large portion of our population that suffers from anxiety disorders to overcome their fears and control their anxiety. It is a resource to enable those suffering from anxiety to take control of their lives and become an active participant in their own recovery.

This book is essentially divided into two parts: a discussion of anxiety and its physical and emotional effects on sufferers. While Virtual Reality Therapy is described, its use is not necessary in order to follow the suggestions in this book. The lessons and worksheets included can help in a variety of areas, not just anxiety, but anger, mild depression, and feelings of helplessness.

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of a combined model that uses computerized methods as adjuncts to face-to-face (FTF) therapy. Current study surveyed 87 Israeli therapists' attitudes towards such combined model. Results show that more than half of therapists find it as potentially more effective than regular therapy, better for providing feedback and maintaining continuity of care. More than a third of the therapists found it may elicit better patient satisfaction and engagement. With respect to different modalities, therapists indicated that e-mail correspondence are better suited for combining with FTF treatments. Theoretical orientation had little effect on practitioners' attitudes. Finally, more than half of the therapists showed willingness to undergo training for a combined model. Compared to previously researched computerized interventions, current study indicates more positive attitudes and acceptability among therapists towards an integrative model.

How Will the Internet Facilitate Risk Information Seeking in an Ageing Society? A Path Analysis Yiwei Ll^{a,1}, Yu GUO^a, and Naoya ITO^b

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¹Corresponding Author Yiwei Ll yiweili@imc.hokudai.ac.jp

Abstract. Information seeking is suggested as a purposive process of knowledge acquisition and an important precursor of selfprotective behavior. Therefore, ways of enhancing individuals' information seeking are expected to help personal decision- making and precautions under conditions of risk. China is rapidly getting older, which will change many aspects of government measures including risk communication and management. Meanwhile, China owns the world's largest population of Internet users with a continuous increase in the population of ageing netizens. Considering this, as interdisciplinary

and exploratory in nature, this study attempts to explore how the Internet will act upon risk perception and risk information seeking among the ageing people. We assumed that older adults would trust the Internet more because features of such new information and communication technology (ICT) are new and impressive to them. As long as they believe information online is trustworthy, the richness and complexity of Internet information that playing a salient role in the social amplification of risk will increase their risk perception and get them motivated to instill more confidence in information seeking for precautions. Based on data collected from 1032

Internet users in China, results of path analysis supported our assumptions and showed good model fit (X2=3.359, p=.186>.05, GFI=.999, RMSEA=.026). Findings of this study may enrich our knowledge about the cognitive route of ageing people that leads to precautionary behaviors. This study may also contribute insights to risk

communication practice regarding how to facilitate elderly people's risk related decision-making and precautions in the age of the Internet.

Being in an Avatar: Action and Embodiment in a Digital Me Stefano TRIBERTI^{a,1}, Silvia SERINO^b, Luca ARGENTON^c, Giuseppe RIVA^{a,b} ^a Department of Psychology, Università Cattolica del Sacro Cuore, Milan, Italy ^b Applied Technology for Neuro-Psychology Lab. Istituto Auxologico Italiano, Milan, Italy ^c Centre for Studies in Communication Sciences – CESCOM, University of Milan-Bicocca

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Abstract. This paper provides an empirical research about virtual reality users' avatar embodiment. According to literature, users that are embodied/ incarnated in their avatars show a tendency to perceive avatars' failures as their own mistakes. Therefore, they are likely to monitor their own hands on the device they're using (e.g.: keyboard) when they perceive a failure in the interaction (a behavior named "focus shift"). We hypothesize that the phenomenon of focus shift is sensitive to different types of failures that can affect the multiple elements involved in the interaction. Thirty participants guided an avatar through a videogame-like virtual environment. The participants were exposed to three experimental manipulations (defective keyboard, defective avatar, and defective virtual environment). We counted the number of focus shifts that participants showed in response to these three manipulated anomalies. Results showed a significantly high number of focus shifts in the condition with defective virtual environment. The findings are discussed with reference to mediation theory, explaining the role of action/feedback matching in the phenomenon of avatar embodiment.

Human Instruments: Accessible Musical Instruments for People with Varied Physical Ability.

Vahakn MATOSSIAN^{a,1}and Rolf GEHLHAAR^a

^a Human Instruments

Abstract. There are few ways in which persons, who do not have the use of their hands or arms, are able make music or control complex computer systems. Music as an expressive output is key to the full development of the human mind. Human Instruments is dedicated to the development and production of accessible musical instruments playable at a professional level, as well as computer control interfaces. We are currently user-testing three new, uniquely accessible devices, for their effectiveness in expressive music creation. Preliminary results are compelling.

Presence Symposium

Effects of Transcranial Direct Current Stimulation (tDCS) on Presence and Arousal After Exposure to Immersive Virtual Reality

Andrea GAGGIOLI^{a,b,1}, Barbara



COLOMBO^b, Roberto FRATTON^b, Miriam RUGGER^b, Giuseppe RIVA^{a,b}

 ^a Applied Technology for Neuro-Psychology Lab, Istituto Auxologico Italiano, Milan, Italy
 ^b Department of Psychology, Università Cattolica del Sacro Cuore, Milan, Italy Abstract.

¹Corresponding Author Andrea Gaggioli andrea.gaggioli@unicatt.it

Abstract. We investigated effects of transcranial direct current stimulation (tDCS) of left dorsolateral prefrontal cortex (DLPFC) on feeling of presence and physiological arousal, as elicited by exposure to an immersive virtual environment. Sixtyone participants (30 males; M=23,0; S.D.=2,4) were randomly assigned to three stimulation conditions (anodal, cathodal, sham). Following the different tDCS treatments, participants performed a simple navigation task in an immersive virtual environment. Next, participants retrospectively assessed presence by filling out the ITC-Sense of Presence Inventory (ITC-SOPI). During questionnaire administration, psychophysiological parameters were collected in order to control for individual differences and mental stress. Comparisons between stimulation conditions were conducted using Multivariate Analysis of Variance (MANOVA) followed by Bonferroni's post hoc test. Results showed that the three stimulation conditions did not differ on any of ITC-SOPI subscales. However, there was a significant gender by condition effect for two ITC-SOPI subscales (namely, "Ecological Validity" and "Negative Effects"), with females being more or differently affected by the stimulation. Overall, these findings do not support the hypothesis that stimulating the left DLPFC affects presence. However, these observations indicate that tDCS modulation of this brain area produces gender-dependent effects on specific presence features.

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Abstract. Three studies were conducted to examine the effect of audio on people's experience in a virtual world. The first study showed that people could distinguish between mono, stereo, Dolby surround and 3D audio of a wasp. The second study found significant effects for audio techniques on people's self-reported anxiety, presence, and spatial perception. The third study found that adding sound to a visual virtual world had a significant effect on people's experience (including heart rate), while it found no difference in experience between stereo and 3D audio.

Measuring Co-Presence and Social Presence in Virtual Environments – Psychometric Construction of a German Scale for a Fear of Public Speaking Scenario Sandra POESCHL^{a,1}, Nicola DOERING^a ^aTU Ilmenau

¹Corresponding Author

Abstract. Virtual reality exposure therapy (VRET) applications use high levels of fidelity in order to produce high levels of presence and thereby elicit an emotional response for the user (like fear for phobia treatment). State of research shows mixed results for the correlation between anxiety and presence in virtual reality exposure, with differing results depending on specific anxiety disorders. A positive correlation for anxiety and presence for social anxiety disorder is not proven up to now. One reason might be that plausibility of the simulation, namely including key triggers for social anxiety (for example verbal and non-verbal behavior of virtual agents that reflects potentially negative human evaluation) might not be acknowledged in current presence questionnaires. A German scale for

measuring co-presence and social presence for virtual reality (VR) fear of public speaking scenarios was developed based on a translation and adaption of existing co-presence and social presence questionnaires. A sample of N = 151 students rated co-presence and social presence after using a fear of public speaking application. Four correlated factors were derived by item- and principle axis factor analysis (Promax rotation), representing the presenter's reaction to virtual agents, the reactions of the virtual agents as perceived by the presenter, impression of interaction possibilities, and (co-)presence of other people in the virtual environment. The scale developed can be used as a starting point for future research and test construction for VR applications with a social context.

Being Present In Space: The Role Of Allocentric And Egocentric Reference Frames

Silvia SERINO^{a,1}, Daniel MESTRE^b, Pierre MALLET^b, Jean-Marie PERGANDI^b, Grégory SMIALEK^b, Pietro CIPRESSO^a, Giuseppe RIVA^{a,c} ^a Applied Technology for Neuro-Psychology Lab, Istituto Auxologico Italiano, Milan, Italy ^b Institute of Movement Sciences, Etienne-Jules Marey", CNRS-University of Aix-Marseille II, Marseille,

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Abstract. The general aim of the present study was to investigate the effect of an interactive aerial view of the experienced environment during the encoding and retrieving of spatial information on the feeling of presence. Our findings showed that this realtime interactive aerial view (both small and large) during the encoding and retrieval of spatial information seems to lead to a greater sense of presence. It is argued that the use of this aerial view, which provides a realtime allocentric viewpoint- dependent spatial representation, would ease

The Effect of 3D Audio and Other Audio Techniques on Virtual Reality Experience

Willem-Paul BRINKMAN^{a,1}, Allart R.D. HOEKSTRA^a, René van EGMOND^a

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Positive Change: Connecting the Virtual and the Real

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The evolution of healthcare delivery systems has included an increased reliance on technology. There has been a significant shift in the nature of care prevention, diagnosis and treatment, which has decreased the importance of traditional methods of care delivery. Cybertherapy has started to make progress in treating a variety of disorders, but more work is needed in a number of areas, including the development of easy-to-use and more affordable hardware and software and objective measurement tools, the need to address potential side-effects, and the implementation of more controlled studies to evaluate cybertherapy in comparison to traditional therapies.

This book, the 2014 Annual Review of Cybertherapy and Telemedicine (ARCTT), presents a carefully structured overview of subjects related to the area of cybertherapy and telemedicine. The book is divided into six sections. An introductory editorial explains the focus of this year's issue, and is followed by a section entitled Critical Reviews, which summarises and examines emerging cybertherapy topics. The third section includes chapters on Evaluation Studies, and the contributions in section four, Original Research, deal with new cybertherapy methods and approaches. The fifth section, Clinical Observations, includes case studies and research protocols with long-term potential, and the final sixth section presents papers describing future research work.

The book will be of interest to both health professionals and patients, and to anyone else interested in the continued improvement of healthcare systems.

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the translation of a stored allocentric representation into an egocentric one, and this process, consequently, would help individuals to feel present in space.

Presence At A Distance Lise HADDOUK^{a,1} ^a Rouen University

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Abstract. Nowadays in the context of the cyberculture, computer-mediated inter- subjective relationships are part of our everyday lives, in both the professional and personal spheres, and for all age groups. In the clinical field, many applications have been developed to facilitate the exchange of information and mediate the relationship between patient and therapist. In psychology, more or less immersive technologies are used, to encourage the feeling of presence among the users, and to trigger certain psychological processes. In our research, we have explored the remote clinical interview through videoconferencing, with the development and utilisation of the iPSY platform, totally focused on this objective. In this context, we have considered the notion of intersubjectivity, despite the physical absence. This research is leading us today to envision the notions of distance and presence, and possibly to redefine them. Thus, can we still oppose physical distance to psychological distance? Can we still affirm that the physical absence does not permit a psychological copresence in certain interactions, like this observed in video interviews? The results show that the psychological processes, activated in this context, are similar to those observed in "traditional" clinical consults between the patient and the therapist. However, certain specifics have led us to consider the concept of distance, here influenced by the framework, and to observe its effects. This distance could possibly constitute a

therapeutic lever for some patients, notably for those who have difficulties establishing the right psychological distance in their relationships with others. According to these results, can "distance" still be opposed to "presence", or could it be re-defined? This also opens up questions on the more general concept of digital relationships, and the definition of their specificities.

Pain Symposium

Virtual Reality Pain Distraction of a Severe Pediatric Burn Patient during Wound Debridement in the ICU Tank Room: A Case Study. Hunter G. Hoffman1,3,4, Miriam Gonzalez1,2, David R. Patterson5, Sam

R. Sharar6, Mary Bernardy1, Sandra Bermea1, Maribel Ramirez1,2, Laura Rosenburg1,2, Marta Rosenburg1,2, Wadee Al-Halabi4, Jeff Magula3, Barbara Atzori7, Walter J. Meyer III1,2. Human Photonics Laboratory, Mechanical Engineering, University of Washington, Seattle, Washington Universidad publica de Navarra, Pamplona

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Abstract. This case report explores for the first time, whether adjunctive VR distraction can be used to distract children with large severe burn wounds, during wound care in the ICU tank room, an unusually challenging treatment context. To our knowledge, this is the first study to report results from a pediatric burn patient with such large severe burns during wound care in the ICU. A portable, weightless (robotlike arm mounted), water-friendly adjunctive SnowWorld virtual reality pain distraction system customized by our team was successfully pushed into the ICU tub room when needed, already turned on, completely battery powered. The goggles were quickly and unobtrusively positioned near the patient's eyes, without physically touching the patient. The patient reported less pain during VR than during No VR. Although case studies are scientifically inconclusive by

nature, results from this preliminary case study encourage further research.

Development of A Virtual Environment Based on the Perceived Characteristics of Pain in Patients with Fibromyalgia

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Abstract. Fibromyalgia (FM) is a disorder characterized by chronic physical pain. The perception of this pain has psychological effects on mood, anxiety, and the degree of perceived control. In turn, these factors may increase the experience of pain. This study aims to develop a new virtual environment for the treatment of FM in order to enhance the therapeutic effects of traditional interventions. The first phase included a sample of 19 patients in order to identify common characteristics of the representation of pain and absence of pain, through drawing. The results showed that patients used different colors and different physical states to depict pain (red, motionless) and the absence of pain (blue, in motion). These features were then included in a 3D representation of the human body. ANOVA analysis showed that the degree of anxiety and depression influenced the perceived characteristic of movement.



Poster Presentations

A Mobile Application for the Assessment of Unilateral Spatial Neglect

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Abstract. Unilateral Spatial Neglect (USN) is traditionally assessed with paper- and- pencil tests or computerbased test. Being mobile devices wide-spreading makes sense to provide professionals with mobile tools for the cognitive assessment. On the other hand mobile device are now able to include graphical elements before available on only on dedicated workstations. Contemporary 3D engine are also able to deploy complex 3D environments for iOS, Android and Windows mobile, i.e. most of the mobile phone and tablet operative system. This brand new scenario and pressing requests from professionals, pushed us to build an application for the assessment of Unilateral Spatial Neglect. Our first attempt was to replicate the classic cognitive tests traditionally used at this purpose, but by developing the mobile platform we realized that we would have been able to include ecological exercises for which professionals would need a considerable effort, such as going at patients' home. Now the application is available for iPad and iPhone for free, from the Apple Store, under the name "Neglect App." The App contains traditional tests (e.g. barrage with and without distractors) and ecological tests (e.g. to deal game cards on a table to close people). Scoring of all tests is made available to the users and the screenshots with the executed ecological tasks are stored locally. All data can be sent by email. In conclusion Neglect App is at the moment the most advanced mobile platform available for free for the

assessment of Neglect.

Pain Tolerance and Virtual Reality: Exploring the Effect of Sound Sarah JOHNSON and Matthew COXON

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Abstract. Pioneering work from Hoffman and colleagues has shown that playing games using immersive virtual reality technology (IVR) can be an effective means of pain management (e.g. Hoffman et al, 2000).

The technological level of the system used influences this analgesic effect. For example, Hoffman et al. (2004) found that perceived pain was reduced to a greater extent in a high technology group compared to a low technology group. The technology differed in terms of the field of view of the Head Mount Display (HMD); graphical resolution; game interactivity; head-tracking; and inclusion of sound.

Efforts to determine the influence of each individual component are ongoing. For example:

• Hoffman et al. (2006) found that a HMD with a larger field of view was more effective than one with a smaller field of view;

• Dahlquist et al. (2007) found that an interactive game was more effective than a non-interactive game; whilst

• Dahlquist et al. (2010) found that changing the avatar point of view made no difference for their sample.

The potential effect of sound was systematically investigated here. It is possible that sound may have an additive role (Enhancing the overall analgesic effect), that sound may be unnecessary (Adding nothing to the analgesic effect), or that sound on its own may be sufficient (providing an equivalent analgesic effect). The Body Image Haptic Virtual Reality Application: Description and Use Line TREMBLAY^{a,1}, Melina ROY-VAILLANCOURT^a, Brahim CHEBBI^a, Stephane BOUCHARD^b, Michael DAOUST^a, Moriah THORPE^a ^aLaurentian University ^b Université de Québec à Gatineau

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Abstract. We report an experiment using of a haptic virtual reality application to measure and predict anti-fat attitude in participants interacting with avatars of different weight and gender.

Positive Technology to Enhance Self-Efficacy in Sport: A Preliminary Blended Intervention

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Abstract. In the last decade, research has shown that web-based technology can be effectively employed to support interventions aimed at the empowerment of psychological skills such as self-efficacy, such one's belief in being able to execute a specific task to obtain a certain outcome.

In this study, we tested the effectiveness of an innovative blended intervention program combining face to face and web-based activities in enhancing self-efficacy among young basket players. The intervention program lasted seven weeks and was based on the four sources of self-efficacy information identified by Bandura (past performance accomplishments, vicarious experiences, verbal persuasion and physiological and affective state).

In a two-group pre-test and a posttest design, thirty-seven basket players received either an interactive



multimedia or a control text-based training program. The results indicated that the athletes receiving the web-based interactive training reported higher levels of selfefficacy compared to the baseline assessment, while no significant differences emerged in the control group.

Although this work is a preliminary study, it provides important hints for future application of the Positive Technology approach in sport research. Our results seem to suggest that blended PST programs combining face to face and webbased experiences may represent a promising approach to promote psychological skills effectively.

Web-Based Treatment for Substance Use Disorders: Results from a Randomized Clinical Trial

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Abstract. The authors examined an array of demographic, psychological, and behavioral characteristics of opioid-dependent persons entering substance abuse treatment as predictors of outcomes from treatments that did or did not involve a technology-based behavioral intervention. Participants (N=160) were randomly assigned to either standard methadone maintenance treatment or reduced standard treatment combined with the webbased Therapeutic Education System (TES). Demographic, psychological and behavioral characteristics of participants were measured at baseline. Opioid abstinence (objectively measured by urinetesting) and treatment retention were measured weekly for a 52-week intervention period. Generalized linear model and cox-regression were used to estimate the predictive ability of baseline characteristics in understanding treatment outcomes. We found significant interaction predictors of opioid abstinence and treatment retention across conditions. Employment status, anxiety, and ambivalent attitudes toward substance use predicted better opioid abstinence in the reduced-standard-plus-TES condition compared to standard treatment. Participants who had used cocaine/ crack in the past 30 days at baseline showed lower dropout rates in standard treatment after 30 weeks. whereas those who had not used cocaine/crack in the past 30 days at baseline exhibited lower dropout rates in the reduced-standard-plus-TES condition after the first 10 weeks. Results offer practical implications for participant-treatment matching, with most interactions suggesting a benefit for integrating TES as part of treatment.In a two-group pre-test and a post-test design, thirty-seven basket players received either an interactive.

A Computer-Aided Self-Help Treatment for Flying Phobia: Study Protocol for a Randomized Controlled Trial

Abstract. The use of computerassisted exposure programs for evoking phobic stimuli configurations is an alternative to in vivo exposure and virtual reality that has proven its efficacy in treating Flying Phobia (FP). However, to our knowledge, no controlled study for FP exists to investigate the efficacy of a computerized program completely self-applied over the Internet. NO-FEAR Airlines is an Internet-based self-applied treatment program that allows people with FP to be exposed to images and sounds related to their phobic fears on a standard personal computer. This work presents the protocol study describing the plan to conduct a randomized controlled trial (RCT) to determine the efficacy of this program. We expect to provide data regarding efficacy of this program

and the role of support by the clinician in the treatment via the Internet for FP.

The Influence of Threat Situation and Expectation on the Weapon Focus Effect in the Virtual Mock- Crime Video

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Abstract. The aim of this study was to investigate whether the evewitness expecting to see a weapon would cause a weapon focus effect (WFE) in the threat or non-threat situation. We used two video clips based on the presence or absence of a threat (crime or refund). 80 participants were randomized within four conditions: Threat and Expected, Threat and Unexpected, Non-threat and Expected, and Non-threat and Unexpected. The expected conditions, critical information about the incident was given before watching the video clip, while the unexpected conditions were not. To identify the occurrence of the WFE, eye- movement was measured while participants were watching interaction between two individuals in the crime scene or the refund scene, then memory recall test and line-up test were given at the end of the experiment. As results, Threat and Unexpected condition showed significantly longer dwell time on the weapon than did other conditions. This study suggested participants' expectancy to see a weapon can be reduced the WFE.

The Effect of Self-Control Level on Smartphone Addiction Hye-Won KIM^a, Jang-Han LEE^{a,1}

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¹Corresponding Author Jang-Han LEE cclipsy@cau.ac.kr Abstract. The present study aimed to investigate the effects of cognitive self-control depletion in smart phone addiction by using a Go/NoGo task. Eighty participants were recruited by the scores on Adult Smart phone addiction Scale. 40 smart phone addiction people and 40 nonaddictive people were randomly assigned to the one of the two groups (Depletion group, n=40; Control group, n=40). As result, smart phone additive group significantly had lower accuracy than the other group on Go/NoGo task. These results would imply that effective self-regulation is an important key to successful functioning in smartphone addiction.e reduced the WFE.

Attentional Vigilance for Food after Experiencing Thinness Fantasy in Restrained Eaters

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Abstract. The aim of this study was to examine the role of a restrained eater's neuroticism level in thinness fantasy processing and attentional bias for food following exposure to thin-ideal images. Eighty-five female participants were classified into four groups on the basis of their dietary restraint (restrained/unrestrained eaters) and

neuroticism level (high/low). They completed self-reports (mood, BD level) on a visual analogue scale before and after exposure to thin-ideal images, and then their attentional bias for food was measured using eyemovements. Results indicated that after exposure to thin ideal images, positive affect was more decreased in restrained eaters with high neuroticism compared to other groups and negative affect was increased in all groups except unrestrained eaters with low neuroticism. Also, restrained eaters with high neuroticism showed a heightened vigilance for food. These

findings suggest that restrained eaters with high neuroticism are most likely to be disturbed by thinideal images and underscore the role of neuroticism in restrained eaters as a moderating factor of thinness fantasy.

Effectiveness of Exposure to Computerized Social Interaction on a Following FTF Interaction Among the Socially Anxious

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Abstract. For socially anxious individuals, computer mediated communication (CMC) is experienced as more controllable and safer than face-to-face communication (FTF). Whether the positive experience in CMC situations can be used as a stepping stone for those individuals in coping with FTF scenarios is yet unclear. Current study examined whether CMC chat interaction had positive effects on a following FTF conversation. In our experimental study,"# students (\$%=low anxiety, \$'=high anxiety) took part in either a CMC or a FTF social interaction followed by another FTF conversation. In the control condition subjects were asked to surf the internet before the FTF conversation. We found that comparedto controls, both the preliminary CMC and the FTF interactions were effective modalities in eliciting more self-exposure, higher partner's sympathy and less safety behaviors within a following FTF interaction. This finding was present only for the socially anxious participants such that only anxious individuals showed improvements compared to the control condition. Previous study by Markovitzky, Anholt and Lipsitz (2012) indicated that a preliminary CMC interaction reduces subjective anxiety in afollowing FTF conversation. Results from current study expand this inoculating effect of CMC beyond subjective anxiety, and help highlight the benefits of practicing social interactions through a text-based computerized modality.

The Role of Impulsivity and Autism in Video Game Addiction

Kibby MCMAHON^a, Carlos BLANCO^a ^a Duke University, Columbia University Medical Center

Abstract. The present study aims to explore impulsivity and autistic traits in a videogame player, "gamer," sample. In addition, we aim to describe the clinical distress associated with reported symptoms.

Eng-Age! A Research/Design Protocol For A Mobile App To Engage Elderly In General Practice Consultations Stefano TRIBERTI^{a,1}, Serena BARELLO^a, Guendalina GRAFFIGNA^a, Giuseppe RIVA^{a,b}

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Abstract. Enabling elderly in taking an active role in general practice (GP) consultations might improve the quality of care leading to better adherence with prescribed medication and advices provided, higher satisfaction with care and improvement in elderly health status. According to a User Centered Design approach, we describe a research-based design protocol for the development of a mobile app to increase elderly engagement in GP consultations; the threephases protocols entails qualitative methods in order to generate insight about the main users' needs and the corresponding functions to be included in the app design; and quantitative methods to evaluate usability and ergonomics of the app prototype. Expected results will also provide preliminary guidelines for the implementation of the Eng-Age app in patient education interventions.

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VRMC currently uses virtual reality For the past 10 years, The Virtual Reality Medical Center (VRMC) has been using simulation technologies in three main areas: 1) treating patients with anxiety disorders, 2) training for both military and civilian populations, and 3) enhancing various educational programs. With U.S. offices in San Diego, West Los Angeles, Palo Alto, California and an office and manufacturing facility in Orlando, Florida, VRMC is a world leader in applying virtual reality technology in combination with physiological monitoring and feedback for training, therapy, and emerging applications. We are also focused on developing a comprehensive protocol to address an array of needs for military personnel and civilian first responders as well as emerging technologies for various security and intelligence operations.

-VRMC operates and manages psychology clinics staffed by licensed clinical psychologists devoted to using cognitive-behavioral techniques

combined with virtual reality exposure therapy for the treatment of various disorders in both adults and children.

-VRMC designs, develops and markets advanced virtual reality systems for mental health care. -VRMC performs and participates in several researches funded by government.

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• Shared operating standards/plat-

38 nproved access to healthcare treatment for all citizens

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Presenting the Proceedings of

Annual Review of CyberTherapy and Telemedicine (ARCTT)



Annual Review of Cybertherapy and Telemedicine 2011

Advanced Technologies in Behavioral, Social and Neurosciences

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Advanced Technologies in the Behavioral, Social and Neurosciences

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Healthcare delivery systems have evolved greatly in recent years thanks to technological advances. Shifts in care, diagnosis and treatment have decreased the importance of traditional methods of care delivery and new ways have been developed to monitor and treat heart disease, inflammation and infection, cancer, diabetes and other chronic conditions. Monitoring techniques, in combination with imaging and telemetrics, can provide real-time, continuous evaluation of many conditions, and technology has not only helped to extend our lifespan but has contributed to an improved quality of life for all citizens.

This book examines and summarizes current and emerging trends in cybertherapy. It is divided into five main sections: critical reviews; evaluation studies; original research; clinical observations; and work in progress.

The book underlines the progress cybertherapy has made in treating a variety of disorders; it also explores the challenges still to be faced, including the development of easy-to-use and more affordable hardware and software, as well as objective measurement tools. It also highlights the need to address potential side effects, and the importance of implementing more controlled studies to evaluate the strength of cybertherapy in comparison to traditional therapies, and will be of interest to all those involved in the delivery of healthcare today.

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