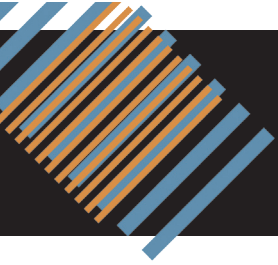


## ICVR Workshops

<b>Virtual Reality Technology for the Therapist</b>	<b>Monday 08:30 - 12:00</b>
Grigore C. Burdea, Rutgers University Tele-Rehabilitation Institute	HCI, J3
Organizer: Grigore C. Burdea, Rutgers University	
<p><i>Objective</i> The tutorial aims at educating the clinician on current VR technology intended or adapted for clinical use, including advantages and drawbacks.</p> <p>Virtual reality technology has progressed substantially in recent years, with system costs diminishing. Adoption has been mixed, and sometimes without a strong body of research, which certainly poses safety risks for the patient and professional challenges for the clinician. While building a strong body of data that would lead to “best practices” will take time, this Tutorial can assist by giving a broad and unbiased coverage of the technology and predicting trends for the future.</p> <p><i>Intended Audience</i> Clinicians (PTs, OTs, neuro-psychologists, psychiatrists) who contemplate getting involved in virtual rehabilitation research or clinical adoption but are held back by the technology unknown.</p>	

<b>Virtual Reality for Arm Therapy</b>	<b>Monday 09:30 - 12:00</b>
Andreas Luft, University Hospital Zurich John Krakauer, Johns Hopkins Hospital Daphne Bevalier, University of Rochester Eling de Bruin, ETH Zurich Robert Riener, ETH Zurich	HCI, J4
Organizer: Andreas Luft, University Hospital Zurich	
<p><i>Objective</i> Behavioral results in healthy volunteers suggest that virtual reality video gaming not only trains reaction time, selective attention and vision, but also improves one’s implicit learning ability. Stroke survivors can likely utilize the implicit learning capabilities of the motor system to improve movement deficits. The purpose of this workshop is to explore how to translate virtual reality-based training models that improve healthy learning to rehabilitation. The first two lectures are devoted to the characteristics of healthy movement learning and VR augmentation of healthy learning. The last two lectures then present virtual reality approaches to rehabilitation of elderly individuals and stroke survivors. The workshop will conclude with a round table discussion that aims at defining the necessary characteristics of virtual reality robotic gaming for stroke survivors with motor deficits.</p> <ul style="list-style-type: none"> <li>• Why we need VR in rehabilitation, lessons from motor learning studies (15+5 min) <i>John Krakauer, Johns Hopkins Hospital</i></li> <li>• Learning from VR games (30+10 min) <i>Daphne Bevalier, University of Rochester</i></li> <li>• VR in rehabilitation (20+5 min) <i>Eling de Bruin, ETH Zurich</i></li> <li>• VR and robotics (20+5 min) <i>Robert Riener, ETH Zurich</i></li> <li>• Round Table Discussion: Developing VR games for stroke survivors with motor deficits (30 min) <i>All</i></li> </ul>	



<b>Microsoft Kinect/Primesense Sensing Systems for Virtual Rehabilitation</b>	<b>Monday 08:30 - 12:00</b>
Belinda Lange and Albert (Skip) Rizzo, University of Southern California Patrice (Tamar) Weiss, University of Haifa	HCI, J7
Organizers: Belinda Lange and Albert (Skip) Rizzo, University of Southern California	
<p><i>Objective</i></p> <p>One of the exciting new developments in the field of Virtual Rehabilitation involves the release of the new Xbox Kinect system by Microsoft. This revolutionary game platform uses an infrared “depth-sensing” camera (produced by an Israeli company, Primesense) to capture users’ full body movement in 3D space for interaction within game activities. This system does not require the user to hold an interface device or move on a pad as the source of interaction within the game. Instead, the user’s body is the game controller operating in 3D space and multiple users can be tracked in this fashion for both cooperative and competitive interactive activities. This technology is a significant advance over previously available 2D video capture systems.</p> <p>Such low cost sensing systems for tracking human movement could revolutionize how virtual rehabilitation will be done in the future. Following a stroke, brain injury or other form of neurological disorder, a patient using this system can naturally interact with game content as part of their physical, occupational and cognitive therapy and they may be more motivated to do therapy when it is embedded in a game context. An attractive feature is the fact that while the Primesense camera provides the tracking functionality for the Kinect, it will soon be available as a low-cost stand-alone USB depth-sensing camera. This option will allow homegrown developers and researchers to produce game software and content that is specifically designed to promote rehabilitation, and perhaps “exergaming” activities beyond what the Xbox console games may offer.</p> <p>Researchers have thus far integrated the MS Kinect/Primesense movement tracking system with custom-built rehab games and with associated software that allows it to drive any PC-based computer game by emulating standard mouse and keyboard commands, all based on the designated physical activity of the user. This will provide a new dimension for interactive rehabilitation and exergaming in many ways by opening up a multitude of existing game content for full body interaction. These advances could stand to promote healthcare research and application development that could be widely disseminated at a low cost in user’s homes.</p> <p>The objective of this workshop is to provide participants with an introduction to the technology and illustrate how it has thus far been applied in application development and evaluation. Participants will have an opportunity to try out the system and take part in a discussion regarding future research and clinical developments.</p>	

<b>Successful operational deployment of telerehabilitation. Organizational and operational issues in implementing Hip/knee rehabilitation using the Evocare telerehabilitation concept; the Solis case</b>	<b>Monday 08:30 - 12:00</b>
Hans van Zeist, Manager Nursing home Zorggroep Solis Stefan Kok, Manager Paramedic Services Zorggroep Solis Henry Mulder, Director Evocare BV Achim Hein, Dr. Hein Healthservices GmbH	HCI, J6
Organizer: Henry Mulder, Evocare BV	
<p><i>Objective</i></p> <p>The ability to deploy telerehab successfully is a requirement to make telerehab mainstream. During 2010 Zorggroep Solis in Deventer, The Netherlands, implemented successfully the Evocare telerehabilitation concept. The workshop is using the experiences of the Evocare implementation. It will address the issues of implementing telerehab services in care provider organizations. Issues like required pre-requisites on infrastructure, procedures and protocols, job descriptions and other human resource issues, strategy, policies, communication and project management. Successful implementation of telerehab requires a tenacious team dealing with every detail to ensure broad acceptance within the organization and quality assurance.</p>	

