

2024 World Congress on Virtual Rehabilitation

PRESENTED
BY

ISVR & XR4REHAB



26-28 JUNE 2024, AMSTERDAM, THE NETHERLANDS

Wednesday, 26 June 2024

- 09.00 **Welcome**
Philippe Archambault (ISVR) & Remco Hoogendijk (XR4REHAB)
- 09.15 Opening Keynote - **Exploring the Mind: Enhancing Human Experience through XR Neuroscience**
Giuseppe Riva, University of Milan (IT)
- 09.45 Q & A
- 10.00 Lecture - **Implementation**
Oliver Kannape, Centre for Virtual Medicine (CH)
- 10.30 Coffee Break
- 11.00 Oral Session 1
- O1.1 **Action observation with motor simulation of a virtual humanoid avatar improves reactive stepping responses in older adults with a history of falls**
Presented by Lotte Hagedoorn (NL)
- O1.2 **Gait stability in virtual reality: The effects of VR display type on human locomotion in the presence of visual perturbations**
Presented by J. Stephen Bergquist (US)
- O1.3 **Using a novel virtual reality (VR) application to measure balance and sensorimotor deficits following mild Traumatic Brain Injury (mTBI) in veteran and civilian populations**
Presented by W. Geoffrey Wright (US)
- O1.4 **Gait-modifying effects of augmented-reality cueing in people with Parkinson's disease**
Presented by Eva Hoogendoorn (NL)
- O1.5 **Integrating clinical assessment and quality of movement tracking into games and home: A validation study**
Presented by Elaine Biddiss (CA)
- O1.6 **A novel VR paradigm to evaluate gaze stabilization in vestibular rehabilitation**
Presented by Yunyi Liu (CA)
- 12.30 Lunch Student Mentoring Lunch
- 13.45 Projects in the Spotlight
- PS1.1 **Integrating Extended Reality in rehabilitation: insights from the XRRehab Project in Belgium**
Presented by Gudrun Nys (BE)
- PS1.2 **A Large Over Ground Virtual Suite (LogVS) with integrated pedestrians for multifaceted virtual rehabilitation research and practice**
Presented by Bradford McFadyen (CA)
- PS1.3 **VR-based Interventions for Neurocognitive and Neurodevelopmental Disorders: preliminary results of the VESPA 2.0 Project**
Presented by Emanuele Maria Merlo (IT)
- 14.15 Oral Session 2
- O2.1 **Developing and testing a new feedback-based therapy exercise game using design thinking**
Presented by Marina Petrevska (CA)
- O2.2 **Beyond the traditional research design for the evaluation of virtual rehabilitation**
Presented by Stephanie Jansen-Kosterink (NL)
- O2.3 **Co-design and development of a virtual reality pacing experience for Long Covid**



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Presented by Eoghan Ó Riain (IE)

O2.4 **Withdrawn**

O2.5 **Design and evaluation of remote virtual game for cognitive training in elderly**

Presented by Iveta Fajnerová (CZ)

O2.6 **Resilience tele-coaching intervention for youth with developmental disabilities and their families: Description of program co-development with key stakeholders**

Presented by Tatiana Ogourtsova (CA)

15.30 Coffee Break

16.00 Session - **Living Labs**

Evdokimos Konstantinidis, Aristotle University of Thessaloniki (GR), European Network of Living Labs (BE) & Christopher Nugent, University of Ulster (UK)

16.45 Keynote - **Mind games: Exploring the playful power of virtual & mixed realities in cognitive rehab**

Sandy Rathod, NeuroReality (NL)

17.15 Q & A

17.30 Opening Reception

Thursday, 27 June 2024

09.00 Keynote **Moving from augmented-reality technology to real-world therapy**

Melvyn Roerdink, VU Amsterdam (NL)

09.30 Q & A

09.45 **Catch a Rising Star**

Denis Martin, Teesside University (UK)

10.00 Early Career Award Talk - **The use of virtual reality in children with cerebral palsy: mechanisms and therapeutic approaches**

Maxime Robert, Laval University (CA)

10.30 Coffee Break

11.00 Lecture - **Nice Prototype, Thank U, Next**

Omar Al-Janabi, University of Durham (UK)

11.30 Session - **Fast Innovation - Slow Research**

Loes Bulle, Windesheim (NL) & Geert Frederix, University of Applied Sciences (NL)

12.00 Fast Forward 1

12.30 Lunch Poster Session 1

13.45 Session - **Digital Twins**

Pete Moore, Pain Toolkit (UK) & OlugBenga Akinade, Teesside University (UK)

14.15 Oral Session 3

O3.1 **Effects of physical inactivity on circumvention strategies in older adults: Preliminary results**

Presented by Joris Boulo (CA)

O3.2 **Whack away: Leveraging VR's potential to unveil neglect - lessons learned about patients' and clinicians' needs**

Presented by Hendrik Knoche (DK)

O3.3 **Effectiveness of dual therapy of combination of brain-computer interface, virtual reality and functional electrical stimulator on motor skills recovery in stroke patients of varied severity: A case study**

Presented by Ünal Hayta (AT)



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O3.4 Remotely prescribed, monitored and tailored home-based gait-and-balance exergaming intervention using augmented-reality glasses: a clinical feasibility study in people with Parkinson's disease

Presented by Lotte Hardeman (NL)

O3.5 Stroke patient-specific Mu Event-Related Desynchronization during Motor Imagery and Observation in a VR-based BCI intervention

Presented by Madalena Valente (PT)

O3.6 Preliminary evidence of functional and cortical changes after upper limb rehabilitation using a virtual reality-based tabletop system

Presented by Roberto Llorens (ES)

15.45 Coffee Break

16.15 Projects in the Spotlight

PS2.1 Augmented reality exergames training for osteoporosis patients to improve balance, flexibility, muscle strength and engagement

Presented by Eléa Thuilier (IE)

PS2.2 Assessing the Potential of "Virtual Reality Multiplayer Exergames" for People with Mobility Challenges to Reach Recommended Physical Activity Levels

Presented by Mahmudul Hassan (UK)

PS2.3 A game-based rehabilitation application for older adults with dizziness

Presented by Paulien Roos (US)

16.45 Debate **Is AR in and VR out in rehab?**

YES: Melvyn Roerdink (NL), Joep Janssen (NL) & NO: Meir Plotnik (IL), Laura Marchal Crespo (NL)

17.45 Closure day 2

Friday, 28 June 2024

09.00 Oral Session 4

O4.1 Towards physiological detection of a "just-right" challenge level for motor learning in immersive virtual reality: Preliminary results in typically developing children and children with hemiplegia

Presented by Samory Houzangbe (CA)

O4.2 Validation of a VR-based driving simulator for powered wheelchairs in children with cerebral palsy

Presented by Kevin Marcaccini (IT)

O4.3 Integration of a novel method of manual wheelchair propulsion pattern recognition in a simulator

Presented by Salman Nourbakhsh (CA)

O4.4 Mixed Reality patient education during spinal cord injury rehabilitation: an evaluation study of feasibility and learning effects

Presented by Janneke Stolwijk-Swüste (NL)

O4.5 Feasibility of VR to promote health literacy in primary care from the health professionals view: A multi-national qualitative study

Presented by Nathan Skidmore (UK)

O4.6 Incorporating extended reality into brain injury rehabilitation: Insights and challenges for patient-therapist communication during therapy

Presented by Stephanie Crowe (NZ)



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- 10.30 Coffee Break
- 11.00 Distinguished Service Award Talk - **VR for stroke rehabilitation: What does the Cochrane evidence tell us?**
Judith Deutsch, Rutgers University (US)
- 11.45 Projects in the Spotlight
PS3.1 **Exploring the Virtualist's role - insights and examples from the workplace**
Presented by Linda Garms (NL)
- 12.00 Fast Forward 2
- 12.30 Lunch Poster Session 2
- 13.45 Session - **Bottom-up Valuing Users**
Sophie Suri, School of Health and Life Sciences at Teesside University (UK) & Ria Wolkorte, University of Twente (NL)
- 14.30 Session - **Scale-Up4Rehab**
Remco Hoogendijk, Sint Maartenskliniek (NL) & Joris Rabelink, Radboud University (NL)
- 15.30 Coffee Break
- 16.00 Award Session
- 16.15 Closing Keynote - **Aha! Now THAT makes sense! Could immersive education be a game changer for recovery from chronic pain?**
Lorimer Moseley, University of South Australia (AU)
- 17.00 Closing remarks
Denis Martin & Joyce Fung, Congress Co-chairs