

NEWSLETTER

ISVR

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Editorial

May 2019 Newsletter 15

Welcome to the 15th issue of the ISVR newsletter. In this second issue of 2019 we are focusing on clinical and research developments of VR-based rehabilitation in Israel as a “warm-up” to the upcoming 2019 International Conference on Virtual Rehabilitation (ICVR2019) which will be held from July 21-24 at Tel Aviv University, co-chaired by Dr. Racheli Kizony and Dr. Debbie Rand. As you can see from the [conference program](#), crafted under the guidance of the four program chairs, Dr. Geoff Wright, Dr. Sandeep Subramanian, Dr. Gerry Fluet and Dr. Maayan Agmon, there will be many excellent platform presentations, a large number of posters, a thought-provoking debate on “Will virtual rehab replace clinicians?” as well as industry and demo sessions and exhibits of many currently available technologies. Three educational workshops will be given on July 21 including “Virtual environments to evaluate and treat cognitive deficits in everyday function”, “The Role of Mental Imagery in Virtual Rehabilitation” and “Use of virtual reality technologies in basic & clinical science research”. In another section of this newsletter you can read about our three keynote speakers. We hope you will [register](#) for the conference and join us for this exciting event!

Two Israeli startup companies are featured in this newsletter. SeeMe and VAST.Rehab are virtual reality rehabilitation systems based on movement recognition and analysis via a Kinect sensor to assist therapists in their planning of challenging treatments and in motivating clients to perform intensive and repetitive therapeutic exercises. SenSerum provides two immersive virtual environments displayed and controlled via the VIVE HMD. Virtual Playground simulates outdoor activities such as a swing, seesaw and trampoline and Ninja offers ten gaming environments with a variety of tasks and exercises.

Overviews of clinical practice and research carried out at The Haim Sheba Medical Center (Ramat Gan, Israel) are also featured this month. A range of virtual reality-based research programs for a various clinical populations studied at the “Center of Advanced Technologies in Rehabilitation” and clinical applications of VR and robotic interventions at the “STEPS” Institute are presented.

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.

Patrice L. (Tamar) Weiss
ISVR Board member

Chair, ICVR conference series steering committee

UPCOMING EVENTS

**1st International Conference on
Teleneurorehabilitation**
May 10-11, 2019 - Crotona, Italy
<http://www.1ictnr.it>

**Neurorehabilitation and Neural Repair
From Science to Evidence based Practice**
May 22-24, 2019 - Maastricht, The Netherlands
<http://www.neurorehabrepair.eu>

**13th International Society of Physical and
Rehabilitation Medicine World Congress
(ISPRM 2019)**
June 9-13, 2019 - Kobe, Japan
<http://www.isprm2019.com>

RehabWeek 2019
June 24-28, 2019 - Toronto, Canada
<https://www.rehabweek.org/>

**International Conference on Virtual
Rehabilitation (ICVR 2019)**
July 21-24, 2019 - Tel Aviv, Israel
<https://virtual-rehab.org/2019/>

**European Congress of NeuroRehabilitation
2019**
October 9-12, 2019 - Budapest, Hungary
<http://www.ecnrcongress.org>

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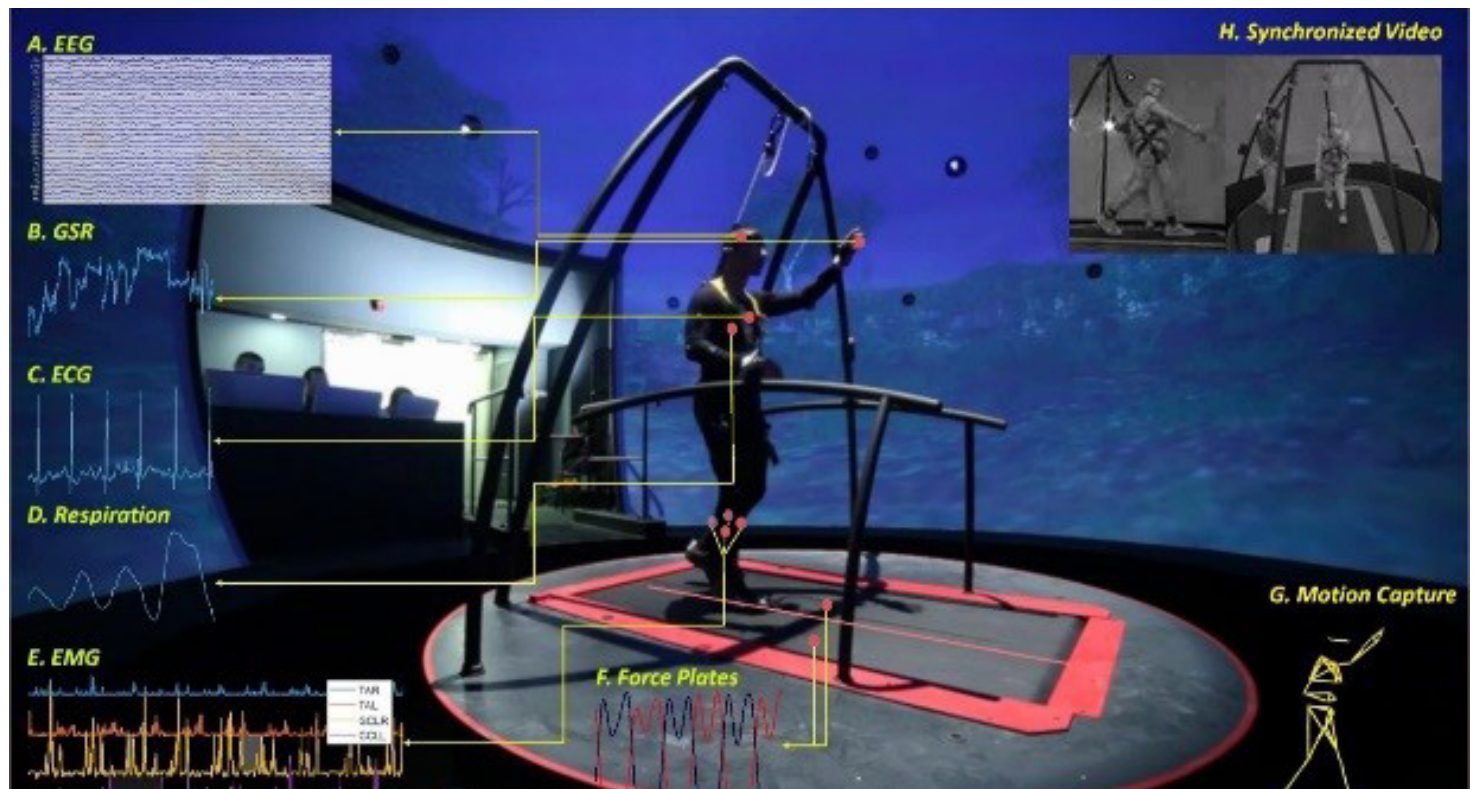
STUDY PROFILE

Center of Advanced Technologies in Rehabilitation (CATR)

Meir Plotnik

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CAREN High-End, Motekforce Link (The Netherlands).

Where is your lab located?

Our lab is located in the Rehabilitation Hospital at Sheba Medical Center, Ramat Gan, Israel.

What patient populations do you serve?

We study healthy adults (>20 years of age) as well as individuals with Parkinson's disease, multiple sclerosis, cerebellar ataxia and stroke. One study involves VR-based cognitive-motor training in healthy middle-aged individuals at high risk for Alzheimer disease.

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

We have four Motekforce Link (The Netherlands) large-scale VR systems: CAREN Base, CAREN High-End, and two V-Gait systems as well as the C-Mill system. As shown in the figure of our CAREN High-End system, the participant walks on a split-belt treadmill within a virtual scene projected by multiple projectors that provide 360° coverage with full immersion. The treadmill is installed within a moveable platform with six degrees of freedom, providing inclinations and translations synchronized with the visual scene. A special feature of our system allows the treadmill speed to be adjusted in a self-paced mode, whereby participants control the speed via a closed loop

biofeedback mechanism. Data on mobility and posture are recorded by a motion capture system (Vicon®, UK). Auditory input is delivered via a surround sound system. We collect a variety of physiological, kinetic and kinematic signals in real time, synchronized with the participant's motor performance: A. Electroencephalography B. galvanic skin response, C. electrocardiogram, D. respiration, E. electromyography from the left and right tibialis anterior and L and R gastrocnemius lateralis muscles, F. force plates – gait data. The motion capture system allows reconstruction of G. the spatiotemporal dynamics of various body segments. H. synchronized video is also recorded.

Recently, we have begun to develop research and clinical applications for the HTC-Vive head-mounted display.

STUDY PROFILE

(continued from page 2)

What benefits do you gain from using these VR rehab systems?

We developed a methodology to study and treat gait deficits using large-scale VR systems incorporating treadmill walking in 'self-paced' mode (where belt speed is adjusted in real time based on participant performance and his/her self-generated walking speed). As in the figure, this walking mode is combined with multimodal recordings of physiological signals synchronized with the VR system. This setup allows us to control presentation of various kinds of stimuli and collect multimodal data (e.g., gait, affect, cognitive) recorded in the physiological signals.

What is the objective of your research?

Research at CATR can be subdivided into three main areas: (a) basic science; (b) translational – clinical interventions, and (c) translational – device/application development. Within the framework of basic science, we explore perception and action in complex environments. For example, we study sensory integration related to gait adaptations and balance control. We have developed several paradigms involving the introduction of incongruent stimuli, including walking on a level platform while the visual scene reflects walking on an inclined surface. Such paradigms allow us to characterize the time course of gait pattern modifications to accommodate changes in walking conditions. In the context of translational –

clinical interventions, we develop and test the effectiveness of VR-based interventions. For example, we developed a four-session VR-based exposure therapy intervention to treat fear of flying. Finally, with regard to translational – clinical interventions, we use VR technology as the ultimate 'benchmark' for developing and testing novel devices and applications. For example, we are working on a light, wearable device for alleviating gait disturbances in persons with PD, and we develop VR based applications for treating phobias. The ability to dynamically control parameters that simulate daily life allows us to evaluate the performance of wearable devices and diagnostic applications under a wide range of conditions such as evaluating the ability of VR-based assessments to detect subtle cognitive differences (as compared with traditional pen-and-paper neuropsychological tests).

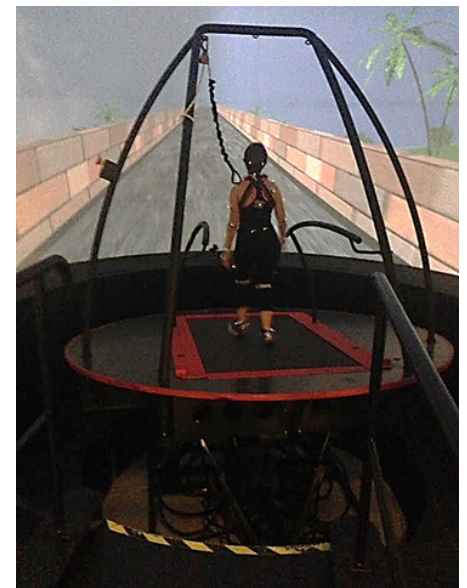
What do you see as the most important challenge for VR rehab research and development?

In our view, there are two major challenges in VR rehab research and development:

(1) Leveraging VR to understand how humans interact with digital technologies in an era of increasing virtualization. Insights afforded by VR may lead to new models and methodologies for characterizing complex cognitive/behavioral processes. Specifically, applying real-time dynamic modification of the VR environment based on online

physiologic bio-signals coupled with physiological network modeling, as shown in the figure, has the potential to elucidate interrelationships among sensory, cognitive, affective and motor systems.

(2) Devising guidelines for the personalization of VR-based rehabilitation programs. VR has the potential to bridge the gap between constraints imposed by the traditional one-size-fits-all approach for validating the clinical efficacy of a rehabilitation treatment and a personalized approach that allows for multiple permutations in defining treatment parameters. Rather than setting experimental parameters identically for all individuals, VR allows personalization of many such parameters in a controlled fashion. We believe that meticulous studies of such controlled, personalized assessment may lead to augmentation of treatment efficacy in an unprecedented way.



CAREN High-End, Motekforce Link

“STEPS - Rehabilitation in Motion” (“Tsa’adim”) Institute

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Clinical population and goals

The “STEPS” (Rehabilitation in Motion) Institute was established in 2001 by Prof. Gabi Zeilig and is an inseparable part of the clinical activities of the Department of Neurological Rehabilitation. It includes a multi-disciplinary team of physicians, occupational therapists, physical therapists, physical fitness instructors, psychologists, speech and language clinicians, nutritionists, social workers, and sex therapists.

Patients treated at “STEPS” include those with spinal cord and acquired brain conditions (traumatic and non-traumatic such as , cerebral vascular accidents (stroke), , peripheral nerve diseases, Parkinson's disease and other movement disorders, orthopedic injuries including those with limbs amputations The aim of treatment at “STEPS” is to improve the patient's functional status by using a range of advanced rehabilitation technologies that translate in clinical practice some of the latest scientific findings.

More than 1000 patients are treated at “STEPS” each year. Patients receive therapy from 2-3 times per week up to

daily therapy for 4-5 hours per day for periods ranging from several weeks to a year or more. These patients come after in-patient care in the Dept. of Neurology and/or the Dept. of Neurological Rehabilitation. Some patients with chronic conditions continue to receive treatment at “STEPS” in occupational therapy or physiotherapy for many years.

Examples of rehabilitation technologies systems at “STEPS” as used by the occupational therapists.

Tyromotion PABLO®

PABLO's sensitive motion feedback sensors together with the TYROS gaming software provides a variety of motivating therapeutic movement exercise of upper extremity strength and range of motion. There are clinical report and documentation options that provide individual data on the progression of therapy. The focus is on links to daily routines that support improved motor learning.

At “STEPS” we use the PABLO, shown in Fig. 1, to treat neurological patients



Fig. 1 Tyromotion PABLO in use at “STEPS”



Fig. 2 Tyromotion MYRO in use at “STEPS”

who a wide variety of limitations to improve their motor and cognitive functions. For example, we have treated a patient with a head injury to regulate the movement of his right hand; he is now able to move the wheel of his wheelchair independently. We have also worked on his limitations related to visual scanning, visual perception and spatial neglect to the point where this patient is able to use a more functional visual field ability; he no longer bumps into objects or the door frame to his left, and is able to navigate himself efficiently in space.

Tyromotion MYRO®

Shown in Fig. 2, the MYRO sensor-based tabletop surface (screen) enables task-oriented rehabilitation with real objects with a focus on improving the motor abilities of the upper extremity. Force detection via pressure sensors is used to enhance uni- or bilateral force control training. Tasks encourage spatial exploration, visual motor integration and specific exercises to improve upper extremity.

At “STEPS” we use the MYRO to treat multiple functional components simultaneously. For example, we treated a Parkinson's patient to improve his balance and equilibrium responses by having him stand on an unstable surface while performing the tasks such as those requiring the use of his full upper extremity range of motion to perform a task requiring fine motor skills and movement separation in the fingers. Complex treatment of this type was made possible thanks to the advanced technological system which also helps to motivate the patient to engage in a full 45 minutes of continuous training (which is very difficult to achieve in treatment without the support of technology-based systems such as the MYRO).

CLINICAL PROFILE

(continued from page 4)

Hocomo ARMEO

The ARMEO Therapy Concept is used for individuals who have suffered strokes, traumatic brain injury or neurological disorders resulting in hand and arm impairment. A series of enjoyable and motivating exercises assist are designed to guide a gradual reorganization of the brain, with the aim of achieving greater restoration of movement and functionality. The exercises are self-initiated and self-directed such that even severely impaired patients can practice independently, under a therapist's supervision. The platform encourages and motivates patients to achieve a higher number of repetitions, and the software provides automatic, ongoing assessment of motor functions. Thus therapists and patients can track their progress.

The use of ARMEO requires very little movement in the shoulder to allow patients to achieve large movements in space. This allows practice even by patients who have minimal mobility (e.g., those who have high level spinal cord injuries or stroke). Since the device provides full support of the patient's upper extremity, the treatment plan can focus on goals that include normalization of muscle tone, increases of range of motion and encouragement of more functional movement patterns.

SINFONIA Gloreha

Gloreha Sinfonia, shown in Fig. 3, is a robotic device (rehabilitation glove) for hand rehabilitation that includes sensors, actuators, interactive 3D animation, and dynamic arm support during a series of motor exercises. The glove supports finger motion, while detecting voluntary active motion. Gloreha's robotic glove detects each finger movement and, according to residual motor skills, partially or totally supports the patient during therapy. A patient can also use the healthy hand to guide similar movements by the affected hand during unilateral and bilateral task-oriented exercises. Real objects can be used during therapy. Gloreha Sinfonia allows active and passive movements as well as bilateral operation of the fingers. Through various exercises, we provide therapy to improve the range



Fig. 3 Gloreha Sinfonia in use at "STEPS"

of finger movements, various motor skills, and thus improve the functioning and maximize the patient's autonomy in self-care activities. For example, a patient with a spinal cord injury who has difficulty in opening and closing a bottle of water will use the Sifonia glove for passive and active exercise with bottles of different sizes and shapes; this technology can provide varying levels of assist until the patient is able to function more independently.

Rehabilitation technologies systems at "STEPS" are used by the physical therapists

Although not within the scope of this clinical report, "STEPS" also provides a large range of systems (Fig. 4) that are used by physical therapists to provide lower extremity and whole body therapy including Hocoma's Lokomat, MediTouch's Balance Tutor, and range of treadmills, many with body weight support and stationary Bicycles for leg and arm strength and range of motion training. These, too, provide a extensive opportunities for in-patient and out-patient technology-supported physical therapy. We will elaborate on these uses in a future edition of this newsletter.

In summary, "STEPS" is a vibrant clinical facility that takes advantage of advanced technologies to enhance the clinical experience and to extend the rehabilitation process far beyond what typically takes place following discharge. The experienced clinical staff thereby provide motivating interventions that help patients to maintain and continue to improve their physical and cognitive abilities.



Fig. 4 Equipment used at "STEPS" to provide gait and balance training

REHABILITATION STARTUP

From SeeMe VR to VAST.rehab Rehabilitation System

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 **SeeMe**
Reality in virtual reality

 **VAST.REHAB**
REHABILITATION WITH BIOFEEDBACK

What product are you offering?

SeeMe, our first virtual reality rehabilitation system has been on the market since 2009, initially using a webcam as the input device and, since 2011 with Microsoft's Kinect. It is in use in hundreds of rehabilitation facilities around the world. SeeMe uses novel algorithms for movement recognition and analysis, allowing the integration of the client's image or an avatar representing him in a therapeutically relevant virtual scene. SeeMe is a "user-friendly" system which assists therapists in their planning of challenging treatments and in motivating clients to perform intensive and repetitive therapeutic exercises via twelve functional therapeutic tasks presented as fun and entertaining exergames.

More recently, we have used our extensive, systematic therapeutic experiences, obtained by observing clients and receiving feedback from therapists to develop a new system: Vast.rehab. VAST.Rehab is a fully-featured virtual reality exercise and diagnostic systems. Each of the 34 therapeutic tasks can be adapted to individual clinical needs in real time with numerous different ways to interact with the tasks. It is a flexible system that can be used in the smallest of clinics to the largest hospitals, including remote interactions. VAST.Rehab is easy to learn and use, making it highly suitable for therapists looking for convenient ways to motivate clients to participate in the rehabilitation process. Both SeeMe and VAST.Rehab automatically track clinical progress and generate professionally formatted reports, so that therapists can prepare reports with less time spent doing paperwork. Once clients learn how to use VAST.Rehab while working individually with a therapist, they can



Upper limb training with SeeMe

continue to supplement therapy at home; all data are synchronized with our cloud-based server, so the therapist knows whether clients perform the exercises as prescribed. The therapist monitors the client's performance and can modify the tasks according to therapeutic needs via asynchronous tele-rehabilitation.

What is unique about your product?

VAST.Rehab integrates a wide range of third party hardware products, so by learning to use the system once, therapists are able to work with clients using various medical devices, such as force platforms, sensors such as the Kinect, Leap Motion or RealSense and as virtual exergames integrated with fitness devices.

How does your product benefit patients and therapists?

VAST.Rehab is a sophisticated, multifunctional system offering a

wide range of therapeutic tasks for treatment and training in many rehabilitation domains, together with relevant diagnostic tests and outcomes measures such as full posturographic tests on Kinect, measurements of limits of stability, forward and lateral reach, range of movement, movement velocity, number of repetitions. Moreover, a single therapist can operate multiple VAST.Rehab stations in the same clinic using a common control panel. VAST.Rehab includes a unique "easy to use" research module, to perform on the system comparisons of before and after treatments and patients' groups.

How can one obtain your product?

SeeMe is an institutional system only, intended for hospitals and community clinics. Vast.Rehab is designed for clinical use and home use via a monthly fee. Both systems are marketed in Israel by a local distributor and worldwide by a global distributors network – SeeMe.rehab and VAST.rehab.

REHABILITATION STARTUP

SENSERUM

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What product are you offering?

SENSERUM is an Israeli based startup company, developing fully immersive Virtual Reality (VR) and Augmented Reality (AR) applications for clinical use. Our team has many decades of experience in virtual reality, virtual reality for clinical use, serious games and exergaming.

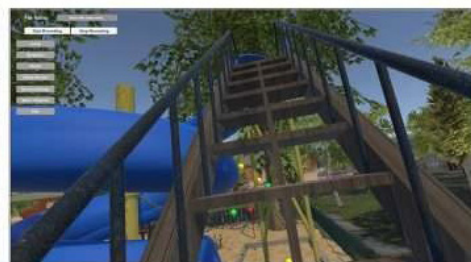
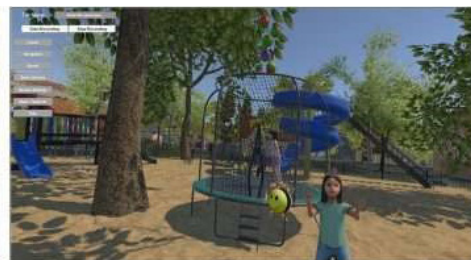
Senserum provides a full turn-key package which includes all hardware components and variety of VR immersive applications for specific clinical conditions such as Autism, Sensory Processing/Modulation disorder (SPD/SMD), Cerebral Palsy (CP), motor development disorder, applications for the third-age, phobias, anxiety and so on.

Our objective is to give the therapist the option of utilizing cutting edge VR technologies as an auxiliary tool. We believe that VR immersive technology opens new horizons and enables giving children and adults with disabilities training exercises that cannot be executed in the physical world. In addition, using VR makes physical and occupational therapy and physical training more enjoyable, leading to high motivation and better results.

What is unique about your product?

In order to develop the best and most useful product, we created ad-hoc cooperation with relevant clinical professionals. Additionally, our developments are being tested in-the-field at all stages, giving us the option to change and modify the environment to best suit its clinical purposes.

'Playground' is an environment that we developed in cooperation with SensoryNoa, a partnership



Virtual playground stimulates outdoor activities in children with autism

of occupational therapists, which specializes in treating children with autism, SPD and SMD. The virtual environment simulates an outdoor playground. The objective is to simulate a natural environment which includes stimuli of many senses. For example, it is important that the environment includes many vestibular experiences as well as proprioceptive sensation. The underlying principle is to enable gradual exposure to regulating-stimuli and learning to cope with them. In addition, the environment enables the addition of auditory and visual stimuli in a controlled and graded way, approaching simulation of real-life activities.

Our expectation is that children who are sensory-seekers will be able to experience stimuli at levels which are

not possible in the real-world, at no risk. On the other hand, children who have hyper sensitivity and are sensory avoiders, will be gradually, at their own pace, exposed to a range of stimuli. In addition, they can point out the stimuli that bother them.

The playground offers the following playground activities: 'Seesaw', 'Swing', 'Trampoline', 'Slide' and 'Balloons' defined area. In collaboration with the Laboratory for Innovations in Rehabilitation Research (University of Haifa, Israel) we recently completed a usability study to characterize key aspects of user experience (i.e., perceived enjoyment, authenticity, effort, cybersickness) of participants from three age groups (children, young adults, and older adults) while they experienced three of the playground

REHABILITATION STARTUP

(continued from page 7)

activities. This immersive environment was perceived as being highly acceptable to all three groups of users. It documented their ability to engage in physical tasks while wearing an HMD and interact with virtual objects without cybersickness symptoms.

'Ninja' is an additional environment we developed in cooperation with ALYN Pediatric Rehabilitation Hospital. Ninja was developed initially for children with CP and impaired motor skills, but the ALYN staff plan to start treating a wide variety of children with Traumatic Brain Injury, severe burns, CP, fractures, Developmental Dysplasia of the Hip, etc.

The Ninja application offers 10 different

environments with a variety of tasks and possible exercises. The environments enable working on upper and lower extremities, weight bearing, arms lifting, executive functions, attention, looking for object in the 3D space seeking and more.

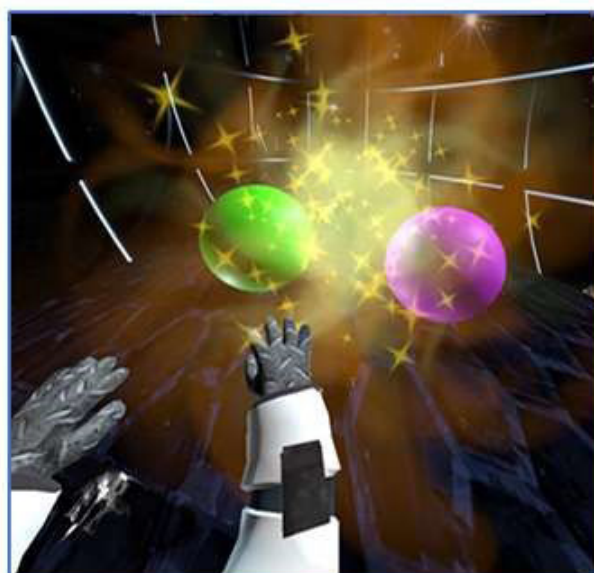
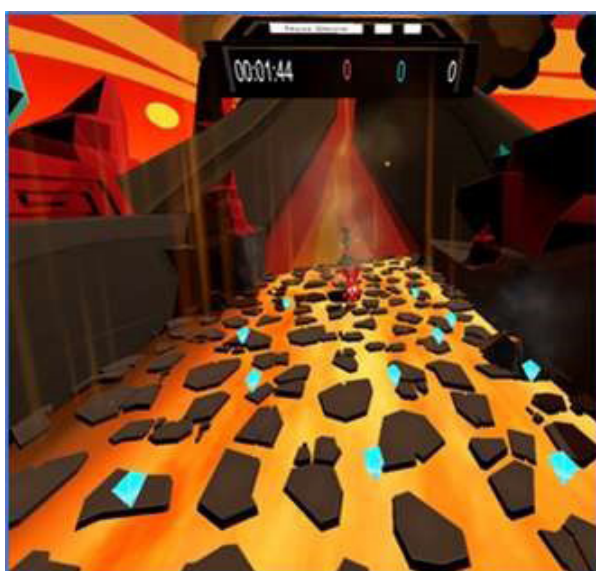
How does your product benefit patients and therapists?

The wide variety of environments that we offer, gives the therapists a large set of tools which can be easily modified according the specific user's ability and to treatment targets. For

the child, the game-like environments increase motivation, distract users from pain and make the session much more enjoyable, on one hand, and more efficient and intensive, on the other.

How can one obtain your product?

Contact us at yotam@senserum.com to get further information and price
Visit our website www.senserum.com
or call us: +972-(0)54-6562-666.



Ninja offers different gaming alternatives for children with impaired motor skills

ICVR 2019 KEYNOTE TALKS

Here is a short presentation of the keynote speakers at the upcoming International Conference on Virtual Rehabilitation (ICVR) at Tel Aviv University, July 21-24th 2019.



Professor Vincent Hayward
Sorbonne Université, Paris, France

Tactile mechanics as the foundation of the somatosensory function: New opportunities for applications of human machines interfaces, accessibility, and rehabilitation

Prof. Hayward was with the Department of Electrical and Computer Engineering at McGill University, Montréal, Canada, where he became a full Professor in 2006 and was Director of the McGill Centre for Intelligent Machines from 2001 to 2004. In 2008, he became an elected a Fellow of the IEEE. During 2017 and 2018, Vincent Hayward was Professor of Tactile Perception and Technology at the School of Advanced Studies of the University of London, supported by a Leverhulme Trust Fellowship, following a six-year period as an advanced ERC grantee at Sorbonne Université. He currently spends part of his time contributing to the development of a start-up company in Paris, Actronika SAS, dedicated to lowering the accessibility barrier of haptic technology.



Dr. Goded Shahaf

Reuth Research and Development Institute, Reuth Rehabilitation Hospital, Tel Aviv, Israel and BrainMARC Ltd.

A simple-to-use EEG monitor of patient engagement for enhanced rehabilitation

Dr. Shahaf is a MD and has a PhD in brain research. First degrees also in math, computer science and psychology. Founder of multiple companies, which implement algorithms for EEG analysis for various clinical applications. Multiple scientific publications in these fields. Clinical work in physical and cognitive rehabilitation with various patient populations using the simple-to-use EEG monitor.



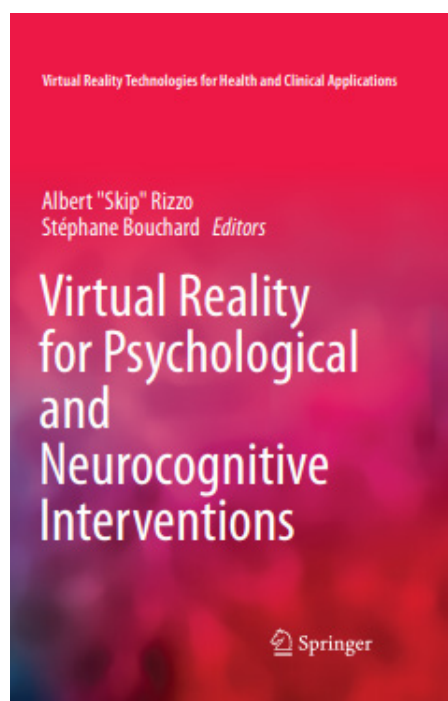
Prof. Anat Mirelman

Director, Laboratory of Early Markers of Neurodegeneration (LEMON); Associate Director, Center for the Study of Movement, Cognition and Mobility (CMCM), Neurological Institute, Tel Aviv Medical Center and Associate Professor, Sackler School of Medicine and Sagol School of Neuroscience, Tel Aviv University, Israel

Virtual Reality: A tool to address motor-cognitive interactions

Prof. Mirelman's main research interests relate to the multi-factorial interactions between motor and cognitive function in ageing and neurodegeneration, identifying sensitive markers of disease and the development of new interventions to improve motor-cognitive deficits. In addition, she and colleagues have shown that using VR can help augment motor-cognitive function, reduce falls, and fall risk in more than 300 older adults and patients with Parkinson's disease. Work in this area also led to the exploration of the mechanisms behind motor-cognitive impairments or improvements. Her work using wearable imaging techniques such as fNIRS has led to the understanding of the role of the Dorso-Lateral Pre Frontal Cortex (DLPFC) in complex conditions in patients with Parkinson's disease. Prof. Mirelman has led the 'Genetics in Parkinson's disease Project' at the Tel Aviv Medical Center to identify early subtle clinical markers that could indicate disease processes.

RECENT BOOKS ON VIRTUAL REHABILITATION



Virtual Reality for Psychological and Neurocognitive Interventions

Editors: Rizzo, Albert "Skip", Bouchard, Stéphane (Eds.) 2019

Part of the series on Virtual Reality Technologies for Health and Clinical Applications (edited by Paul Sharkey).

This exciting collection tours virtual reality in both its current therapeutic forms and its potential to transform a wide range of medical and mental health-related fields. Extensive findings track the contributions of VR devices, systems, and methods to accurate assessment, evidence-based and client-centered treatment methods, and—as described in a stimulating discussion of virtual patient technologies—innovative clinical training. Immersive digital technologies are shown enhancing opportunities for patients to react to situations, therapists to process patients' physiological responses, and scientists to have greater control over test conditions and access to results. Expert coverage details leading-edge applications of VR across a broad spectrum of psychological and neurocognitive conditions, including:

- Treating anxiety disorders and PTSD.
- Treating developmental and learning disorders, including Autism Spectrum Disorder,
- Assessment of and rehabilitation from stroke and traumatic brain injuries.
- Assessment and treatment of substance abuse.
- Assessment of deviant sexual interests.
- Treating obsessive-compulsive and related disorders.
- Augmenting learning skills for blind persons.

Readable and relevant, Virtual Reality for Psychological and Neurocognitive Interventions is an essential idea book for neuropsychologists, rehabilitation specialists (including physical, speech, vocational, and occupational therapists), and neurologists. Researchers across the behavioral and social sciences will find it a roadmap toward new and emerging areas of study.

RECOMMENDED EVENT



RehabWeek 2019 is the top place to exchange ideas and share experience in the field of rehabilitation and assistive technologies with engineers, clinical researchers, clinicians, rehab technologists, and therapists.

Join this inspiring and innovative event! Besides attending a set of intriguing sessions by renowned experts in the field, you can also take part and choose between a variety of activities – workshops, panel discussions, developers showcase, speed networking, clinical and lab visits, etc.

Submit your late breaking abstract for poster presentation and win a prize. The top three RehabWeek poster presenters will be awarded cash prizes and the top five presenters will receive diplomas.

Don't miss any updates on RehabWeek 2019: www.rehabweek.org



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 1197 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 the ISVR logo at the top right, with the text 'Connect with us' to its left. Below the text are three social media icons: Facebook, LinkedIn, and Email. The background of this section features a collage of text related to virtual rehabilitation, such as 'mobility ~ social interaction ~ communication ~ education', 'International Society ~ neurological disorders ~ technologies', 'for special needs ~ visual impairment ~ rehabilitation', 'Virtual Rehabilitation ~ art ~ design ~ research ~ training ~ user centred design ~ interaction ~ occupation', and 'rehabilitation ~ motion tracking'.

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