

NEWSLETTER

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Editorial

March 2022 Newsletter 23

Dear reader

In this issue, we want to highlight a number of exciting events that will take place in the next months. First, we want to draw your attention to the upcoming RehabWeek in Rotterdam (25-29 July) for which you can still submit late breaking abstracts (deadline 15 May) here: <https://www.rehabweek.org/>. RehabWeek is bringing together 8 different societies and is shaping to be a great conference with an outstanding program. This is a fantastic opportunity to gain exposure for your work in the global rehabilitation technology community and take your career to the next level.

In addition, following up with our partnership established with the VR4REHAB initiative, we will be present at the annual VR4REHAB conference (23-24 June), where the work of this initiative will be presented, among others timely "Long Covid" solutions, see page 2. If you are an ISVR member and interested in attending we will provide you with a discount code for the event.

Finally, ISVR continues to host free seminars and journal club activities to create interactions between the members of our community. The next seminar will focus in April will focus on Postural control and locomotion, see announcement page 3. Finally, on pages 4-5, we visit exotic places with the VR traveller in order to train cognitive abilities.

We are always looking for interesting contributions to the newsletter. If you would like to share your news, upcoming events or an overview of your research, lab, clinic or company, please contact us at newsletter@isvr.org.

We wish you a wonderful spring!

Sergi Bermúdez i Badia, ISVR President

**REHAB
WEEK
2022**

25-29 JULY, 2022
ROTTERDAM, THE NETHERLANDS



CALL FOR LATE BREAKING ABSTRACT SUBMISSIONS
Deadline: MAY 15, 2022

UPCOMING EVENTS

VR 4 Rehab

June 23-24, 2022

Inspyrium, The Netherlands

<https://vr4rehab.org/>

REHAB WEEK 2022

July 25-29, 2022

Rotterdam, The Netherlands

<https://2022.rehabweek.org/>

12th World Congress for Neurorehabilitation

December 14-17, 2022

Vienna, Austria

<https://www.wfnr-congress.org/>

ISVR

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Long Covid Initiative and Conference

Beatrice Palacco, Silvia de Bruin

VR4REHAB

<https://vr4rehab.org/>

info@vr4rehab.org

VR 4 Long Covid - innovative XR solutions

The Covid-19 pandemic that struck the world last year is still spreading rapidly across the globe, putting a strain on health care systems. The pandemic has also left many with persistent and debilitating long-term symptoms commonly referred to as 'Long Covid'. It occurs in 10% of people infected and presents as a wide spectrum of fluctuating or episodic signs and symptoms.

The VR4REHAB project has created a network in which rehabilitation specialists engage with state-of-the-art XR technology to answer the rehabilitation needs of patients and their therapists. The current grant extends the previous work of VR4REHAB, started in 2017, and is focused on innovative VR solutions for Covid-19 rehabilitation and 'Long Covid'.

By using virtual and augmented reality combined with gamification in rehabilitation, our aim is to contribute to the future of the healthcare system. We are convinced that further development of XR will be groundbreaking, as continuous innovation of techniques results in more easily accessible and attractive solutions.

A series of events took place during 2021 that determined the winning Teams, respectively COVID CENTER UZ LEUVEN, EXPLORE DEEP and DIGITAL DESIGN VR, they will be able to elaborate on their initial ideas and develop them into working and tested prototypes. The teams will be supported by the VR4REHAB experts and will have access to funding, research, and business experience.



VR4REHAB 2022 Conference – “It’s the patient, stupid!”

The second edition of the VR4REHAB Conference – “It’s the patient, stupid!” in conjunction with the VR4PAIN Project, will take place on 23-24 June 2022, Inspyrium, Netherlands.

This year we are putting the patient at the center of the conference and focusing on how technology can make a difference to the patient.

Learn from experts in the field about how the latest developments in XR technology can enable rehabilitation and make an impact. Experience two days of cutting-edge research, outstanding networking opportunities, focused symposia, posters, trade exhibitions and more.

If a physical conference will not be possible, a virtual conference will be organized and registrants will have half of their registration fee automatically refunded.

Participate, come into contact with the best professionals, expand your network, and discover the latest VR/AR tools for the healthcare system!

[Registration is open, get your early bird ticket until 1st June 2022](#)

ISVR SYMPOSIUM AND JOURNAL CLUB ACTIVITIES

Two new initiatives were launched in the past two years to create interactions between ISVR members and showcase the work done in virtual rehabilitation: the ISVR Journal Club discussion and the ISVR Online Seminar Series.

Both initiatives are offered bimonthly and provide a forum for members of the virtual rehabilitation community to exchange on a wide variety of topics related to virtual rehabilitation.

The topics covered during the past ISVR seminars included:

Illusions of presence: Implications for neurorehabilitation, Brain Computer Interface and Virtual Rehabilitation, Virtual Rehabilitation Approaches to Pain and Participatory Research and User-centered design.

For those who missed the seminars or would like to watch them again, the recordings are available in the Members section of the [ISVR website](#).

The upcoming seminar on **Wednesday April 27, 2022**, will focus on **Postural Control and locomotion**, with presentations from two pioneers in this field, **Drs. Emily Keshner and Joyce Fung**.



Dr. Emily Keshner



Dr. Joyce Fung

ANNOUNCEMENT - CALL FOR STUDENT PROFILES

ISVR is proud to announce the launch of a new section in the ISVR newsletter dedicated to students working on Virtual Rehabilitation or Technologies for Health in general.

The ISVR newsletter aims at sharing state-of-the-art technologies, studies, and events in the scope of health and rehabilitation. With this new section in our newsletter, we want to encourage fresh and creative ideas that may bring real-world impact in the field of virtual rehabilitation. We will be featuring high-quality works from any student level in our newsletter at no cost. Works submitted will go through a selection and only one will be featured on each newsletter's issue.

Our newsletter is delivered quarterly through our social media and directly to the ISVR members, therefore, your work will reach the specialists in the field.

We are looking forward to getting to know your work!

Submit an abstract (200 words maximum) and your contact details to newsletter@isvr.org.

St. Mauritius Therapieklinik

Lukas Lorentz

St. Mauritius Therapieklinik

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Where is your clinic/research institution located?

St. Mauritius Therapieklinik offers in-patient therapy and neurorehabilitation for various age groups in Meerbusch, which is situated close to Düsseldorf, one of Germany's largest metropolitan areas. The research group specializes in the use of virtual reality and augmented reality technologies within the context of rehabilitation and is funded by the Interreg North-West Europe (NEW) Project "VR4Rehab".

What patient populations do you serve? How many per year?

The interventions developed by the research group primarily target children and adolescents with cognitive impairments. However, following positive feasibility assessment some applications are also considered for use in older patient populations. More recently, attempts are made to use virtual reality as relaxation exercises to treat patients with functional disorders.

What VR rehab system(s) do you have installed?

The program we use for our current studies was developed during a Hackathon in 2018 at St. Mauritius Therapieklinik with the goal of envisioning new cognitive training programs that make use of the most recent virtual reality and augmented reality technology. The result of this Hackathon was the VR Traveller. The program aims at rehabilitating cognition within the context of a virtual journey around the world. Each location targets a specific cognitive function. The first module is set in New York City and primarily trains tonic alertness. The second scenario is located in the Great Barrier Reef in Australia, where patients can practice their selective attention. A third module takes patients to the Brazilian Amazonas. Here patients are instructed to complete a task, that challenges their visual scanning ability and working memory.

What benefits do you gain from using this VR rehab system?

With the use of VR, our program aims to overcome two major challenges that conventional neurorehabilitation programs typically have. First, it might help in maintaining patients' motivation to practice, because the VR environment could be perceived as a more engaging alternative to standard paper and pencil or computerized assessment and training tools. It might therefore foster motivation to practice, which could, in turn, lead to significantly better treatment adherence and outcomes.

Secondly, due to its ability to create environments that more closely resemble real-life activities, VR allows for higher ecological validity than conventional neurorehabilitation programs. Performance generated by VR testing might therefore better reflect the impairments of a patient in activities of daily living. With regards to training, the transfer from the VR setting to the real-life of the patient might be facilitated by the embodied VR experience.



Training scenarios (left to right): New York City for alertness; Great Barrier Reef for selective attention; Brazilian Amazonas for working memory

CLINICAL PROFILE

(continued from page 3)

What problems did/do you have with using these systems?

From our previous feasibility studies, we found that patients generally tolerated the VR experience well and suffered only minor adverse effects related to virtual reality sickness following a 30 min session.

When we asked what aspects of the training patients would most like to improve, easier handling of the controllers and more instructions were among the most frequent answers.

Assessment of the programs attractiveness, perspicuity, efficiency, dependability, stimulation and novelty measured with the user experience questionnaire revealed that the dependability of the program was rated the lowest, indicating that patients had a reduced feeling of control towards the applications.

Taken together, this feedback highlighted several areas of further development for the prototype, which we tackled in later iterations.

Are you involved in clinical research using VR rehab systems? If so, please describe briefly.

We recently conducted a feasibility study for the VR Traveller to explore the feasibility, acceptability and tolerability of the VR Traveller program, thereby providing a basis for future explorations of its efficacy. The study included 35 patients with acquired brain injury and mild to moderate attention deficits. They completed the VR Traveller training program in a 30-minute session during inpatient neurorehabilitation. Patients' ratings of the VR training in terms of acceptability and feasibility were positive, suggesting that VR programs represent an accepted, feasible, and well-received alternative to traditional cognitive rehabilitation approaches.

Currently, our research group is



Lukas Lorentz, assistant researcher, and Lina Settelmayer, student assistant

conducting a study to examine the efficacy of the VR Traveller in a randomized controlled trial to further explore whether immersive VR programs could pose a viable alternative to conventional non-immersive cognitive trainings. Furthermore, another study focusing on the neurophysiological bases of cognitive VR rehab is about to start very soon.

What do you see as the most important challenge for VR rehab research and development?

At the current moment, VR research seems to be flourishing across many fields of rehabilitation ranging from motor rehabilitation, exposure therapy and pain management to cognitive rehabilitation and relaxation exercises. However, some factors predicably impair progress when it comes to conducting research at scale in this area. The wide range of operating systems and hardware pieces available, which not always meet the necessary data security standards required for clinical research, make it hard to settle on one piece of hardware for long term in this developing market.

Moreover, recent EU-wide regulations make it complicated and expensive to conduct randomized control trials that would be needed to lift VR research to the next stage and move towards implementation.



PD Dr. Kristina Müller,
head of the research group

Call for Papers

Cyberpsychology, Behavior, and Social Networking

Latest Impact Factor: 4.157

CALL FOR PAPERS

Virtual Emotions: Understanding Affective Experiences in the Metaverse

Submission deadline: July 31, 2022

Guest Editors: Andrea Gaggioli, MSc.(Psych.), Ph.D and Alice Chirico, MSc.(Psych.), Ph.D
ExperienceLab, Università Cattolica del Sacro Cuore, Milan, Italy

Emotions are our internal compass: not only do they influence a wide range of cognitive processes, including perception, attention, learning and reasoning; they also play a fundamental role in shaping people's mental health and wellbeing.

Thanks to recent advances in software and hardware platforms, virtual and augmented reality systems (hereinafter VR/AR), provide emotion researchers with unprecedented opportunities to investigate affective experiences.

Virtual technologies allow the simulation of real-life situations and contexts that encourage participants to act naturally, thus optimizing the trade-off between ecological validity and experimental control. Furthermore, the integration of wearable bio- and motion sensors in virtual reality (VR) systems allows for the measurement of physiological and behavioral correlates of emotional responses elicited in VR, as well as the implementation of closed-loop interactive systems (i.e., biofeedback).

VR/AR also holds significant potential for implementing novel interventions that promote emotional well-being and personal change. Examples include the use of VR/AR for eliciting positive affective states (i.e., amusement, inspiration, interest, hope), fostering self-transcendent emotions (i.e., compassion, gratitude, and awe), and enhancing emotion regulation (i.e., the ability of influencing one's emotional experiences).

Improving our understanding of emotions in virtual environments can have important implications for designing VR/AR applications. With the emergence of the Metaverse economy, there will be an increasing need to provide VR/AR designers with theory-driven, evidence-based guidelines for creating applications that are able to elicit specific emotions or to assess their impact.

This special issue intends to bring together researchers to report their latest progress in the study of emotional experiences in VR/AR environments. Topics include, but are not limited, to:

- Emotions, immersion and presence/social presence;
- Emotions and embodiment in VR;
- The role of VR/AR in emotion elicitation, regulation, and expression;
- Analysis of psycho-physiological correlates of emotions in VR/AR;
- Induction and recognition of emotion in VR/AR;
- Comparison of emotional responses in virtual, natural and "phygital" environments;
- The use of VR/AR in emotional wellbeing interventions;
- VR narrative experiences and emotions;
- Aesthetic and complex emotions in synthetic environments;
- Positive and self-transcendent emotions in VR/AR;
- The role of emotions in designing and assessing VR/AR applications (i.e., mental health, education, marketing etc.).

Submission: <https://home.liebertpub.com/publications/cyberpsychology-behavior-and-social-networking/10/for-authors>

ISVR Early Career Investigator Award 2022

Call for Nominations – Deadline: April 30, 2022

We are pleased to announce the **Sixth ISVR Early Career Investigator Award**. The purpose of this award is to recognize and acknowledge outstanding contributions by early-career scientists whose research relates to virtual rehabilitation. The recipient will be awarded a certificate and \$250. In addition, the awardee may be asked to present their research during one of our future virtual events. A runner-up will also be awarded a certificate.

Eligibility criteria

- Have completed doctoral-level studies up to 8 years prior to nomination.
- Have not previously received an ISVR Early Career Investigator Award

Evaluation criteria

- Number and quality of publications
- Type and amount of research community service (committees, panels, reviewing, etc.)
- Type and amount of public outreach activities, including knowledge translation activities
- Evidence of clinical impact: teaching, standards-setting, technology transfer
- Relevance of research to applications of virtual reality for rehabilitation

Individuals may be nominated by an ISVR member or be self-nominated.

A full application must include the following:

- Short biography (maximum 500 words)
- Full CV
- Description of key research innovation and impact on the field of virtual rehabilitation (maximum 2 pages)

Application materials must be emailed to awards@isvr.org, before the deadline of April 30, 2022

All procedures related to the award will be handled by the Chairs of the ISVR Awards Committee who will set the deadlines for nominations and selection mechanism.



The website at <http://www.isvr.org> acts as a portal for information about the society. We are keen to enhance the community aspects of the site as well as to make it the first port of call for people wanting to know what is going on in the field of virtual rehabilitation and its associated technologies and disciplines. Please do visit the site and let us know details of any upcoming events or conferences or news items you would like us to feature on the site. We intend to add further features in the coming year including member profiles; a directory of journals who publish virtual rehabilitation related work; and a list of Masters and PhD level theses completed or currently being undertaken in the field. As well as sending us details of events and news for display, we would welcome suggestions from members about what else they would like to see on the site, or ideas for how we can further develop the virtual rehabilitation community through it.

Please mail webdec@isvr.org with any information/ideas using ISVR INFO in the subject header.

Membership information

Membership of ISVR is open to all qualified individual persons, organizations, or other entities interested in the field of virtual rehabilitation and/or tele-rehabilitation. Membership (regular, student or clinician) entitles the member to receive reduced registrations at ISVR sponsored conferences and affiliated meetings (see webpages for more details). There is also an active ISVR facebook page, which is another source of useful information, currently with 1.3K members.

Call for Contributed Articles

- If you are a technology expert in virtual rehabilitation or you have experience in the clinical use of virtual rehabilitation technologies, and would like to be featured in an upcoming ISVR newsletter issue
- If you would like to submit a contributed article relevant to the ISVR community
- If you have any news, summaries of recent conferences or events, announcements, upcoming events or publications

We are looking forward to your contribution! Please contact us at newsletter@isvr.org.

This block contains a banner with a background of various terms related to virtual rehabilitation, such as 'mobility', 'social interaction', 'communication', 'education', 'International Society', 'neurological dysfunction', 'special needs', 'visual impairment', 'technologies', 'Virtual Rehabilitation', 'art', 'design', 'interaction', 'occupation', 'user-centred design', 'rehabilitation', and 'motion tracking'. The ISVR logo is prominently displayed on the right side of the banner. Below the banner, there is a white box with the text 'Connect with us' and three social media icons: Facebook, LinkedIn, and Email.

Join our mailing list: <http://isvr.org/join-our-mailing-list/>