Tuesday, June 9, 2015

09:00 – 12:00 Morning Workshops

Virtual Reality Technology for the Clinician. 1
Grigore C. Burdea

Incorporation of motor control and motor learning principles into VR applications. 2
Mindy F. Levin, Sandeep K. Subramanian, Maxime T. Robert

13:00 – 16:00 Afternoon Workshops

Virtual Reality-Based Assessment and Treatment Interventions for the Combat-Injured Service Member. 3
Christopher A. Rábago, Alison L. Pruziner, Elizabeth Esposito

Developing innovative home-based telerehabilitation strategies for post-stroke rehabilitation. 4
Dahlia Kairy, Philippe Archambault

Wednesday, June 10, 2015

08:00 – 09:00 Registration

09:00 – 09:15 Welcome and Introduction
Mariano Alcañiz Raya (General Conference Chair) and Patrice L. (Tamar) Weiss (Steering Committee Chair)

09:15 – 10:30 Gait and Navigation
Geoff Wright, Anat Mirelman (Co-chairs)

Differential neural activation in healthy older adults compared to subjects with PD during motor imagery of walking in virtual environments. Inbal Maidan, Keren Rosenberg-Katz, Yael Jacob, Nir Giladi, Judith E Deutsch, Jeffery M Hausdorff, Anat Mirelman
Influence of cueing, feedback and directed attention on cycling in a virtual environment: Preliminary findings in healthy adults and persons with PD. Rosemary Gallagher, Harish Damordaran, William G. Werner, Judith E. Deutsch 11

Treadmill-virtual reality combined training program to improve gait in multiple sclerosis individuals. Agnese Peruzzi, Andrea Cereatti, Zarbo Zarbo, Anat Mirelman, Ugo Della Croce 18


A closed-loop Brain Computer Interface to a Virtual Reality avatar: Gait adaptation to visual kinematic perturbations. Phat Luu, Yongtian He, Samuel Brown, Sho Nakagome, Jose L. Contreras Vidal 30

10:30 – 10:50 Coffee Break

10:50 – 12:20 Cognition and Emotion
Evelyne Klinger, Peter Wilson (Co-chairs)

Influence of cognitive deficits on use of feedback for motor learning in chronic stroke. Sandeep Subramanian, Gevorg Chilingaryan, Heidi Sveistrup, Mindy Levin 38

Spatial navigation in virtual reality – from animal models towards schizophrenia. Iveta Fajnerova, Mabel Rodriguez, Kamil Vlcek, Ales Stuchlik, Cyril Brom, David Levčík, Filip Spaniel, Jiri Horacek 44

Simulating the practice of daily life social and vocational situations via video modeling. Patrice L. (Tamar) Weiss, Michal Hochhauser, Rotem Rosen, Sharon Zlotnik, Eynat Gal 51

BrightBrainer feasibility study in a medical adult day program. Grigore Burdea, K. Polistico, R. Liu, G. House, R. Muñiz, N. Macaro, L. Slater, Francis E. Parker, J. Hundal, S. Pollack 57

The benefits of emotional stimuli in a virtual reality cognitive and motor rehabilitation task: Assessing the impact of positive, negative and neutral stimuli with stroke patients. Ana Lúcia Faria, Mónica S. Cameirão, Teresa Paulino, Sergi Bermudez i Badia 65

12:15 – 13:30 Lunch (ISVR Board meeting, by invitation)

13:30 – 15:00 Posture and Wheelchair Driving
Emily A. Keshner, Gabi Zeilig (Co-chairs)

Low-cost, room-size, and highly immersive virtual reality system for virtual and mixed reality applications. Adrián Borrego, Jorge Latorre, Roberto Lloréns, Enrique Noé, Emily A. Keshner 73

A low-cost Wii Balance Board™-based posturography system: an efficacy study with healthy subjects and individuals with stroke. Roberto Lloréns, Jorge Latorre, Enrique Noé, Emily A. Keshner 80
Home-based self-training using video-games; preliminary data from a randomised controlled trial. Debbie Rand, Harold Weingarden, Anat Yacoby, Ronit Weiss, Shlomit Reif, Rachel Malka, Gabi Zeilig

Formative Evaluation and Preliminary Validation of Kinect Open Source Stepping Game. Robbie Gosine, Harish Damodaran, Judith E. Deutsch

ViEW, a wheelchair simulator for driving analysis. Yann Morère, GuyBourhis, Kévin Cosnuau, Georges Guilmois, Emmanuelle Blangy, Emilie Rumilly

Powered Wheelchair Driving Using a 3D Haptic Device. Amine Hadj-Abdelkader, Brahim Cherki, Guy Bourhis

15:00 – 15:30 Coffee Break

15:30 – 16:10 Poster Fast Forward Session
Roberto Llorénns (chair)

The efficiency of cognitive therapy using virtual reality on upper limb mobility in stroke patients Lucie Szmekova, Tereza Katolicka, Jana Havelkova

Virtual Reality and Serious Games for Rehabilitation Patrick Abellard, Alexandre Abellard

Lokomat walking results in increased metabolic markers in individuals with high spinal cord injury Gabi Zeilig, Harold Weingarden, Alexei Obuchov, Michael Gaides, Ronen Reuven, Ayala Bloch, Issahar Ben Dov

Balance and cognition in Parkinson’s Disease: treatment based on virtual reality Matheus Silva d’Alencar, Inara da Silva Pereira, Jean Alex Matos Ribeiro, Raphaela Brigida de Jesus Souza, Gabriela Evangelista dos Santos, Bruno Oliveira Gonçalves, André Luis Batista dos Santos, Rafael Vinicius Santos Cruz, Kátia Nunes Sá, Elen Beatriz Carneiro Pinto, Abrahão Fontes Baptist

Correlation between evolution of disease and gait speed in elderly with Parkinson’s Disease submitted to virtual reality therapy Matheus Silva d’Alencar, Inara da Silva Pereira, Jean Alex Matos Ribeiro, Raphaela Brigida de Jesus Souza, Gabriela Evangelista dos Santos, Bruno Oliveira Gonçalves, André Luis Batista dos Santos, Rafael Vinicius Santos Cruz, Kátia Nunes Sá, Elen Beatriz Carneiro Pinto, Abrahão Fontes Baptist

Assessing a cognitive rehabilitation environment based on interactive video and eye-tracking technologies José María Martínez-Moreno, Javier Solana Sánchez, Patricia Sánchez-González, Rocío Sánchez-Carrióón, Jaume López Carballo, Teresa Roig Rovira, José María Tormos Muñoz, Enrique J Gómez
A serious game with virtual reality for travel training with Autism Spectrum Disorder Miguel Bernardes, Marco Simões, Fernando Barros, Miguel Castelo-Branco 127


OPCM Model Application on a 3D Simulator for Powered Wheelchair Hicham Zatla, Amine Hadj-Abdelkader, Yann Morère, Guy Bourhis 131

Virtually Zooming-In with Sensory Substitution for Blind Users Galit Buchs, Shachar Maidenbaum, Shelly Levy-Tzedek, Amir Amedi 133

Assessing the gaming experience of a serious exergame for balance problems: results of a preliminary study Anke I.R. Kottink-Hutten, Lex van Velsen, J Wagenaar, Jacob H. Buurke 135

Using a 3D hand motion controller in a virtual power wheelchair simulator for navigation-reaching Gordon Tao, Philippe Archambault 137

Exergame development for dynamic postural control training Annie Pouliot-Laforté, Édouard Auvinet, Martin Lemay, Laurent Ballaz 139

The role of feedback on cognitive motor learning in children with Cerebral Palsy: a protocol Maxime Robert, Krithika Sambasivan, Rhona Guberek, Mindy Levin 141

Serious Game Based Dysphonic Rehabilitation Tool Zhihan Lv, Chantal Esteve, Javier Chirivella, Pablo Gagliardo 143

Designing virtual environments for motor rehabilitation: towards a framework for the integration of best-practice information Thomas Schüler, Luara Ferreira dos Santos, Simon Hoermann 145

The Effects of Haptic Forces on Locomotion and Posture in Post Stroke and Elderly Adults Gianluca Sorrento, Philippe S. Archambault, Joyce Fung 147

Hand and Foot In-Air Interaction for Hemiplegia Zhihan Lv, Haibo Li 149

Characteristics of exploratory movements used to find edges when using only tactile feedback Theodore Milner, Roger Gassert, Vincent Hayward 151

Subtle Velocity Dependent Postural Reorganization in the Virtual Environment Yawen Yu, Sara Snell, Emily Keshner, Richard Lauer 154

Is Virtual Reality better than platform-based vestibular rehabilitation methods? Madeline Gabriela Georgescu 156
Evaluation of multimodal feedback effects on the time-course of motor learning in multimodal VR platform for rowing training

Maria Korman, Alessandro Filippeschi, Emanuele Ruffaldi, Yifat Shorr, Daniel Gopher

Hybrid Systems Modeling Applied for Reproducing Human Gait

João Mauricio Rosário, Rayanne Batista, Renato Kuteken, Ulisses Bayão, Didier Dumur

A virtual ball task driven by forearm movements for neuro-rehabilitation: prefrontal cortex activation assessed by functional near-infrared spectroscopy (fNIRS)

Andrea Petracca, Marika Carrieri, Danilo Avola, Sara Basso Moro, Sabrina Brigadoi, Stefania Lancia, Matteo Spezialetti, Marco Ferrari, Valentina Quaresima, Giuseppe Placidi

Second generation system development and empirical testing of the Elements VR-rehab system

Nick Mumford, Jonathan Duckworth, Ross Eldridge, David Shum, Patrick Thomas, Bert Steenbergen, Gavin Williams, Dido Green, Jeff Rogers, Karen Caeyenberghs, Peter Wilson

Clinical evolution or familiarization? Biomechanical analysis of serious games exercises to assess the learning effect

Bruno Bonnechère, Bart Jansen, Lubos Omelina, Florent Diaz, Victor Sholukha Serge Van Sint Jan

Adaptive Prompt System Using a Ghost Shadowing Approach: A Preliminary Development

Yuya Shishido, Takehiko Yamaguchi, Takahiro Tsukagoshi, Ryosuke Yasuda, Tetsuya Harada, Vanessa Vallejo, Tobias Nef, Ioannis Tarnanas

Accuracy of Kinect for Measuring Shoulder Joint Angles in Multiple Planes of Motion

Meghan Huber, Miriam Leeser, Dagmar Sternad, Amme Seitz

Development and User Validation of Driving Tasks for a Power Wheelchair Simulator

Philippe Archambault, Émilie Blackburn, Denise Reid, François Routhier, Bill Miller, R. Lee Kirby

Towards a Tele-Robotic Exoskeleton for Real-Time Remote Evaluation of Human Upper-Limb Function

Andres Felipe Ruiz-Olaya

16:10 – 17:00 Debate – VR-based rehabilitation: Just for Fun?

Emily A. Keshner and Paul F.M.J. Verschure, Judith E. Deutsch (moderator)

18:00 Welcome reception

Thursday, June 11, 2015

08:00 – 09:00 Registration
09:00 – 09:50  **Keynote Lecture**  
Plasticity following split-brain surgery. Michael Gazzaniga (Enrique Noé, Roberto Llorens, Co-chairs)  

09:50 – 10:30  **Keynote Lecture**  
Can neuroimaging improve the delivery of neurorehabilitation? Nick Ward (Mariano Alcañiz, Enrique Noé, Co-chairs)  

10:30 – 10:50  **Coffee Break**  

10:50 – 12:20  **Upper Extremity Rehabilitation in Stroke**  
Sergi Bermudez, Grigore Burdea (Co-chairs)  

Tele-rehabilitation service delivery: Journey from prototype to robust in-home use. Rachel Kizony, Patrice L. (Tamar) Weiss, Yoram Feldman, Sharon Harel, Mordechai Shani, Alexei Obuhov, Gabi Zeilig, Orit Elion  

Reinforcement-Induced Movement Therapy: A novel approach for overcoming learned non-use in chronic stroke patients. Belen Rubio Ballester, Martina Maier, Armin Duff, Victoria Castañeda Galeano, Rosa San Segundo, Paul F.M.J. Verschure  

Clinical and neurophysiologic responses to recovery-oriented virtual rehabilitation of hand function in a person with subacute stroke: a case study. Gerard Fluet, Jigna Patel, Alma Merians, Qinyin Qiu, Mathew Yarossi, Anita Vanwingerden, Sergei V. Adamovich, Eugene Tunik, Supriya Massood  


BrightArm Duo integrative rehabilitation for post-stroke maintenance in Skilled Nursing Facilities. Gregory House, Grigore Burdea, Kevin Polistico, Doru Roll, Jaywoo Kim, Frank Damiania, Samantha Keeler, Jasdeep Hundal, Simcha Pollack  


12:15 – 13:30  **Lunch (ISVR General members meeting, all invited)**  

13:30 – 14:15  **Keynote Lecture**  
Brain-Computer interfaces. Michael L. Boninger (Martina Spiess, Chair)  

14:15 – 14:50  **Keynote Lecture**  
Cognetics in neuroscience and rehabilitation. Olaf Blanke (Patrice L. (Tamar) Weiss, Chair)
Friday, June 12, 2015

08:00 – 09:00 Registration

09:00 – 09:50 Keynote Lecture
Neuroplasticity-based strategies applied to delay onsets of-and to treat-psychiatric and neurological disorders. Michael Merzenich (Mariano Alcañiz, Enrique Noé, Co-chairs)

09:50 – 10:30 Keynote Lecture
Rethinking motor rehabilitation after stroke. John W. Krakauer

10:30 – 10:50 Coffee Break

10:50 – 12:30 Emerging Applications in Virtual Rehabilitation
Rachel Kizony, Gerry Fluet (Co-chairs)

Optimizing Motor Imagery Neurofeedback through the Use of Multimodal Immersive Virtual Reality and Motor Priming. Athanasios Vourvopoulos, John Cardona, Sergi i Badia


Visualisation of 2D kinematic data from bimanual control of a commercial gaming system used in post-stroke rehabilitation. Bulmaro V. Benavides, Navid Shirzad, Chai-Ting Hung, Stephanie Glegg, Erin Reeds, Machiel Van der Loos

Human Motion Analysis and Training Based on Inertial Measurement Units System. Lucas Struber, Aurélien Courvoisier, Philippe Cinquin, Vincent Nougier

Automated Grading of Facial Paralysis using the Kinect v2: A proof of concept study. Amira Gaber, Mona Taher, Manal A. Wahed

From theoretical analysis to clinical assessment and intervention: Three interactive motor skills in a virtual environment. Dagmar Sternad


12:30 – 13:30 Lunch
13:30 – 14:15  **Keynote Lecture**  
Re-engineering robot-assisted rehabilitation. Roger Gassert (Herman van der Kooij, Chair)

14:15 – 14:50  **Keynote Lecture**  
Towards a deductive medicine of neurorehabilitation: validating the distributed adaptive control theory of mind and brain in the clinic and at home with the Rehabilitation Gaming System. Paul F.M.J. Verschure (Mariano Alcañiz Raya (Chair))

14:50 – 15:20  **Coffee Break**

15:20 – 16:40  **ICVR Panel: Current Barriers to Virtual Rehabilitation**  
Panelists: John Krakauer, MD, Mindy Levin, PT, PhD, Stephen P~e OT, PhD, Valerie Pomeroy, PT, PhD  
Moderator: Alma Merians

16:40 – 17:00  **Awards Ceremony and Closing of Conference**