

Conference Booklet

ICDVRAT 2026

September 15–18, 2026



Copenhagen, Denmark

16th International Conference on Disability, Virtual Reality & Associated Technologies

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September 15–18, 2026
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A Folk History of ICDVRAT

Once Upon A Time ...

When I was asked to put down a few words about the International Conference on Disability, Virtual Reality and Associated Technologies, I thought it would be easy to lighten my load by just asking an LLM to make it all up for me. I tried a few AI engines to see how much work I would have to put in to correcting all the hallucinations. As it turned out, there were not so many errors. In addition, there is also a wealth of information available on the ICDVRAT Archive site at www.icdvrat.com. What might be reasonably added, I wonder? A different approach was required. So, perhaps a kind of folk history might be of some interest.

In 1995, one of the doctoral students in my small research group – David Roberts, now Emeritus Professor at Salford University – happened to volunteer at a disability group. The group members were keen to learn more about virtual reality and how it might be applicable in their lives. Our particular VR specialism at that time was very much concentrated on the technical side of large-scale distributed VR, time delays, communications protocols, and so on. We didn't even have very much capability in graphics. Nevertheless, David persuaded me that we could put a workshop together.

Thus, with David's unstinting enthusiasm, we gathered about 30-40 people from academia, industry, communications, and, with the disability group, ran a workshop with presentations and an afternoon of brainstorming groups that truly mixed the different disciplines and users together. Following the seeming success of this workshop, we were able to persuade Harry Murphy, the then organiser of the CSUN Assistive Disability conference held in California, to advise on how we might mirror his US conference in Europe, as a complimentary event. The first conference was launched, billed as the "1st European Conference ..." in July 1996 and held in Maidenhead, UK. This conference was most helpfully supported by a financial grant from British Telecom who were very interested in advancing technologies for communications amongst this sector, by Harry Murphy who travelled to attend, and by industries both local and international such as Silicon Graphics and the General Reality Company also in attendance. We even had the audacity to enlist (with an honorarium, naturally) the well-known and respected media scientist Prof. Heinz Wolf to offer his words of wisdom at the conference dinner.

Looking at the author index at this event there will be many familiar names to those of you who have worked in the field, such as David Brown, Penny Standen, and Jaime Sanchez who had travelled from Santiago, Chile, each of whom would go on to co-chair one or more future conferences in the series.

One name that was missing was that of Dr Albert Rizzo. I had received a call from this American a month or two before run-time, but papers had already been reviewed and the schedule already confirmed. I explained with regret, that we could not include his paper on this occasion but, if we to run the conference again, I would be sure to let him know.

Hard To Get To Places ...

The success of 1996 led to the desire to run again in 1998, but how to organise? It seemed a good strategy to try and move the conference around Europe at the very least. The only real pragmatic way of doing so, however, was for me to enlist the organisational help of a much larger Mechatronics Conference being held in Skövde in September. A hard to get to – and even harder to pronounce – location certainly set a challenge. Helped by David Rose and Jan-Ingmar Linsdtrom, as academic and local co-chairs, this set in train a model for organisation that survived through to 2016.

David Brown turned up with a big User Group; how he funded all that travel still amazes me. Conference stalwart Sue Cobb also made her first appearance. It also saw the first paper presented by Skip Rizzo (I had learnt to drop the “Albert”), for I had remembered my promise from 2 years prior. He cut an interesting figure; perhaps the conference could get some extra attendees from the US if I were to put a half-Italian/half-Irish on the bill as a co-chair for 2000? What could possibly go wrong?

Going International ...

In 2000, the newly monikered “International Conference ...”, where Skip Rizzo would join with Luigi Pugnetti as co-chairs, was held in Alghero, Sardinia. September became the de facto month for this now biennial event, which has remained to this day. Nothing went wrong (well, nothing much – ask me about it!) and, with the conference now no longer relying on a bigger event for logistics, true independence had arrived.

With conference regular Cecilia Sik-Lányi taking the reins for Veszprém, Hungary (2002), I would like to also name-check local co-chairs for their huge contributions in the intervening years: Rachel McCrindle (Oxford, 2004); Tony Brooks, Esbjerg, Denmark

(2006); Pedro Lopes-dos-Santos, Maia, Portugal (2008); Jaime Sanchez, Viña del Mar, Chile (2010); Evelyne Klinger, Laval, France (2012); Lena Pareto, Jurgen Broeren & Martin Rydmark, Gothenburg, Sweden (2014); and Skip Rizzo again, this time on home turf, in Los Angeles, USA (2016).

Passing the Baton ...

After retiring in 2016, I extend my heartfelt thanks to David Brown, Sue Cobb, Penny Standen, Pedro Gamito, Sebastian Koenig, Iveta Fajnerová, and Emil Roselund Høeg for holding the ship together, together with their substantial teams at each of their respective locations: Nottingham, UK (2018); Serpa, Portugal (2021, Covid delayed from 2020); Ponte Delgado, Azores, Portugal (2022); Prague, Czech Republic (2024); and the current host city of Copenhagen, Denmark (2026).

Now in its 16th edition and on its 30th anniversary, I believe this conference to be the longest established international conference series in the area of VR technology related to disability and rehabilitation. Deliberately interdisciplinary from its origins, the conference's community spans researchers in medicine, rehabilitation, psychology, education, computer science, engineering, and technology development, as well as practitioners and technology users, who would be left scratching away at their ideas in vain without integrating users and user groups to test out their new ideas and be told to go back to the drawing board when they don't quite live up to expectation. As indeed it should be.

I am sure that more superlatives are available from LLMs – or Word Calculators, as I like to call them – but the bottom line is that the subject areas covered by ICDVRAT remain a most interesting, rewarding and valuable space to be working in.

And long may it continue.

– Paul Sharkey

Founder and Honorary President

Welcome to ICDVRAT 2026

Dear delegates,

It is a great pleasure to welcome you to ICDVRAT 2026 in beautiful Copenhagen!

This year is particularly special as we celebrate 30 years of ICDVRAT. We are delighted to once again bring together researchers, clinicians, practitioners, technologists, students, people with lived experiences, and friends of the ICDVRAT community from across the world.

This year, we are especially happy to welcome participants from 17 countries: Canada, China, Czechia, Denmark, France, Hungary, Israel, Italy, Japan, the Netherlands, Norway, Portugal, South Africa, Sweden, Switzerland, the United Kingdom, and the United States. Bringing together people from so many different countries, disciplines, and perspectives is one of the things that makes ICDVRAT special and has been part of its spirit from the very beginning. We are delighted and honoured to have so many of you gathered here in Copenhagen.

True to this spirit, the work presented at ICDVRAT 2026 reflects the broad interdisciplinary nature of the field. This year's programme is organized around 11 themes:

AI, virtual humans and social interaction; stroke and neuromotor rehabilitation; physical and orthopedic rehabilitation; autism spectrum disorders; VR for anxiety, PTSD and OCD; biosensing, AI and neuroadaptive systems; embodiment, presence and immersion; ageing and methodology; cognitive assessment and training; accessibility and inclusion; and education and pedagogy.

As always, the conference is also an opportunity to reflect on how far we have come, and how far we still have to travel.

We hope ICDVRAT 2026 will provide space for these discussions alongside the scientific programme: for curiosity, disagreement, new collaborations, unexpected conversations, and new ideas.

Thank you for travelling from near and far to join us. We are very happy to have you here, and we warmly welcome you to ICDVRAT 2026.

The General Conference Chairs

Emil R. Høeg, Iveta Fajnerová, Pedro Gamito and David J. Brown

Conference program

Tuesday, September 15

9:00–12:00	Cyber Workshop Hands-on Training on the Application of VR in the Treatment of Anxiety and Related Disorders <i>Stéphane Bouchard Université du Québec en Outaouais, Ana Beato HEI Lab, Lusófona University</i>
12:00–13:00	Lunch break
13:00–13:45	Opening ceremony - Welcome address from conference chairs - Welcome with Head of Department <i>Lone Malmborg</i>
13:45–14:45	Keynote 1 <i>Louise Birkedal Glenthøj</i>
14:45–15:00	Coffee Break
15:00–15:55	Session 1: AI, Virtual Humans & Social Interaction - From Code to Care: Building AI Virtual Humans for Accessible and Ethical Healthcare Support <i>Sharon Mozgai, Russell Shilling, Brendon Hale</i> - Evaluating Metaverse Support Groups for Displaced Populations <i>Albert Skip Rizzo, Cătălina-Maria Popoviciu, Saltanat Zhamaliyeva</i> - One Format Fits All? Sensory Sensitivity and AI-generated Cyberbullying Narratives: A Study Protocol <i>Sofia Mateus Francisco, Cláudia P. Pires, Vera Pereira, Paula Paulino, Teresa Souto, Alexandre Rodrigues, Pedro Gamito, Jorge Oliveira</i> - Discussion and Q&A
16:00–16:15	Coffee Break
16:15–17:15	Panel discussion - Accessibility in Technology: Progress, Gaps, and the Road Ahead Panelists: <i>Valeria Borsotti, David J. Brown, Hafaz Shah, Tobias Nyhuus Jensen</i>
18:00–23:00	Welcome reception in "Slusen"

Wednesday, September 16

8:30–9:00	Help-desk opens
9:00–10:35	Session 2: Stroke & Neuromotor Rehabilitation - Virtual Reality for Upper Limb Stroke Rehabilitation: A Quality Improvement Study Evaluating Patient Outcomes and Clinical Feasibility <i>Emma Dunn, Caroline Wilson, Darryl Charles, Siobhan Poulter</i> - Integrating Shared Co-located Clinician-Patient Augmented Reality into Rehabilitation Tools <i>Ilan Vol, Shachar Maidenbaum</i> - Designing Multiuser VR Rehabilitation Games: Balancing Semi-Structured Play and Clinical Structure for Engagement and Care Support <i>Siobhan Poulter, Darryl Charles, Therese Charles</i> - Developing an Augmented Reality Tool for Walking and Attention Rehabilitation <i>Ilan Vol, Shachar Maidenbaum</i> - Virtual Reality-based and Conventional Cognitive Interventions in Community-dwelling Older Adults: The Moderating Role of Cognitive Reserve <i>Jorge Oliveira, Teresa Souto, José Bourbon, Catarina Alves, Cátia Coelho, Nuno Santos, Sofia Francisco, Ricardo Pinto, Vítor Hugo Silva*, Pedro Gamito</i> - Discussion and Q&A
10:35–10:50	Coffee Break
10:50–12:05	Session 3: Physical & Orthopedic Rehabilitation - Embodying the Phantom: A Low-Cost, Inclusive VR Mirror Therapy Driven by 2-Point Tracking <i>Jacob Loat, Andrea Aternali, Joel Katz, Sander Hitzig, Lora Appel</i> - Move, Enjoy, Interact: VR Dancing for Youth with Motor Limitations <i>Martin Lemay, Nawfal Chabibi, Margaux Hebinck</i> - Improving Functional Rehabilitation Through VR-based Physiotherapy: A Systematic Review and Meta-analysis <i>Denis Arsovski</i> - Saudi End-User Perception and Expectations Toward Using Virtual Reality-Based Physiotherapy Systems as an Exercise Tool for People with Knee Osteoarthritis: qualitative study <i>Duaa Sabbagh, Kate Button, Mohammad Al-Amri</i> - Discussion and Q&A

12:05–13:00 Session 4: Autism Spectrum Disorder (Part 1)

- A Game-Based Multimodal Data Capture Pipeline for Research on Emotional Regulation
Daniel J. Buxton, Mufti Mahmud, Jordan J. Bird
- Feasibility Study of an LLM-Based Digital Social Interaction Programme to Improve the Social Communication Skills of Autistic Children in China
Vicky Yiran Zhao, William Farr (presented by Yanhui Liu)
- Game-Based Collaborative Interactions Among Moderately Functioning Autistic Adults
Orly Lahav, Tal Biro
- Discussion and Q&A

13:00–13:55 Lunch Break

13:55–14:55 Keynote 2

Revolutionizing the research, assessment, and treatment of paraphilic disorders: the role of virtual reality and artificial intelligence
Kateřina Klapilová

14:55–15:10 Coffee Break

15:10–16:05 Session 4: Autism Spectrum Disorder (Part 2)

- A Mixed Methods Study: Culturally Responsive Tangible Near Field Communication Brick Play for Facilitating Communication and Language Development in Autistic Young Children of West African Descent
Hannah Ackom-Mensah, Rupert Wegerif, William Farr
- Bridging the Support Gap with Generative AI Enabled Learner Profiles for Adolescents with Autism
Isaac Lee, Will Farr
- From Generic Guardrails to Pillars in the Structure of AI: Specificity in Paediatric Neurodisability & Neurodivergence
William Farr, Isaac Lee
- Discussion and Q&A

19:00–22:00 Social Dinner

Restaurant HAPS
Rådhuspladsen 57
1550 København

Thursday, September 17

8:30–9:00	Help-desk opens
9:00–10:35	Session 5: VR for Anxiety, PTSD & OCD - Creation of a VR Application for Remote Exposure Therapy in Social Anxiety Disorder <i>Tereza Langová, Markéta Jablonská, David Jakeš, Katarina Adamcová, Veronika Trázníková, Pavla Stopková, Iveta Fajnerová</i> - Virtual Environments for Patients with Obsessive Compulsive Disorder in Outpatient Care <i>Karolína Zuzánková, Iveta Fajnerová, Pavla Stopková</i> - Detection and prevention of PTSD Risk in First Responders by means of a VR protocol <i>Ricardo Pinto, Hélder António, Pedro Gamito</i> - Virtual Reality Pre-Scan Simulation to Reduce MRI-Related Anxiety and Improve Scanning Efficiency <i>James Lewis, Adam Wallbanks, Daniel J. Buxton</i> - Virtual Reality Art Therapy and Trauma: A Pilot Study <i>Renata Cserjesi, Zsuzsanna Geréb Valachine, Anastasiia Lukoshyna, Bálint Vörös, Ádám Salamon, Cecilia Sik-Lanyi</i> - Discussion and Q&A
10:35–10:50	Coffee Break
10:50–12:05	Session 6: Biosensing, AI & Neuroadaptive Systems - Integrated VR & EEG - The Best Practices for Real-Time Data Collection in Research <i>Sean Haddick, Adam Wallbanks, Muhammad Arifur Rahman</i> - A Conceptual Mechanistic Framework for Biosensing-Enhanced VR Rehabilitation <i>Adam Wallbanks, Muhammad Arifur Rahman, David J. Brown</i> - VR & EEG - Mixed Computer Science Methods in the evaluation of Facial Emotion Expression Recognition <i>Sean Haddick, David Brown, James Lewis, Bonnie Connor, Simon Schofield</i> - C&Look: A Platform Supporting Children with Oculomotor Difficulties <i>Ilona Heldal, Are Are Dæhlen, Carsten G. Helgesen, Qasim Ali</i> - Discussion and Q&A

12:05–13:00	Session 7: Embodiment, Presence and Immersion - Measuring embodied immersion through reactive and proactive postural adjustments during a telepresence cycling experience <i>Gabriel Baud-Bovy, Giulia Castagliuolo, Vittorio Dalmasso, Claudio de'Sperati</i> - Repeated Immersion in a Virtual Forest: Stability of Benefits Across Multiple Sessions <i>Lukáš Hejtmánek, Karolína Rampová</i> - Discussion and Q&A
13:00–13:55	Lunch Break
13:55–14:55	Keynote 3 Demystifying AI - in the context of its use within immersive and enabling technologies <i>David J. Brown</i>
15:00–16:15	Session 8: Aging & Methodology - Offline Onboarding as a Potential Contributor to Adherence in VR for Hospitalized Older Adults <i>Pál Tamás Szabó, Samuel Chovanec, Beáta Réka Vásárhelyi, Beáta Sosity, Ágnes Karolína Bakk</i> - The technology works fine, but... Barriers of involving elderly adults in a co-design for digital health innovation <i>Ágnes Karolína Bakk, Pál Tamás Szabó, Samuel Chovanec, Patrícia Lajkó (Semmelweis University), Beáta Réka Vásárhelyi, Lora Appel</i> - Who Controls VR? A Thematic Synthesis of Studies That Directly Investigated Input Modality with Older Adults <i>Samuel Chovanec, Lora Appel, Varissara Vannawongpaisan, Pál Szabó, Beáta Sosity, Ágnes Karolína Bakk</i> - Rigour Meets (Virtual) Reality: Balancing Robust Methodology and Real-World Implementation in VR-Therapy Protocol for At-Home Dementia Care <i>Lora Appel, Samantha Lewis-Fung, Vanessa Geitz, Danielle Tchao, Barbora Darmová, Krisha Malik</i> - Discussion and Q&A
16:15–16:25	Coffee Break
16:25–17:30	Demo Session
18:00–21:00	Copenhagen harbour Tour to Reffen Street Food

Friday, September 18

8:30–9:00	Help-desk opens
9:00–10:35	Session 9: Cognitive Assessment & Training - Enhance VR Behavioural Metrics Capture Age-Dependent Reaction Time Delays <i>Nicolas Morgenstern, Toscane Revillard, Maiya Morgan, Andre Mendonça, Hossein Jalali, Amir Bozorgzadeh</i> - Towards a fusion of control and ecological validity in virtual reality based cognitive testing: pilot results from our QuestMarket game <i>Soma Zsebi, Cecilia Sik-Lanyi, Renáta Cserjési</i> - Using Cognitive Map Theory to Create a Serious Game Assessment for Cognitive Dysfunction Post-Brain Injury <i>Jordan Tewell, Nicole Cruse, Khushali Bhatt</i> - An Initial Study on Enhancing AR Physical Coaching: Multimodal Posture Feedback Using Local ML and LLMs <i>Johannes Nivala, Victor Månsson, Ali Geris, Günter Alce</i> - Discussion and Q&A
10:35–10:50	Coffee Break
10:50–12:25	Session 10: Accessibility & Inclusion - Redesigning a VR Group Intervention to Support a Mentalising Stance in Professional Caregivers of People with Intellectual Disabilities <i>Veerle Andries, Suzanne Derks, Tanja Doodeman, Brigitte Boon, Carlo Schuengel</i> - Enemy Localization Tools for VR Games Accessibility to Blind and Visually Impaired Players <i>Florian Apavou, Tifanie Bouchara, Patrick Bourdot</i> - An Interaction-Centered Perspective on Audio-Based Gameplay for Blind Players <i>Nicoleta Radu, Stine Froulund Astorp, Max Væhrens, Antonia Krummheuer, Thomas Bjørner, Flemming Christensen, Dorte Hammershøi</i> - Beyond Control: Access, Embodiment, and Therapeutic Interaction in VR for Older Adults — Insights from a Co-design Workshop <i>Beáta Pintérné Sosity</i>

- Examining the Technology Experience Profile of Individuals with Disabilities from Sexual and Gender Diversity in Quebec, Canada
Jhon Moreno, Mégan Dubois, Vasilisa Coveny, Célia Rigoulat, Pénélope Pelletier, Samuel Chourot-Ferland, Ashleigh Yule, Alan Martino, Andreas Neumann-Mascis, Carlota Caamano
- Discussion and Q&A

12:25–13:20 Session 11: Education & Pedagogy

Student-Developed Podcasts as an Accessible Pedagogical Model for Teaching Rehabilitation Technologies

Karen Francis

Teacher Perspectives on Social Virtual Reality for Remote School Participation: An Exploratory Study

Scott Naylor, Emil Rosenlund Høeg, Ali Adjorlu

REPLICA: Development and Evaluation of an Immersive First-Person Simulation Platform for Psychiatric Education

Iveta Fajnerova, Pavel Srp, Markéta Jablonská

Discussion and Q&A

13:20–14:10 Lunch Break

14:10–15:10 Award Ceremony and closing remarks

Keynote Speakers

David J. Brown

David Brown is a professor from Nottingham Trent University whose work focuses on making technology inclusive and accessible, especially via interdisciplinary systems like virtual reality, serious games, affective computing, and robotics for education and rehabilitation.



Professor in Interactive Systems for Social Inclusion, Nottingham Trent University

Demystifying AI – in the context of its use within immersive and enabling technologies

Within our contexts of use – including education, social care and rehabilitation, AI can be understood as (predominantly) a set of pattern-spotting and generative tools that we are using within and alongside virtual and mixed-reality experiences in real time to transform assessment, treatment, education, care and opportunity for those who need it most. Our basic premise is that an algorithm does not have to make the same choice as a human would make, but a human should at least be able to understand the process by which the decision is made. Understanding the process provides transparency and clarity about how decisions are made – which builds trust, protects rights, and allows for challenging and greater understanding of outcomes that significantly impact lives. We put co-designers (persons directly affected by our research) and co-researchers with disabilities more formally and centrally into the human centric design approaches to these technologies. When we reframe our community partners as co-researchers, then we are much more likely to develop AI-enhanced enabling systems which are trustworthy, unbiased, privacy preserving and will go on to being used and create impact.

AI isn't just a tool—it's a responsibility.

Louise Birkedal Glenthøj

Associate Professor Louise Birkedal Glenthøj is a clinical psychologist and research leader at the VIR-TU Research Group at the University of Copenhagen. Her research is dedicated to advancing the use of VR in the clinical assessment and treatment of mental health disorders including psychosis, eating disorders, autism, and anxiety, as well as the application of VR in general clinical practice. She also explores the innovative use of VR-based eye tracking to support the diagnostic process for specific mental health disorders. Additionally, her research aims at identifying biomarkers, such as EEG and MRI, as potential predictors of therapy outcomes with the goal of improving the efficacy of VR interventions.



*Associate professor and research leader
Mental Health Center Copenhagen,
University of Copenhagen*

Virtual reality in clinical psychiatry: Evidence and experience from recent trials

Virtual reality (VR) is increasingly used as a clinical tool in psychiatric treatment, particularly in areas where real-world exposure, social interaction, or behavioural change are difficult to achieve through traditional therapy. In this talk, I will present findings from five clinical VR studies conducted across several psychiatric populations, with a primary focus on psychosis and additional work within eating disorders.

The talk will describe how VR has been applied to address key clinical challenges, including distressing symptoms, perceived social threat, avoidance, reduced engagement in everyday activities, and difficulties in emotional and interpersonal functioning. Drawing on data from both larger trials and pilot studies, I will discuss clinical outcomes, feasibility in routine clinical settings, and patterns of engagement across repeated VR sessions.

Beyond outcomes, the presentation will focus on processes that appear important across interventions, such as presence, emotional engagement, and patients' interaction with virtual social environments. I will conclude by reflecting on common challenges and lessons learned, and what these experiences imply for the future development and implementation of VR-based interventions in psychiatry.

Kateřina Klapilová

Kateřina Klapilová, Ph.D. (ECPS) is a researcher at the Center for Sexual Health and Interventions at the National Institute of Mental Health and Charles University in the Czech Republic. Her research focus on sexual health and human sexual behaviour. Her work spans large-scale national studies of sexual behaviour and health, as well as experimental and psychophysiological research on sexual reactivity, preferences, and dysfunctions. She contribute to the development and evaluation of preventive and intervention programs targeting problematic and paraphilic sexual behaviour, and is involved in advancing evidence-based approaches to the prevention of sexually motivated crime, alongside educational initiatives for professionals in the field.



*Researcher in sexual health and behaviour,
National Institute of Mental Health and
Charles University, Czech Republic*

Revolutionizing the research, assessment, and treatment of paraphilic disorders: the role of virtual reality and artificial intelligence

Paraphilic disorders represent a heterogeneous group of conditions in which atypical sexual interests may cause distress, functional impairment, or harm to others. Despite decades of clinical and forensic work, significant gaps remain in their assessment, treatment, and prevention. Traditional approaches are constrained by methodological, ethical, and legal limits, while many at-risk individuals remain undetected and difficult to engage.

Emerging technologies offer ways to address these challenges. Artificial intelligence (AI) enables the creation of legally compliant, standardized, and demographically tailored visual stimuli for psychophysiological testing (e.g., penile plethysmography).

Projects such as the Philippe-Pinel virtual character generator and recent Czech initiatives with AI-generated static and dynamic stimuli—including nonverbal behavioral cues—improve ecological validity while respecting legal boundaries. Virtual reality (VR) adds immersive environments that support individualized risk assessment, treatment monitoring, and the development of “training arenas,” where patients can safely rehearse strategies and clinicians can observe change. Early feasibility studies in forensic psychiatry suggest benefits in anger regulation, impulsivity, and behavioral control.

Digital tools also show promise for prevention and outreach. Chatbots and avatars have been piloted as deterrence and redirection tools, for instance the reThink chatbot on Pornhub UK, which was associated with reduced CSAM searches and increased contacts with support services. Online CBT programs (e.g., Prevent It) and pilot motivational interviewing courses further illustrate how digital platforms can engage non-disclosing individuals, CSAM users, and incarcerated populations. Together, AI and VR innovations herald a transformative future for sexology, providing ethically sound, ecologically valid, and scalable tools for assessment, intervention, and prevention.



Panel Discussion Accessibility in Technology

Join us for a panel discussion about how far have we come in using technology to empower people with disabilities, and where we still fall short.

Jenny-Margrethe Vej (Moderator)

Jenny-Margrethe is a speaker, educator, and researcher working at the intersection of neurodiversity, gender, inclusion, intersectionality, and computer science. She is the founder of Diagnoseklubben and is affiliated with the NeuroGen Computing project at the Department of Computer Science, University of Copenhagen. With a background in computer science and IT project and programme management, she combines research, professional experience, and lived experience as a late-diagnosed autistic person with ADHD. Her work is characterised by humour, directness, and a willingness to challenge established ways of thinking.

David J. Brown

David is Professor of Interactive Systems for Social Inclusion at Nottingham Trent University. His research involves the use of VR for children and young people with disabilities for over 30 years. In addition, he is both a Principal and Co-Investigator on a range of Horizon Europe, British Council and UKRI projects investigating the role of multimodal affect recognition, eXplainable and privacy preserving AI to promote inclusive education, and the positive mental and clinical wellbeing of students with Intellectual Disabilities and Autism. He has a lifelong obsession with the late, great musician – Janis Joplin.

Valeria Borsotti

Valeria Borsotti is a digital anthropologist and HCI scholar researching equity and accessibility in science and technology. Her recent research explores challenges and opportunities related to neurodiversity and accessibility in Danish computer science education. She is co-author of "Diversity in computer science - Design artefacts for equity and inclusion" and co-editor of "Universal Design as a Tool for Change"

Tobias Nyhuus Jensen

Tobias Nyhuus Jensen is Principal Accessibility Program Lead at Siteimprove, where he helps teams build accessible, resilient digital products. He is also Denmark's national expert for the European Commission's AccessibleEU initiative and co-chair of the Nordic Accessibility Community Group under W3C. His work focuses on making accessibility practical across product development, organisational change, and the implementation of accessibility requirements.

Hafaz Shah

Hafaz Shah is a Danish entrepreneur, author and inclusion advocate with more than 15 years of experience in recruitment, sales, marketing and business development. He is the author of A Life on 4 Wheels, which reflects on his life as a wheelchair user and his experiences with education, employment, entrepreneurship and inclusion. Through his work, Hafaz promotes greater awareness of disability inclusion and encourages organisations to turn good intentions into meaningful action.

01

AI, VIRTUAL HUMANS & SOCIAL INTERACTION



From Code to Care: Building AI virtual humans for accessible and ethical healthcare support

S. Mozgai¹, R. Shilling², B. Hale², P.A. Palmieri², D. Freyberger² & A.S. Rizzo¹

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DOI: [10.54337/aau.icdvrat26.01](https://doi.org/10.54337/aau.icdvrat26.01)

Abstract

This paper presents the evolution of clinical virtual reality (VR) systems toward AI-driven virtual human (VH) agents for healthcare support. Building on decades of research, we describe the progression from early VR exposure systems to conversational VH platforms such as SimCoach, Battle Buddy, and the Sidekick platform. We highlight user-centered design efforts, mobile deployment strategies, research, and ethical challenges, including safety, bias, and clinical scope. The work demonstrates how VH systems can improve access to care while emphasizing the need for responsible design and human oversight.

Evaluating metaverse support groups for displaced populations: A randomized controlled trial with Ukrainian refugees

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DOI: [10.54337/aau.icdvrat26.02](https://doi.org/10.54337/aau.icdvrat26.02)

Abstract

This randomized controlled trial (N = 152) evaluated the efficacy of immersive, avatar-based metaverse support groups for Ukrainian refugees. Participants were randomized to metaverse, in-person, or waitlist group therapy conditions. Significant reductions were observed in depression and anxiety with concurrent improvements in well-being and social support. Metaverse outcomes were comparable to in-person groups and superior to waitlist. Therapeutic alliance significantly moderated outcomes, particularly in immersive settings. Findings support metaverse-based interventions as scalable and effective approaches for displaced populations.

One format fits all? Sensory sensitivity and AI-generated cyberbullying narratives: a study Protocol

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DOI: [10.54337/aau.icdvrat26.03](https://doi.org/10.54337/aau.icdvrat26.03)

Abstract

Sensory Processing Sensitivity (SPS), a temperamental trait affecting 20–30% of adults, shapes how individuals perceive and react to environmental stimuli. As AI-generated immersive content becomes increasingly common in digital interventions, it remains unknown whether format choices interact with SPS to modulate emotional response. This paper presents the protocol of a planned experimental study comparing audio podcasts and expressive virtual humans in a cyberbullying narrative intervention. Findings will offer the empirical groundwork for sensitivity-informed design of AI-mediated interventions, a prerequisite before content can be meaningfully personalised to distinct sensory profiles.

02

STROKE & NEUROMOTOR REHAB



Virtual Reality for Upper Limb Stroke Rehabilitation: A Quality Improvement Study Evaluating Patient Outcomes and Clinical Feasibility

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DOI: [10.54337/aau.icdvrat26.04](https://doi.org/10.54337/aau.icdvrat26.04)

Abstract

Upper limb impairment affects most stroke survivors, yet routine rehabilitation often provides far fewer repetitions than the 300–800 movements linked to neuroplastic change. This extended abstract reports a dual-phase Quality Improvement study examining whether a commercial, controller-free virtual reality system could increase therapy dose in an acute stroke unit without unacceptable workflow burden. Four stroke patients completed matched 30-minute conventional occupational therapy and VR sessions, while 18 occupational therapists assessed feasibility through usability scales, competency checks, and interviews. VR produced 200–500% more repetitions, median 354%, with positive feedback, no adverse events, and good usability, though supervised practice remained necessary afterwards.

Integrating Shared co-located Clinician-Patient Augmented Reality into rehabilitation tools

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DOI: [10.54337/aau.icdvrat26.05](https://doi.org/10.54337/aau.icdvrat26.05)

Abstract

Virtual Reality holds great rehabilitation potential, however an adoption barrier for practical use is the disconnect between patients and both clinicians and their physical surroundings. Co-located Augmented-Reality can mitigate these issues by placing both in real-world environments with augmented challenges while avoiding disconnection. As a proof of concept, we implemented a tool with co-located spaces where patients and clinicians can interact with augmented content safely together. We performed a usability study (n=8), which demonstrated the tool's usability and potential. This approach can potentially boost the adoption and effectiveness of augmented rehabilitation tools helping to unlock their potential.

Designing Multiuser VR Rehabilitation Games: Balancing Semi-Structured Play and Clinical Structure for Engagement and Care Support

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DOI: [10.54337/aau.icdvrat26.06](https://doi.org/10.54337/aau.icdvrat26.06)

Abstract

Virtual reality can increase motivation and access in stroke rehabilitation. This paper presents EnACT, a multiuser VR system for Meta Quest headsets combining social play, structured tasks including a virtual Box and Block Test, and an AI virtual physiotherapy assistant. A PPI evaluation with health professional lecturers and consultation with NHS occupational therapists was strongly positive, highlighting motivational benefits of shared activities, clinical task relevance, and multiuser VR's potential to reduce isolation and support remote care. Findings suggest significant rehabilitation benefits from integrating social presence, adaptable game mechanics, and measurable tasks over treating entertainment and clinical structure as competing goals.

Developing an Augmented Reality Tool for Walking and Attention Rehabilitation

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DOI: [10.54337/aau.icdvrat26.07](https://doi.org/10.54337/aau.icdvrat26.07)

Abstract

Walking rehabilitation post-stroke requires complex motor-cognitive integration. While virtual reality shows potential, safety concerns and challenges with environment complexity and naturalness limit its clinical adoption. This study presents a tool attempting to address these barriers by the use of augmented reality, which maintains the user's view of the real world mitigating these issues. We evaluated the tool's usability and found that the system functioned as planned, without failures or discomfort while utilizing the planned advantages of safety and connection to users' surroundings. These results act as a basis for the next step of testing with a clinical population.

Virtual reality-based and conventional cognitive interventions in community-dwelling older adults: The moderating role of cognitive reserve

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DOI: [10.54337/aau.icdvrat26.39](https://doi.org/10.54337/aau.icdvrat26.39)

Abstract

This study evaluated the efficacy of three community-based interventions for older adults: virtual reality cognitive stimulation, traditional cognitive stimulation and socioemotional competence training, while examining the moderating role of cognitive reserve (CR). The sample included 65 older adults attending a community facility who completed baseline and post-intervention neuropsychological assessments following a three-month intervention program. Linear mixed model analyses, which included baseline age as a covariate to account for group differences, revealed that individuals with lower and average CR improved across all interventions, whereas individuals with higher cognitive reserve showed greater gains in the virtual reality and traditional groups. These findings highlight the importance of personalized intervention approaches tailored to individual CR profiles.

03

PHYSICAL &
ORTHOPEDIC REHAB



Embodying the Phantom: A Low-Cost, Inclusive VR Mirror Therapy Driven by 2-Point Tracking

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DOI: [10.54337/aau.icdvrat26.09](https://doi.org/10.54337/aau.icdvrat26.09)

Abstract

This paper presents a two-point torso prediction system designed for use in virtual reality mirror therapy applications for individuals living with phantom limb pain following an upper-limb amputation. While traditional mirror therapy can be effective in treating pain, modern VR applications offer greater flexibility and customization. However, many existing VR interventions rely on external sensors and complex hardware setups, limiting accessibility. To address this, we developed a system capable of two-point torso estimation utilizing only consumer VR devices. This paper outlines the system and introduces the upcoming clinical trial designed to test its viability as an accessible intervention.

Move, Enjoy, Interact: Virtual reality dancing for youth with motor limitations

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DOI: [10.54337/aau.icdvrat26.10](https://doi.org/10.54337/aau.icdvrat26.10)

Abstract

Enjoyment, physical engagement, and social interaction are the experiences most valued by youth with motor limitations in dance contexts. Building on this framework, the present study examines whether immersive virtual reality (VR) dance can provide these core qualities. During a one-week camp, youth with motor limitations participated in immersive VR dance sessions. Through qualitative and quantitative measures, we investigated whether three dimensions central to dance practice (moving, enjoying, and interacting) were meaningfully experienced in VR. Results were broadly positive, suggesting immersive VR dance holds promise as a complement to dance practice for youth with motor limitations.

Improving functional rehabilitation through virtual reality-based physiotherapy: A systematic review and meta-analysis

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DOI: [10.54337/aau.icdvrat26.11](https://doi.org/10.54337/aau.icdvrat26.11)

Abstract

Virtual reality technologies are integrated into physiotherapy and neurorehabilitation to IMPROVE patient engagement, motor learning and functional recovery. This research aims to evaluate the effectiveness of VR physiotherapy interventions in improving functional rehabilitation outcomes in persons with neurological and physical impairments. A systematic review and meta-analysis will be conducted with PRISMA guidelines. Databases including PubMed, Scopus, and Web of Science will be searched for randomized controlled trials and clinical studies. Outcomes related to motor performance, balance, gait and functional independence will be analyzed to determine the clinical potential of VR-assisted rehabilitation.

Saudi End-User Perception and Expectations Toward Using Virtual Reality-based Physiotherapy Systems as an Exercise Tool for People with Knee Osteoarthritis: qualitative study

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DOI: [10.54337/aau.icdvrat26.12](https://doi.org/10.54337/aau.icdvrat26.12)

Abstract

Knee osteoarthritis (OA) significantly impacts daily functioning among Saudi populations, yet exercise adherence remains low due to multiple barriers. Virtual reality (VR)-based physiotherapy may enhance engagement, but end-users' expectations are poorly understood. This study explored Saudi end-users' expectations, needs, and concerns regarding VR-based physiotherapy for knee OA. Fourteen participants completed semi-structured interviews, analysed using inductive thematic analysis. Four themes emerged: knowledge and impact of knee OA; perceptions of exercise for knee OA; digital health in Saudi Arabia; and perceptions of VR-based physiotherapy. Participants showed positive attitudes toward VR-based physiotherapy; however, individual and systemic barriers must be addressed for successful implementation.

04

AUTISM SPECTRUM DISORDERS



A Game-Based Multimodal Data Capture Pipeline for Research on Emotional Regulation in Autistic Adults

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DOI: [10.54337/aau.icdvrat26.13](https://doi.org/10.54337/aau.icdvrat26.13)

Abstract

Research on emotional regulation in autistic adults requires methods that effectively capture physiological responses and behavioural context. This paper introduces a game-based multimodal data capture pipeline that integrates a controlled environment with synchronised physiological sensing to facilitate future studies. The pipeline records key gameplay events as candidate regulation-relevant anchors and aligns them with multimodal recordings for event-centred analysis. Session outputs are stored with structured metadata and event logs to ensure quality control and reuse. The focus is on technical implementation and feasibility, establishing a foundational pipeline for future ethically approved research on emotional regulation in autistic adults.

Protocol for a RCT and Feasibility Evaluation of a Large Language Model-Based Digital Social Interaction Programme to Improve the Social Communication Skills of Autistic Children in China

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DOI: [10.54337/aau.icdvrat26.14](https://doi.org/10.54337/aau.icdvrat26.14)

Abstract

In China, 0.7% of school-aged children have autism. Access to long-term social communication intervention remains limited. We evaluate a large-language-model-based digital social interaction programme designed for autistic children in China aged between 3-8 years old. The intervention integrates social story videos with real-time LLM-driven conversational practice to enhance social communication skills. Randomized controlled trial will compare the digital intervention plus standard care, with standard care alone over 12-weeks. Primary outcomes: Vineland-3 Socialization score. Secondary measure: Social Responsiveness Scale (SRS) and Autism Behavior Checklist (ABC). We aim to provide evidence for AI-supported home-based social communication interventions for young children with autism.

Game-based collaborative interactions among moderately functioning autistic adults

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DOI: [10.54337/aau.icdvrat26.15](https://doi.org/10.54337/aau.icdvrat26.15)

Abstract

This study focused on examining the motivation of moderate-low functioning autistic adults to establish interaction, cooperation, and interpersonal communication through group activities with the BlazePod platform. The study was based on a pre-intervention, intervention, and post-intervention paradigm. The pre- and post- setup included building a model by using Lego bricks. The results of this study show a significant increase in verbal and nonverbal initiative and cooperation during the intervention with BlazePod platform. The study concludes that a reaction-based game platform is an effective motivation tool for social connections and cooperation, but human mediation is required to transfer these skills to natural environments.

A Mixed Methods Study: Culturally Responsive Tangible Near Field Communication Brick Play for Facilitating Communication and Language Development in Autistic Young Children of West African Descent

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DOI: [10.54337/aau.icdvrat26.16](https://doi.org/10.54337/aau.icdvrat26.16)

Abstract

Despite advances in assistive and digital health technologies and research, there is a paucity of technology-mediated, child-led interventions that remain culturally neutral, with relevance for autistic young children of West African descent. This paper assesses the effectiveness of culturally-tailored Near Field Communication (NFC) brick play in promoting communication and language development (CLD) of autistic young children of West African descent living in England. Findings from a pilot explanatory sequential mixed methods intervention across multiple cases in home environments indicated increased joint attention and improved CLD. This study proffers a renewed conceptualisation of CLD, as emerging through culturally situated interaction.

Bridging the Support Gap with Generative AI Enabled Learner Profiles for Adolescents with Autism

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DOI: [10.54337/aau.icdvrat26.17](https://doi.org/10.54337/aau.icdvrat26.17)

Abstracts

Current autism profiling frameworks are grounded in the medical model, persistently failing to translate diagnosis into effective classroom support. While the neurodiversity movement advocates for learner-led, integrated profiling, existing approaches remain clinician-driven and adult-authored. This paper reports Phase 1 findings from a two-phase study currently underway in Southern California. Across 111 responses in five stakeholder datasets, adolescents with autism and their caregivers are not merely open to generative AI-assisted profiling but actively requesting it, most emphatically among communities currently most poorly served. Phase 2 pilots a chatbot-based profiling system comparing large and small language model performance in generating learner-led, multi-domain profiles.

From Generic Guardrails to Pillars in the Structure of AI: Specificity in Paediatric Neurodisability & Neurodivergence

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DOI: [10.54337/aau.icdvrat26.18](https://doi.org/10.54337/aau.icdvrat26.18)

Abstract

When so much of AI technological development is targeting strong and underlying elements of the human condition, mandatory markers in the sand are required. Market self-regulation does not work, as shown by the attention economy. What is needed are codified pillars, not just *guardrails*, to protect those with neurodisability and those who are neurodiverse. There are two required pillars: protection from social murder, where systemic inequity leads to preventable deaths, and protection from psychological attachment abuse arising from the emerging attachment economy. Existing AI regulatory frameworks raise questions about how vulnerabilities, disability, and dehumanised pattern recognition are recognised or obscured. This project maps AI regulations from this perspective.

05

VR FOR ANXIETY,
PTSD & OCD



Creation of a virtual reality application for remote exposure therapy in social anxiety disorder

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DOI: [10.54337/aau.icdvrat26.19](https://doi.org/10.54337/aau.icdvrat26.19)

Abstract

This paper describes the design and development of a self-guided VR application for remote exposure therapy targeting social anxiety disorder (SAD), referred to as FaceTheCrowd VR. It focuses on the design of interactive virtual environments and non-player characters enabling gradual exposure to socially challenging situations. The application is structured as a level-based experience in which users progress through scenarios of increasing social complexity within a simulated environment. The design of the exposure scenarios was based on previous studies identifying common anxiety-provoking social situations in individuals with SAD. The paper discusses the design considerations behind the virtual environments, character interactions, and technical implementation of the system, and outlines how these elements support the therapeutic goals of exposure therapy.

Virtual Environments for Patients with Obsessive Compulsive Disorder in Outpatient Care

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DOI: [10.54337/aau.icdvrat26.20](https://doi.org/10.54337/aau.icdvrat26.20)

Abstract

This paper describes an RCT study examining VR-based exposure and response prevention (VR-ERP) therapy as an addition to standard care for outpatients with obsessive-compulsive disorder (OCD). A within-subject waitlist-controlled design is used; a 5-week waitlist followed by five weekly VR-ERP sessions. Symptom severity was measured using the Subjective Yale-Brown Obsessive-Compulsive Scale (YBOCS-SR) at study intake, after the waitlist period, after the VR-ERP period, and at a 2-month follow-up. Results show a significant reduction in OCD symptoms following VR-ERP ($p < .001$), maintained at follow-up ($p = .001$). Participants reported engagement in between-session exposures and rated the VR-ERP as useful.

Detection and Prevention of Post-Traumatic Stress Disorder Risk in First Responders by Means of a Virtual Reality Protocol

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DOI: [10.54337/aau.icdvrat26.21](https://doi.org/10.54337/aau.icdvrat26.21)

Abstract

This presentation reports two VR-based studies examining PTSD-related vulnerability in first responders. Study 1 assessed physiological responses in 84 firefighters, showing that probable PTSD was associated with lower baseline heart rate variability, suggesting reduced autonomic flexibility at rest. Study 2 examined decision-making in 368 first responders and found that probable PTSD predicted poorer performance in emergency scenarios. Across studies, VR distinguished physiological and behavioral markers of vulnerability in ecologically relevant contexts. The findings support VR as a promising tool for PTSD detection and prevention.

Virtual Reality Pre-Scan Simulation to Reduce MRI-Related Anxiety and Improve Scanning Efficiency

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DOI: [10.54337/aau.icdvrat26.22](https://doi.org/10.54337/aau.icdvrat26.22)

Abstract

Claustrophobia and anxiety often disrupt MRI scans and increase costs. This study compared a custom VR pre-scan simulation with video-guided meditation and standard preparation in 18 participants. Anxiety was measured before and after using the CLQ and MRI-AQ. The VR group showed the largest reduction in anxiety and significantly outperformed both control and video-based methods. The findings suggest that immersive VR may be more effective for reducing MRI anxiety, potentially lowering sedation use and improving scanner efficiency.

Virtual Reality Art Therapy and Trauma: A Pilot Study

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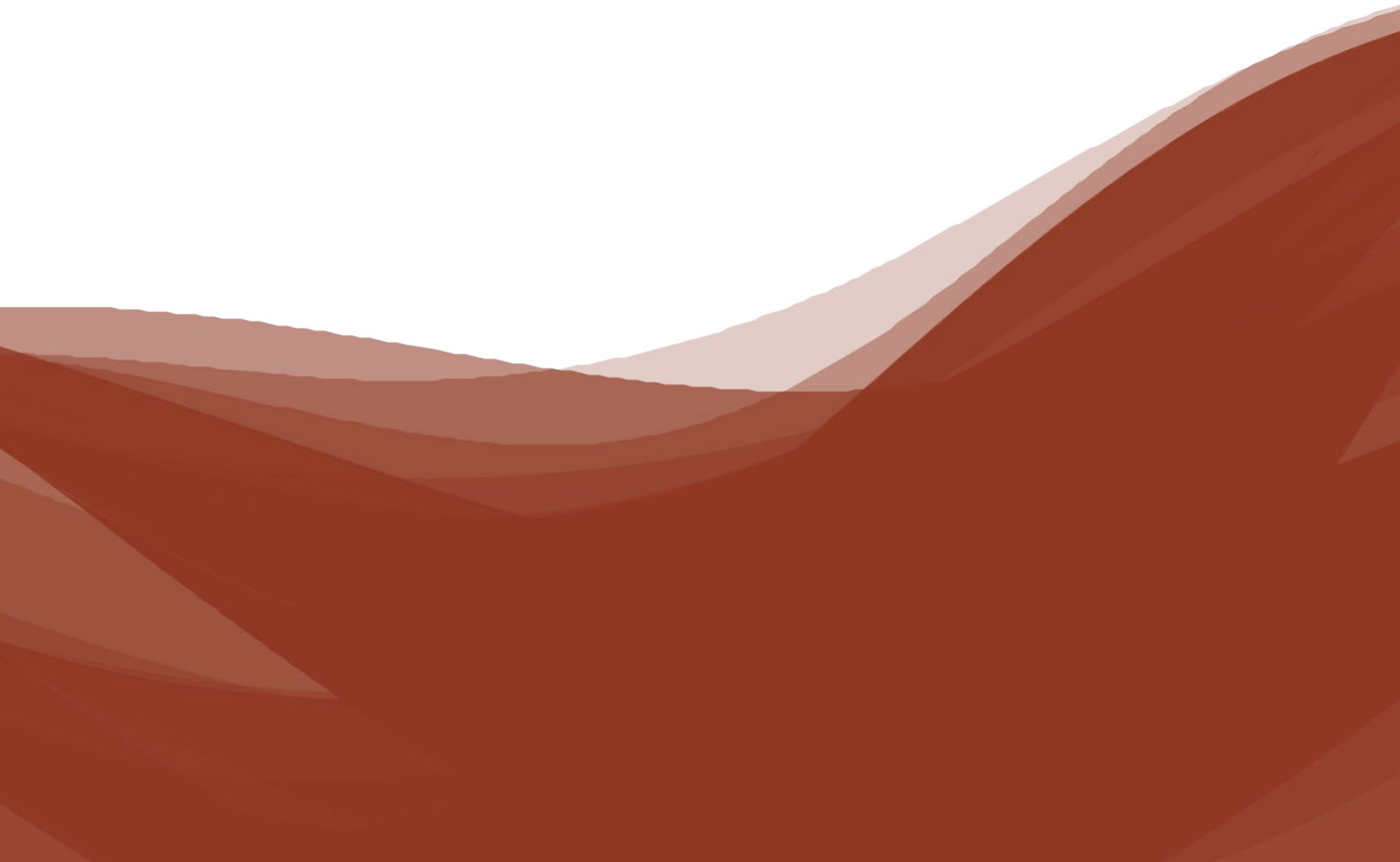
DOI: [10.54337/aau.icdvrat26.23](https://doi.org/10.54337/aau.icdvrat26.23)

Abstract

This pilot study examined a novel, non-exposure-based intervention combining art therapy with a virtual reality (VR) immersive environment among Ukrainian adults displaced by war (N = 13). Using a within-subject design, participants completed both VR and paper-based tasks. Results indicated that VR reduced PTSD symptoms similarly to the traditional paper-based art therapy condition. Although slightly greater reductions in PTSD and disturbances in self-organization (DSO) were observed in the VR condition, these differences were not statistically significant. Findings may reflect high baseline symptom severity and the brief intervention. Nevertheless, results support the feasibility and potential of immersive art-based approaches for trauma intervention.

06

BIOSENSING, AI &
NEUROADAPTIVE
SYSTEMS



Integrated VR & EEG – The Best Practices for Real-Time Data Collection in Research

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DOI: [10.54337/aau.icdvrat26.24](https://doi.org/10.54337/aau.icdvrat26.24)

Abstract

This paper presents a combined real-time monitoring workflow, headset-application procedure and offline inspection pipeline specifically for the OpenBCI Galea integrated dry-EEG VR system, addressing a methodological gap in current research. Existing literature recognises that dry electrodes achieve signal quality comparable to wet systems. However, guidance for obtaining quality data remains limited. We provide a step-by-step protocol for preparing and applying the Galea headset to optimise data quality, supported by author self-testing studies that evaluate the effectiveness of our real-time monitoring approach. Finally, we identify current limitations in packet stability and latency and recommend that future work prioritise these areas.

A Conceptual Mechanistic Framework for Biosensing-Enhanced VR Rehabilitation

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& David J. Brown⁵ 

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Abstract

Biosensing-enabled Virtual Reality including electroencephalography, electromyography, electrodermal activity, heart-rate variability and other multimodal physiological signals is the next frontier of adaptive and personalised VR rehabilitation systems. This paper reviews the mechanistic evidence of 32 studies utilising biosensing-enabled VR, identified in a broader systematic review, investigating how EEG-based motor imagery, EMG biofeedback, and autonomic biosensors can effectively modulate sensorimotor engagement, volitional activation, emotional and attentional states. This framework outlines neural intention decoding, muscular activation reinforcement, autonomic state modulation, and multimodal integration as potential pathways for incorporating biosensing and closed-loop adaptivity into VR rehabilitation systems.

VR & EEG – Mixed Computer Science Methods in the evaluation of Facial Emotion Expression Recognition

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DOI: [10.54337/aau.icdvrat26.26](https://doi.org/10.54337/aau.icdvrat26.26)

Abstract

Facial Emotion Expression Recognition is widely agreed to be one aspect of social function that is impaired within the usual characterisation of Autism Spectrum Disorder. The “Reading the Mind in the Eyes” test is used to this day in the diagnostic process. However, it disregards temporal data, has potential test format effects, and only observes performance rather than underlying behavioral triggers. With the increasing prevalence of VR and EEG tools, including this temporal data and investigating brain activity during testing may result in novel methods to investigate impairments in social function. This paper outlines a study protocol to be used to investigate the application of said tools to this purpose.

C&Look: A platform supporting children with oculomotor dysfunctions

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DIO: [10.54337/aau.icdvrat26.27](https://doi.org/10.54337/aau.icdvrat26.27)

Abstract

Oculomotor dysfunction (OMD), a coordination problem between a child’s left and right eyes, is rarely diagnosed and even less frequently treated. This research presents C&Look, an eye-tracking (ET)–based platform that uses serious games to generate objective measurements of eye movements and reveal coordination problems. The platform supports identification, analysis, and, when needed, vision training, while outlining the current state of the art of its development. We argue for its future use as a disruptive innovation in schools. This extended abstract highlights key aspects of C&Look’s development and the potential for integrating ET technologies into school-based vision screening.

07

EMBODIMENT,
PRESENCE & IMMERSION



Measuring embodied immersion through reactive and proactive postural adjustments during a telepresence cycling experience

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DOI: [10.54337/aau.icdvrat26.28](https://doi.org/10.54337/aau.icdvrat26.28)

Abstract

Immersion is central to engagement in virtual reality, yet it's often measured through subjective reports. We examined whether motor behaviour could provide an objective, real-time measure of immersion during a first-person cycling experience. Twenty-one participants pedalled on a cycle ergometer while viewing 360° bicycle ride videos through a head-mounted display. Head movements and pedalling cadence were recorded during expected and unexpected stops. Participants reacted with downward head rotation and reduced cadence. Expected stops produced earlier, smoother head movements responses and stronger cadence reductions. These findings indicate motor measures could complement self-reports in assessing immersion and support applications in rehabilitation contexts.

Repeated immersion in a virtual forest: stability of benefits across multiple sessions

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DOI: [10.54337/aau.icdvrat26.29](https://doi.org/10.54337/aau.icdvrat26.29)

Abstract

Virtual forest environments are often proposed as accessible alternatives to real forest exposure, yet the stability of their benefits across repeated visits is rarely tested. Eleven adults completed five 10-minute immersions in a virtual forest over five consecutive weeks. Restoration (ROS), mood (POMS-SF), heart rate, and blood pressure were measured before and after each session, along with cybersickness scores. Analyses showed improvements in restoration, mood disturbance, tension, fatigue, at the first session, with no detectable fading across five weeks. Only heart rate benefits decreased over time. The findings tentatively support that repeated virtual forest exposure provides a reliable well-being intervention.

Beyond Immersion: Evaluating a Presence Scale for Augmented Reality

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DOI: [10.54337/aau.icdvrat26.30](https://doi.org/10.54337/aau.icdvrat26.30)

Abstract

Presence remains a debated construct and most existing measures were developed for virtual reality. Because augmented reality is anchored in the real environment, its presence experience involves specific dimensions not fully captured by these questionnaires. The Augmented Reality Questionnaire (ARQ) was developed as a self-report scale assessing five dimensions: immersion, embodied presence, engagement, social presence and narrative. Items were derived from seven widely used presence-related scales and refined through expert content validation using item- and scale-level Content Validity Index (CVI). This paper reports the rationale for the dimensional structure, the item selection procedure, and the first validation stage, providing a psychometrically grounded basis for assessing presence in augmented reality.

08

AGING &
METHODOLOGY



Offline onboarding as a potential contributor to adherence in virtual reality interventions for hospitalized older adults

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DOI: [10.54337/aau.icdvrat26.31](https://doi.org/10.54337/aau.icdvrat26.31)

Abstract

Virtual reality (VR) may support coping with passivity and reduced autonomy in hospitalized older adults, yet unsuccessful first encounters may reinforce withdrawal rather than support involvement. We developed a structured offline onboarding protocol as a brief preparatory phase to reduce uncertainty, support understanding of interaction logic, and help make the first VR encounter a positive experience. As a conceptual, practice-informed position paper, this manuscript frames offline onboarding as a potential mediating component between intervention design, user readiness, and sustained involvement, to be examined in future research. By addressing cognitive, emotional, and interaction-related factors prior to immersion, offline onboarding may support accessibility and continued engagement with VR interventions in vulnerable populations.

“The technology works fine, but...”

Barriers to involving older adults in co-design for digital health innovation: a structured case study reflection

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DOI: [10.54337/aau.icdvrat26.32](https://doi.org/10.54337/aau.icdvrat26.32)

Abstract

This paper examines barriers to involving hospitalised older adults in co-design for digital health innovation, using the ZenctuaryVR+ project as a case study. Applying Greenhalgh et al.'s (2017) NASSS framework, we treat co-design itself as the technology under analysis rather than the VR system it produces. Across four domains (technology, adopter system, organisation, and wider context) we identify complexity arising from grant-funding constraints, ethical approval processes, hospital institutional structures, and ageist imaginaries in gerontechnology design.

Who Controls VR? A Thematic Synthesis of Studies That Directly Investigated Input Modality with Older Adults

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DOI: [10.54337/aau.icdvrat26.33](https://doi.org/10.54337/aau.icdvrat26.33)

Abstract

Input modality is treated as a secondary consideration in VR research involving older adults (OA). In a broader scoping review of 349 studies, only six explicitly investigated input modalities. This thematic synthesis of those studies indicates that embodied and familiar interaction techniques are preferred by OA. The findings suggest that limited adoption is driven more by issues of acceptance than by incapacity. Handheld controllers appear poorly suited to this population and alternatives demonstrate greater accessibility. These results highlight the need to position input modality as a focus in the accessibility and design of VR interventions for older adults.

Rigour Meets (Virtual) Reality: Balancing Robust Methodology and Real-World Implementation in a VR-Therapy Protocol for At-Home Dementia Care

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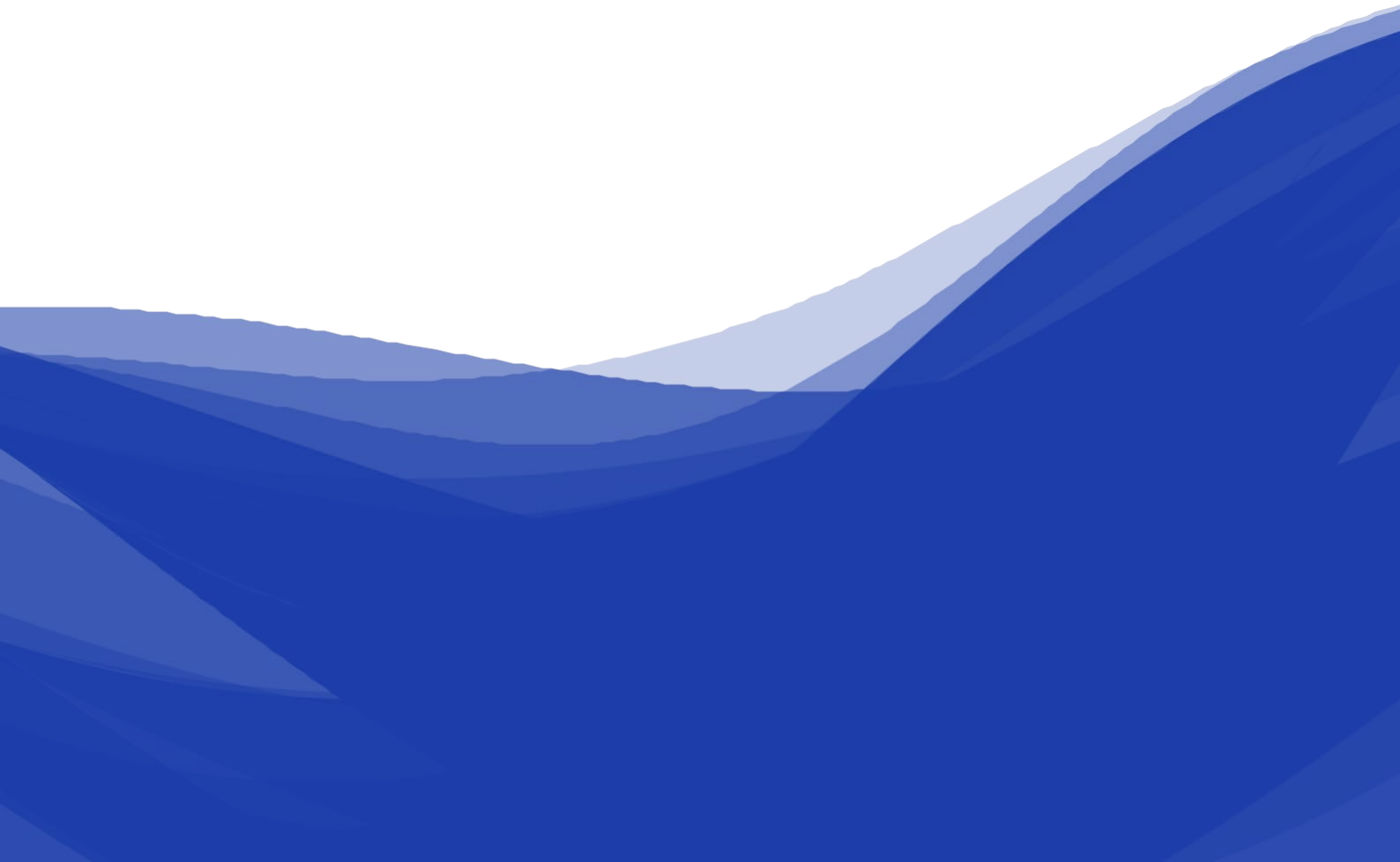
DOI: [10.54337/aau.icdvrat26.34](https://doi.org/10.54337/aau.icdvrat26.34)

Abstract

Caregivers of people living with dementia (PLwD) experience high burden with limited access to formal respite. Immersive virtual reality (VR) offers a promising home-based intervention for supporting behavioural and psychological symptoms of dementia and caregiver respite, but evidence is limited by non-pragmatic designs and restricted eligibility. This paper presents the VR&R protocol, a 6-week randomized crossover trial in 50 caregiver–PLwD dyads comparing solo and facilitated VR delivery. Outcomes include objective and subjective caregiver respite and secondary well-being measures. The design incorporates functional eligibility criteria, low-burden assessments, and home-based delivery to evaluate real-world feasibility and accessibility.

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COGNITIVE ASSESSMENT & TRAINING



Enhance VR behavioural metrics capture age-dependent reaction time delays

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DIO: [10.54337/aau.icdvrat26.35](https://doi.org/10.54337/aau.icdvrat26.35)

Abstract

Enhance VR is a library of games based on neuropsychological principles. Each session generates Scores and Moments. While Scores reflect the player's overall performance, Moments are designed to capture behaviour. Here, we compared the reaction times between two age groups in sessions with identical Scores. In line with the literature, we found delayed reaction times in the older population, indicating that Moments capture age-dependent changes. These results show that Moments from Enhance VR provide valuable data for studying behaviour, aiming to better understand the players decision-making processes, and laying the groundwork for the potential development of cognitive biomarkers.

Towards a fusion of control and ecological validity in virtual reality based cognitive testing: pilot results from our QuestMarket game

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DOI: [10.54337/aau.icdvrat26.36](https://doi.org/10.54337/aau.icdvrat26.36)

Abstract

Virtual Reality (VR) devices have been extensively utilized in neuropsychological evaluation in recent years, however, their comparability to traditional neuropsychological tests is always compromised. One reason is researchers tend to utilize stimuli rich virtual environments which can alter performance. To overcome this problem, we created a VR based shopping game, QuestMarket, which employs a real-life mimicking setting but with very minimal environmental stimuli and compared its variables to six traditional neuropsychological tasks. Our study showed moderate comparability between certain cognitive tests and QuestMarket variables indicating that VR based cognitive tests may still measure different functions even in very plain environments.

Virtual Reality Paradigm to Capture Sensorimotor Alterations in Depression

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DOI: [10.54337/aau.icdvrat26.37](https://doi.org/10.54337/aau.icdvrat26.37)

Abstract

Mood disorders have largely focused on higher cognitive processes such as rumination and cognitive biases, however, major depressive disorder also involves disruptions in embodied processes. This includes sensorimotor functioning such as reduced visual contrast sensitivity, impaired auditory processing of nonspeech stimuli, and others. Conventional laboratory-based assessments of these processes are often limited by low ecological validity. To address this limitation, we developed a multimodal virtual reality paradigm that captures the sensorimotor changes using motion sensors. Present pilot study results show inter-individual variability in average velocity, thus supporting the feasibility of the virtual reality paradigm.

Using Cognitive Map Theory to Create a Serious Game Assessment for Cognitive Dysfunction Post-Brain Injury

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DOI: [10.54337/aau.icdvrat26.38](https://doi.org/10.54337/aau.icdvrat26.38)

Abstract

There is a clinical need for ecologically valid neuropsychological testing for cognitive deficits post-traumatic brain injury. Serious games provide interactive, safe, and replicable virtual environments to assess real-world skills. This paper outlines how the theory of cognitive maps and landmarks were used to provide a methodological framework for the map and design of a novel serious game, the Comprehensive Assessment for Executive Function (CAED). The development process with descriptions of each iterative phase is outlined. Overall, three iterations of the map were designed utilizing both tier one and two landmarks to form the final version of the CAED interactive design.

An Initial Study on Enhancing AR Physical Coaching: Multimodal Posture Feedback Using Local ML and LLMs

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DOI: [10.54337/aau.icdvrat26.08](https://doi.org/10.54337/aau.icdvrat26.08)

Abstract

This preliminary study presents an Augmented Reality (AR) coaching application for physical rehabilitation. Using a Meta Quest 3 and an iPhone, the system offers a low-strain environment for home exercises. In a user study (N=11), participants performed shoulder presses guided by a 3D avatar. A local machine learning model analyzed their form, triggering personalized audio feedback via a Large Language Model (LLM). NASA-TLX evaluations showed minimal user exertion. Despite minor tracking and API limits, the system demonstrates strong potential for integrating immersive, multimodal AR into accessible physical therapy.

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ACCESSIBILITY
& INCLUSION



Redesigning a VR Group Intervention to Support a Mentalising Stance in Professional Caregivers of People with Intellectual Disabilities

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DOI: [10.54337/aau.icdvrat26.40](https://doi.org/10.54337/aau.icdvrat26.40)

Abstract

This paper presents the redesign of a virtual reality (VR) group intervention aimed at supporting professional caregivers' mentalising stance during emotionally intense care interactions with people with intellectual disabilities. Prior to evaluating the intervention's effectiveness, this study explores how the intervention can be adapted with and for professional caregivers. Therefore, professional caregivers assessed the previous and/or adapted VR group intervention and provided feedback on multiple occasions. This resulted in an adapted intervention featuring more engaging informational content on mentalisation prior to the VR interactions, more authentic VR interactions due to the transition from pre-scripted to AI-driven avatars, and better structured reflection sessions following each VR interaction to encourage shared learning.

Enemy Localization Tools for VR Games Accessibility to Blind and Low-Vision Players

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DOI: [10.54337/aau.icdvrat26.41](https://doi.org/10.54337/aau.icdvrat26.41)

Abstract

Virtual reality (VR) offers new opportunities for accessible interaction, yet action-oriented gameplay remains largely inaccessible to blind and low-vision (BLV) players, especially in multi-enemy combat requiring rapid situational awareness. This ongoing project investigates audio-based assistive tools for enemy localization in VR shooting games. We designed a VR shooting platform integrating three localization tools: a radial shockwave, a joystick-controlled scan, and a controller-attached detection cone. In this work in progress, we present the system and an experimental protocol combining gameplay sessions on a dedicated mini-game with post-hoc focus groups, aiming to understand how BLV players perceive and use these tools to iteratively refine them.

An Interaction-Centered Perspective on Audio-Based Gameplay for Blind Players

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DOI: [10.54337/aau.icdvrat26.42](https://doi.org/10.54337/aau.icdvrat26.42)

Abstract

Audio is a key modality for blind players to navigate and interact with digital games. This paper presents a qualitative study of blind players engaging with commercial games to examine how audio supports the interaction process. We introduce an interaction-centered perspective structured around a four-stage loop: affordance, actionability, execution, and feedback. Our analysis demonstrates that interaction breakdowns occur when this loop is disrupted, including failures in perception, unclear actionability, problematic execution, and ambiguous feedback. We further identify two design tensions: accessibility vs. challenge and automation vs. player agency. Together, these findings provide an interaction-centered account of audio-based gameplay and highlight how actionable design supports functional presence in immersive virtual environments, forming a foundation for a broader framework of audio-based interaction.

Beyond Control: Access, embodiment, and therapeutic interaction in VR for older adults – insights from a co-design workshop

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DOI: [10.54337/aau.icdvrat26.43](https://doi.org/10.54337/aau.icdvrat26.43)

Abstract

This paper examines interaction design challenges in virtual reality (VR) therapeutic applications for older adults in geriatric and palliative care. Drawing on a co-design workshop with six clinical psychologists, the study explores how interaction unfolds across the full trajectory of therapeutic VR use – from preparation and onboarding through immersion to post-session reflection. The findings reveal that interaction emerges through the ongoing negotiation of diverse embodied conditions, therapeutic mediation, and clinical environments. Informed by disability studies and critical access perspectives, the paper argues that therapeutic VR systems actively shape conditions of participation, autonomy, and engagement, advancing an understanding of participation as a situated, interdependent, and care-dependent achievement.

Examining the Technology Experience Profile of Individuals with Disabilities from Sexual and Gender Diversity in Quebec, Canada

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DOI: [10.54337/aau.icdvrat26.44](https://doi.org/10.54337/aau.icdvrat26.44)

Abstract

This study examined technology use among 30 people with disabilities identifying as LGBTQIA+ in Quebec, Canada. The sample demonstrated substantial diversity in gender identity, sexual orientation, and disability status. Participants showed moderate to high technology experience, with mean scores indicating competency to expert levels. Frequent use was reported for mobile phones, computers, email, and social media. Conversely, health-related technologies, such as blood pressure monitors, health management software, and medication reminder devices, were used less often. Findings suggest that people with disabilities identifying as LGBTQIA+ may prioritize technologies that support communication, connection, and socialization over those focused solely on health management.

11

EDUCATION & PEDAGOGY



Student-Developed Podcasts as an Accessible Pedagogical Model for Teaching Rehabilitation Technologies

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DOI: [10.54337/aau.icdvrat26.45](https://doi.org/10.54337/aau.icdvrat26.45)

Abstract

Emerging technologies such as virtual reality (VR), augmented reality (AR), and artificial intelligence (AI) are transforming rehabilitation, yet integrating these topics into undergraduate curricula remains challenging. This paper presents a pedagogical model using student-developed podcasts to support learning about rehabilitation technologies in an undergraduate motor control and learning course. Incorporating scaffolded podcast development, peer review, and guided discussion, the model promotes accessibility, engagement, and applied learning. Shifting assessment from writing-intensive assignments to multimodal production may reduce barriers for students with chronic pain or fatigue while supporting creativity, collaboration, knowledge retention, and transferability across health sciences curricula.

Teacher Perspectives on Social Virtual Reality for Remote School Participation: An Exploratory Study

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DOI: [10.54337/aau.icdvrat26.46](https://doi.org/10.54337/aau.icdvrat26.46)

Abstract

Students experiencing emotionally based school non-attendance often lose not only instructional access but also regular social contact with school. This extended abstract reports an exploratory teacher study of a social virtual reality classroom for remote school participation. Three teachers tested the prototype and joined a facilitated focus group. Reflexive thematic analysis identified three design requirements: low-pressure participation, embodied social presence, and strong teacher orchestration within hybrid workflows. Teachers also noted possible relevance for later re-engagement with school routines, but that remains a hypothesis for future work.

REPLICA: Development and Evaluation of an Immersive First-Person Simulation Platform for Psychiatric Education

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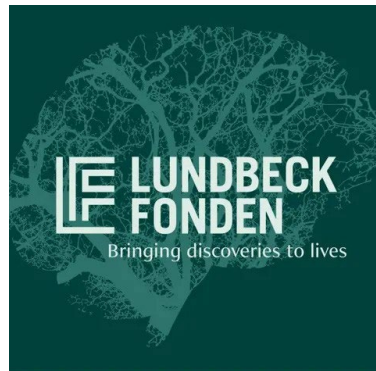
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DOI: [10.54337/aau.icdvrat26.47](https://doi.org/10.54337/aau.icdvrat26.47)

Abstract

Understanding the subjective experience of psychiatric disorders is challenging in clinical education. This study presents REPLICA, a virtual reality application simulating psychiatric symptoms from a first-person perspective. The system was evaluated across two student cohorts using an early prototype and an optimized version. Participants completed measures of usability (SUS), presence (IPQ), and simulator sickness (SSQ). Usability significantly improved in the optimized version, while presence remained stable. Cybersickness decreased, though not significantly. Qualitative responses confirmed that participants recognized key symptoms of the simulated disorders. These findings indicate that system improvements enhanced usability without reducing immersion, supporting VR as an effective tool for experiential psychiatric education.

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