

# **2024 IEEE Gaming, Entertainment, and Media Conference (GEM 2024)**

**Turin, Italy  
5-7 June 2024**



**IEEE Catalog Number: CFP24A20-POD  
ISBN: 979-8-3503-7454-4**

**Copyright © 2024 by the Institute of Electrical and Electronics Engineers, Inc.  
All Rights Reserved**

*Copyright and Reprint Permissions:* Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

***\*\*\* This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP24A20-POD
ISBN (Print-On-Demand):	979-8-3503-7454-4
ISBN (Online):	979-8-3503-7453-7
ISSN:	2831-5510

**Additional Copies of This Publication Are Available From:**

Curran Associates, Inc  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: (845) 758-0400  
Fax: (845) 758-2633  
E-mail: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

# Program

## 2024 IEEE Gaming, Entertainment, and Media Conference (GEM)

### Multimedia & Audio/Video Signal Processing

<i>Benchmarking MLCommons Tiny Audio Denoising with Deployability Constraints</i> Armin Mazinani (University of Parma, Italy), Danilo Pietro Pau (STMICROELECTRONICS, Italy), Luca Davoli (University of Parma, Italy), Gianluigi Ferrari (University of Parma, Italy) .....	1
<i>QoE Enhancement of Multi-View Video Transmission Over ICN/CCN by Means of Cache Control Method</i> Yoshiyuki Takada (Nagoya Institute of Technology, Japan), Toshiro Nunome (Nagoya Institute of Technology, Japan) .....	5
<i>Semantic Communication Based Complexity Scalable Image Transmission System for Resource Constrained Devices</i> Prabhath Samarathunga (University of Strathclyde, United Kingdom (Great Britain)), Yasith Ganearachchi (University of Strathclyde, United Kingdom (Great Britain)), Thanuj Fernando (University of Strathclyde, United Kingdom (Great Britain)), Lahiru Thanippulige (University of Strathclyde, United Kingdom (Great Britain)), Anil Fernando (University of Strathclyde, United Kingdom (Great Britain)) .....	11
<i>Explainable AI Based Approach for Broadband Customers' Churn Prediction</i> Lucio Ciabattoni (Polytechnic University of Marche, Italy), Marco Maiolatesi (Revolt Srl, Italy), Martina Mancinelli (Revolt Srl, Italy), Maria Di Tillo (Revolt SRL, Italy), Riccardo Fiandra (SKY Italia Srl, Italy), Nicolò Gerosa (SKY Italia Srl, Italy), Lorenzo Trimeloni (SKY Italia Srl, Italy), Matteo Borghi (SKY Italia Srl, Italy), Massimo Bertolotti (SKY Italia Srl, Italy) .....	17
<i>Perceptual Hashing Using Pretrained Vision Transformers</i> Jelle De Geest (Ghent University - imec, IDLab, Belgium, Belgium), Patrick De Smet (NICC, Belgium), Lucio Bonetto (NICC, Belgium), Peter Lambert (Ghent University - imec, IDLab, Belgium, Belgium), Glenn Van Wallendaal (Ghent University - imec, IDLab, Belgium, Belgium), Hannes Maren (Ghent University - imec, IDLab, Belgium, Belgium) .....	19
<i>Semantic Communication Based Video Coding Using Temporal Prediction of Deep Neural Network Parameters</i> Prabhath Samarathunga (University of Strathclyde, United Kingdom (Great Britain)), Yasith Ganearachchi (University of Strathclyde, United Kingdom (Great Britain)), Thanuj Fernando (University of Strathclyde, United Kingdom (Great Britain)), Indika Alahapperuma (University of Strathclyde, United Kingdom (Great Britain)), Anil Fernando (University of Strathclyde, United Kingdom (Great Britain)) .....	25

### Posters-A & Lunch

<i>The Introduction Regarding an Implementation of Local Revitalization RPG in Ishinomaki City</i> Yasumasa Yamaguchi (Sendai University, Japan), Yuta Mitsuhashi (Ishinomaki Senshu University, Japan) .....	31
<i>A Video Game About Gulag Archaeology and the Memoirs of Women Prisoners</i> Petros Selekos (Foundation for Research and Technology Hellas, Greece), Stefania Stamou (Foundation for Research and Technology Hellas, Greece), Konstantinos Cornelis Apostolakis (Foundation for Research and Technology Hellas, Greece), Anastasia Ntagianta (Foundation for Research and Technology Hellas, Greece), Stavroula Ntoa (ICS-FORTH, Greece), George Margetis (Foundation for Research and Technology - Hellas (FORTH), Greece), Constantine Stephanidis (FORTH, Greece) .....	34
<i>Exploring Cognitive Learning Theory Application in Safety Education Games for Preschoolers</i> Siyan Liu (Xiamen Academy of Arts & Design, Fuzhou University, China), Xin Fang (Xiamen Academy of Arts & Design, Fuzhou University, China), Jun He (Fuzhou University, China) .....	40
<i>Empowering Aging in Place: An Innovative Web-Based Simulation Approach for Enhancing Domestic Risk Evaluation Among Older People</i> Emmanuel Monfort (University Grenoble Alpes & FLORALIS UGA FILIALE, France), Sidonie Salomé (University Grenoble Alpes, France), Nicolas Vuilleme (University Grenoble Alpes, France) .....	46
<i>eXBCU: A Multiplayer Game for Game Design Education</i> Zuby Ahmed (Birmingham City University, United Kingdom (Great Britain)) .....	52
<i>HiveVR: Enhance Realism Interaction in Virtual Reality Using Game Physics</i> James Price (Third Kind Games, United Kingdom (Great Britain)), Xi Guo (Birmingham City University, United Kingdom (Great Britain)) .....	56
<i>Revisiting Generative Adversarial Network for Downstream Task of Speech Recognition</i> Sheng Li (National Institute of Information and Communications Technology, Japan), Bei Liu (Microsoft Research Asia, China), Jianlong Fu (Microsoft Research Asia, China) .....	62
<i>A Serious Game for Environmental Education Utilizing 3D Virtual Worlds</i> Dimosthenis Minas (University of Patras, Greece), Michalis Xenos (University of Patras, Greece), Dimitrios Papatheodorou (National Technical University of Athens, Greece) .....	65
<i>Equity and Embeddedness: A Dominant Theme for Contemporary Gaming Research</i> Hari C Gangadharan (Ocean Grove Charter School, USA) .....	71

<i>Leveraging Large Language Models for Enhanced VR Development: Insights and Challenges</i> Amany Alkhatay (Columbia University & New York Institute of Technology, USA), Brett Ciranni (New York Institute of Technology, USA), Rupa Samyukta Tumuluri (New York Institute of Technology, USA), Rohit Srinivas Tulasí (New York Institute of Technology, USA) .....	76
<i>Balancing Act: Leveraging 'PARAMETERS' Serious Game as a Tool for Mastering Game Design in Higher Education</i> Jens-Martin Loebel (Magdeburg-Stendal University of Applied Sciences, Germany), Jochen Koubek (University of Bayreuth, Germany) .....	82
<i>Learner-Oriented Game Design: The Evolution of Cipher</i> Liang Xu (Dublin City University, Ireland), Jenny Thomson (University of Sheffield, United Kingdom (Great Britain)), Elaine Uí Dhonechadha (Trinity College Dublin, Ireland), Monica Ward (Dublin City University, Ireland) .....	86
<i>A Study on the Utilization of Ink and Wash Style in the Performance of Weapon Strike Effects in Wuxia Games</i> Minmin Huang (Fuzhou University, China), Jun He (Fuzhou University, China), QingRui Chen (Fuzhou University, China), Chanyuan Yan (China) .....	92
<i>Enhancing Fetal Heart Rate Monitoring Through Digital Twin Technology</i> Tunn Cho Lwin (University of Miyazaki, Japan), Thi Thi Zin (University of Miyazaki, Japan), Pyke Tin (University of Miyazaki, Japan), Tsuyomu Ikenoue (University of Miyazaki, Japan), Emi Kino (University of Miyazaki, Japan) .....	96
<i>Workflow for Evaluating Vehicle Interiors Using Serious Gaming</i> Thirumanikandan Subramanian (University of Stuttgart, Germany), Fabian Schlichtherle (Institute for Engineering Design and Industrial Design, Germany), Wolfram Remlinger (University of Stuttgart, Germany) .....	100
<i>Designing a Virtual Learning Environment Authoring Platform: Determining Educator Requirements</i> Cole Craven (Ontario Tech University, Canada), Bill Kapralos (Ontario Tech University, Canada), Adam Dubrowski (Ontario Tech University, Canada) .....	104
<i>Co-Designing Pilot Games with Citizens and Policy Stakeholders to Increase Climate Action</i> Jane Yau (DIPF Leibniz Institute for Research and Information in Education, Germany), Dana Kube (DIPF Leibniz Institute for Research and Information in Education, Germany), Hendrik Drachler (DIPF Leibniz Institute for Research and Information in Education, Germany), David Griffiths (Research Institute for Innovation & Technology in Education, Spain), Barbara Kieslinger (Centre for Social Innovation, Austria), Claudia Magdalena Fabian (Centre for Social Innovation, Austria), Katharina Koller (Centre for Social Innovation, Austria), Paul Hollins (University of Bolton, United Kingdom (Great Britain)), Anna Merry (Frederick University, Cyprus), Aravella Zachariou (Frederick University, Cyprus) .....	106
<i>Study on the Impact of Lighting Design on User Interaction Behavior in Deciphering Games</i> Chanyuan Yan (China), Jun He (Fuzhou University, China), Qingyun Lin (Fuzhou University, China), Minmin Huang (Fuzhou University, China) .....	112

## Frameworks & Innovative Methodologies

<i>The Extended RoSA Conceptual Architecture for Managing Consumer-Grade Social Robot Surrogates</i> Jens-Martin Loebel (Magdeburg-Stendal University of Applied Sciences, Germany), Curtis Gittens (The University of the West Indies, Cave Hill Campus, Barbados) .....	117
<i>Advancing NASA-TLX: Automatic User Interaction Analysis for Workload Evaluation in XR Scenarios</i> Aida Vidal-Balea (University of A Coruña, Spain), Paula Fraga-Lamas (University of A Coruña, Spain), Tiago M. Fernández-Caramés (University of A Coruña, Spain) .....	122
<i>A Method to Formalise Game Design Praxis</i> Maura Mengoni (Polytechnic University of Marche, Italy), Laura Cormio (Polytechnic University of Marche, Italy), Tommaso Santilli (University of Macerata, Italy), Catia Giaconi (University of Macerata, Italy) .....	128
<i>A Universal Method for Performance Assessment of Meta Quest XR Devices</i> Volodymyr Bondarenko (Dresden Technical University, Germany), Jiajing Zhang (Technische Universität Dresden, Germany), Giang T. Nguyen (Technische Universität Dresden, Germany), Frank H.P. Fitzek (Technische Universität Dresden & ComNets - Communication Networks Group, Germany) .....	134
<i>Developing a Media Watcher Through Business Intelligence Tools: An Approach for Emerging Media Industries</i> Kevin Mejía Rivera (Universidad Tecnológica Centroamericana, Honduras) .....	140

## Game Studies, Sociology & Psychology of Play(ers)

<i>Integrating the Time Travel Mechanic in VR Serious Games to Enhance Causal Reasoning</i> Alessandro Visconti (Politecnico di Torino, Italy), Marina Nadalin (Politecnico di Torino, Italy), Federico De Lorenzis (Politecnico di Torino, Italy), Filippo Gabriele Praticcò (Politecnico di Torino, Italy), Fabrizio Lamberti (Politecnico di Torino, Italy) .....	144
<i>Exploring the Time Dilation Gameplay in VR, and Its Effect on Presence, VR Sickness, and Performance</i> Louis Nisiotis (University of Central Lancashire Cyprus, Cyprus), Panayiotis Hadjidemetriou (University of Central Lancashire Cyprus, Cyprus), Nicolas Nouhi (University of Central Lancashire Cyprus, Cyprus) .....	150
<i>The Effect of Educational Video Game Perceptual Realism on Learning Outcomes and Motivation</i> Alberto Rojas-Salazar (Universidad de Costa Rica, Costa Rica), Mads Haahr (Trinity College Dublin, Ireland) .....	156
<i>Pupil Dilation Dynamics in Serious Game Emotional Activation</i> Federico Calà (Università degli Studi di Firenze, Italy), Mustafa Can Gursesli (Università degli Studi di Firenze, Italy), Pietro Tarchi (Università degli Studi di Firenze, Italy), Lorenzo Frassinetti (Università degli Studi di Firenze, Italy), Andrea Guazzini (Università degli Studi di Firenze, Italy), Antonio Lanata (University of Florence, Italy) .....	162

<i>Design Strategies for Creating Empathy-Arousing VR Warfare Content Across Various Demographic Groups and Levels of VR Experience</i> Hua-Hsiang Chen (National Taipei University of Technology, Taiwan), Hsiao-Yue Tsao (National Taipei University of Technology, Taiwan) .....	166
<i>Oral Storytelling in the Digital Future: Implications for Distraction, Time Perception and Immersion</i> Subrata Dey (Jagran Lake City University & University of Adelaide, India), Sal Humphreys (University of Adelaide, Australia) .....	170
<i>How the Emotional Content of Music Affects Player Behaviour and Experience in Video Games</i> Joshua Roberts (University of New Brunswick, Canada), Jason Wuertz (University of New Brunswick, Canada), Max V. Birk (Eindhoven University of Technology, The Netherlands), Scott Bateman (University of New Brunswick, Canada), Daniel J. Rea (University of New Brunswick, Canada) .....	176
<i>StudyVR: A Framework for Streamlining VR User Study Design</i> Yaojie Li (Ontario Tech University, Canada), Andrew Hogue (Ontario Tech University, Canada) .....	182

## Virtual Humans & Digital Twins

<i>A Method for Volumetric Video Streaming</i> Yaojie Li (Ontario Tech University, Canada), Andrew Hogue (Ontario Tech University, Canada) .....	187
<i>The Quest for Believability: Exploring FACS Adaptations for Emotion Facial Expressions in Virtual Humans</i> Stefano Calzolari (Politecnico di Torino, Italy), Francesco Strada (Politecnico di Torino, Italy), Andrea Bottino (Politecnico di Torino, Italy) .....	191
<i>Synthesising Emotional Expressions Based on Dynamic Environmental Transitions</i> Hasindu Iduranga Ramanayake (Informatics Institute of Technology, Sri Lanka), Iresh Bandara (University of Oulu / UBICOMP, Finland, Finland) .....	197
<i>Semi-Automated Digital Human Production for Enhanced Media Broadcasting</i> Miriana Martini (Politecnico di Torino, Italy), Valeria Valentini (Politecnico di Torino, Italy), Alberto Ciprian (RAI, Italy), Andrea Bottino (Politecnico di Torino, Italy), Roberto Iacoviello (Rai - Radiotelevisione Italiana, Italy), Maurizio Montagnuolo (RAI - Centre for Research and Technological Innovation, Italy), Alberto Messina (Radiotelevisione Italiana (RAI), Italy), Francesco Strada (Politecnico di Torino, Italy), Davide Zappia (RAI, Italy) .....	203
<i>IMMERSE: IMMersive Environment for Representing Self-Avatar Easily</i> Eros Viola (University of Genoa, Italy), Matteo Martini (University of Genoa, Italy), Fabio Solari (University of Genoa, Italy, Italy), Manuela Chessa (University of Genoa, Italy) .....	209
<i>Towards Reducing Latency Using Beam Search in an Interactive Conversational Speech Agent</i> Nikolas Ott (RheinMain University of Applied Sciences, Germany), Robin Horst (RheinMain University of Applied Sciences, Germany), Ralf Dörner (Hochschule Rheinmain - University of Applied Sciences, Germany) .....	215
<i>Structural and Functional Fidelity of Virtual Humans in Immersive Virtual Learning Environments</i> Thomas Gaudi (Ontario Tech University, Canada), Bill Kapralos (Ontario Tech University, Canada), Alvaro Quevedo (Ontario Tech University, Canada) .....	221

## Human-Machine Interaction & Haptics (1/2)

<i>Investigating Gaze-Directed Instantaneous Destination for VR Locomotion: Efficiency, Precision, and User Comfort</i> Hsuan-Min Wang (National Yang Ming Chiao Tung University & Asia University, Taiwan), Hsuan Jen (National Yang Ming Chiao Tung University, Taiwan), Chuen-Tsai Sun (National Yang Ming Chiao Tung University, Taiwan) .....	225
<i>Redirected Walking Within a VR Exergame for Return-To-Sports Screening</i> To Cornelis (Ghent University, Belgium), Hannes Mareen (Ghent University - Imec & IDLab, Belgium), Robbe Capelleman (Ghent University, Belgium), Joke Schuermans (Ghent University, Belgium), Evi Wezenbeek (Ghent University, Belgium), Peter Lambert (Ghent University - imec & IDLab, Belgium), Glenn Van Wallendaal (Ghent University - Imec, Belgium) .....	231
<i>The Development of a Data Glove-Based System for Assisting the Solution of Puzzles</i> Kazuma Sato (University of Aizu, Japan), Lei Jing (University of Aizu, Japan) .....	236
<i>Development of a Flexible and User-Friendly UI to Visualize the Invisible Pressure Distribution</i> Keigo Minakawa (University of Aizu, Japan), Kazuma Sato (University of Aizu, Japan), Lei Jing (University of Aizu, Japan) .....	241
<i>Exploring the Effects of Foveated Rendering on Virtual Reality Game Graphics</i> Klara Andersson (Blekinge Institute of Technology, Sweden), Erik Landén (Blekinge Institute of Technology, Sweden), Prashant Goswami (Blekinge Institute of Technology, Sweden) .....	247
<i>Testing AREduX with HCPs and Caregivers of People Living with Dementia: A Work in Progress</i> Gabrielle Hollaender (Ontario Tech University, Canada, Greece), Naida Graham (York University, Canada), Claire M. Culver (Ontario Tech University, Canada), Eva Hava Peisachovich (York University, Canada), Bill Kapralos (Ontario Tech University, Canada), Elizabeth Sombilon (York University, Canada), Adam Dubrowski (Ontario Tech University, Canada) .....	253

# SS01: Games for Health

<i>Exploring the Potential of Mixed Reality for Functional Assessment in Multiple Sclerosis</i> Anna Bucchieri (Istituto Italiano di Tecnologia, Italy), Andrea Lucaroni (Istituto Italiano di Tecnologia, Italy), Miriam Moschetta (Politecnico di Torino, Italy), Lorenzo Ricci (Politecnico di Torino, Italy), Etty Sabatino (Politecnico di Torino, Italy), Erica Grange (FISM, Italy), Andrea Tacchino (Italian Multiple Sclerosis Foundation, Italy), Jessica Podda (Italian Multiple Sclerosis Foundation, Italy), Elena De Momi (Politecnico di Milano, Italy), Carlo Ferraresi (Politecnico di Torino, Italy), Matteo Laffranchi (Istituto Italiano di Tecnologia, Italy), Lorenzo De Michieli (Istituto Italiano di Tecnologia, Italy), Giampaolo Brichetto (Italian Multiple Sclerosis Foundation, Italy), Giacinto Barresi (Istituto Italiano di Tecnologia, Italy) .....	257
<i>Responsive Teleoperation of a Robotic Arm via Wearable Inertial Sensors</i> Alessandro Fornaro (University of Milan-Bicocca, Italy), Daniela D'Auria (University of Milan-Bicocca, Italy), Hamza Amrani (University of Milano-Bicocca, Italy), Paolo Napoletano (University of Milan Bicocca, Italy) .....	263
<i>MetaRehab: Enhancing Parkinson's Disease Rehabilitation Through Gamified Virtual Reality, a Usability Study</i> Fabrizio Sulpizio (Politecnico di Torino, Italy), Leonardo Giannantoni (Politecnico di Torino, Italy), Francesco Strada (Politecnico di Torino, Italy), Andrea Bottino (Politecnico di Torino, Italy) .....	269
<i>Associations Between Perceived Discomfort, Postural Control Alterations and Disability in People with Multiple Sclerosis Exposed to Immersive Virtual Reality</i> Massimiliano Pau (Università Degli Studi di Cagliari, Italy), Federico Arippa (University of Cagliari, Italy), Micaela Porta (University of Cagliari, Italy), Giulia Casu (University of Cagliari, Italy), Bruno Leban (University of Cagliari, Italy), Eleonora Cocco (University of Cagliari, Italy) .....	275
<i>To Stand or to Sit? Examining the Influence of Player Posture on Balance Alterations Associated to Immersive Virtual Reality Exposure</i> Federico Arippa (University of Cagliari, Italy), Micaela Porta (University of Cagliari, Italy), Giulia Casu (University of Cagliari, Italy), Bruno Leban (University of Cagliari, Italy), Massimiliano Pau (Università Degli Studi di Cagliari, Italy) .....	281
<i>Adaptive Training in Virtual Reality Through Dynamic Alien Motion Support</i> Vittorio Fiscale (University of Torino, Italy), Tetsunari Inamura (Tamagawa University, Japan), Agata Marta Soccini (University of Torino, Italy) .....	287
<i>Rehabilitative Exergaming in Multiple Sclerosis: Bimanual Tasks in Mixed Reality</i> Miriam Tanda (Politecnico di Torino, Italy), Filippo Gabriele Praticò (Politecnico di Torino, Italy), Jessica Podda (Italian Multiple Sclerosis Foundation, Italy), Erica Grange (FISM, Italy), Giampaolo Brichetto (Italian Multiple Sclerosis Foundation, Italy), Lorenzo De Michieli (Istituto Italiano di Tecnologia, Italy), Fabrizio Lamberti (Politecnico di Torino, Italy), Giacinto Barresi (Istituto Italiano di Tecnologia, Italy) .....	292

# SS03: Next-Gen Networked XR (NGN XR) | Advancing Multiplayer and Co-Locative Gaming Experiences

<i>DraftComPromise - on Draft Composition Recommendations in League of Legends</i> Robin Horst (RheinMain University of Applied Sciences, Germany), Ferdinand Meyer (RheinMain University of Applied Sciences, Germany), Ralf Dörner (Hochschule Rheinmain - University of Applied Sciences, Germany) .....	298
<i>A Framework to Design Virtual Reality Mirror Therapy (VRMT) for Motor Rehabilitation in Post-Stroke Survivors: Dosage, Motivation, Task Difficulty, Feedback and Mechanism</i> Bethany Strong (University of South Wales, United Kingdom (Great Britain)), Biao Zeng (University of South Wales, United Kingdom (Great Britain)), Peter Mccarthy (University of South Wales, United Kingdom (Great Britain)), Mohammed Ali Roula (Co-Author, United Kingdom (Great Britain)), Liucheng Guo (Tangi0 Ltd, United Kingdom (Great Britain) & Capital University of Physical Education and Sports, China) .....	304
<i>Translating Cognitive Behavioural Therapy Strategies Through VR Interactions to Tackle Anxiety Symptoms in University Students</i> Swapnali Kulkarni (United Kingdom (Great Britain)), Kurtis Weir (Birmingham City University, United Kingdom (Great Britain)) .....	310
<i>A Case Study of Using Web 3D Game Technology for a Scalable Midwifery Training Simulation</i> Xi Guo (Birmingham City University, United Kingdom (Great Britain)), Alison Edwards (Visiting Lecturer Birmingham City University, United Kingdom (Great Britain)) .....	316
<i>User-Intent Aware Transport-Layer Intelligence for Frame Synchronisation in Multi-Party XR Application</i> Vu San Ha Huynh (University of Surrey, United Kingdom (Great Britain)), Peng Qian (University of Surrey, United Kingdom (Great Britain)), Ning Wang (University of Surrey, United Kingdom (Great Britain)), Carl Udora (University of Surrey, United Kingdom (Great Britain)), Rahim Tafazolli (University of Surrey, United Kingdom (Great Britain)) .....	320
<i>Decentralization of Gaming Server with P2P Service for the MMO</i> Minseok Doo (Maryland Institute College of Art, USA) .....	326

# Human-Machine Interaction & Haptics (2/2)

<i>Comparison of Mouse, 6DoF Controller and Pen Interactions on a Glasses-Free 3D Display</i> Adriano Viegas Milani (Switzerland), Mario Gutierrez (Logitech, Switzerland), Ronan Boulic (EPFL, Switzerland), Mark McGill (University of Glasgow, United Kingdom (Great Britain)), Aidan Kehoe (Logitech, Ireland) .....	331
<i>Gamification of Breath Training for Wind Players</i> Lucie F Jones (University of Calgary, Canada), Jeffrey Boyd (University of Calgary, Canada), Hua Shen (University of Calgary, Canada), Jeremy Brown (University of Calgary, Canada), Matthew McConnell (University of Calgary, Canada) .....	337

<i>Impact of Physical Wind Simulation on the Player</i> Zeynep Burcu Kaya Alpan (İstinye University & Bahçeşehir University, Turkey), Muhammad Javed Ramzan (Istinye University, Istanbul, Turkey), Alperen Şatıroğlu (Istanbul Technical University, Turkey), Şenol Pişkin (Istinye University, Turkey) .....	343
<i>Bioelectrical Measurements of Lenses Effect During Esports Training Sessions: Could the Yellow Lenses Enhance Gaming Performance?</i> Marco Bilucaglia (Università IULM, Italy), Rita Laureanti (Politecnico di Milano, Italy), Margherita Zito (Università IULM, Italy), Alessandro Fici (Università IULM, Italy), Fiamma Rivetti (Behaviour and Brain Lab IULM, Italy), Mara Bellati (Behaviour and Brain Lab IULM, Italy), Sebastiano Accardi (Università IULM, Italy), Siegfried Wahl (University of Tübingen, Italy), Luca Mainardi (Politecnico di Milano, Italy), Vincenzo Russo (Università IULM, Italy) .....	348
<i>Hands Up! Towards Machine Learning Based Virtual Reality Arm Generation</i> Daniel Martinek (University of Vienna, Austria), Patrick David Pazour (University of Vienna, Austria), David Mirk (Robimo GmbH, Austria), Helmut Hlavacs (University of Vienna, Austria) .....	353
<i>Comparison of XR Game Controller Trigger Input Versus Isometric Thumb and Index Finger Pressure Input on a Stylus</i> Adriano Viegas Milani (Switzerland), Mario Gutierrez (Logitech, Switzerland), Ronan Boulic (EPFL, Switzerland), Mark McGill (University of Glasgow, United Kingdom (Great Britain)), Aidan Kehoe (Logitech, Ireland) .....	359

## Posters-B & Lunch

<i>Designing Sapinautas: An Educational Innovation Strategy for Learning in Honduran Public Schools Through Video Game Integration</i> Mario Escobar (Universidad Tecnológica Centroamericana, Honduras), Sandra Soriano (Sapinautas Project, Honduras), Kevin Mejia Rivera (Universidad Tecnológica Centroamericana, Honduras) .....	363
<i>Climate Survivors: A Bullet Heaven for Enhanced Climate Engagement</i> Jan Steinhäuser (International Institute for Applied Systems Analysis & Terragami, Austria), Doris Vollgruber (Terragami, Austria) .....	367
<i>Empowering Marketing Management and Gaming Consumer Interaction Through AI and Citizen Science</i> Celestine Iwendí (University of Bolton, United Kingdom (Great Britain)), Chatti Subba Lakshmi (JNTUH, India), Bala Dhandayuthapani Veerasamy (College of Computing and Information Sciences, Oman), Paul Hollins (University of Bolton, United Kingdom (Great Britain)), Damilare Adeola (University of Bolton, United Kingdom (Great Britain)), Pradeep Hewage (University of Bolton, United Kingdom (Great Britain)), Adedapo P Aderemi (University of Bolton, United Kingdom (Great Britain)), Piyush Kumar Shukla (University Institute of Technology, India) .....	373
<i>MemoryGame: Decentralized P2E Game for Visual Working Memory Training</i> Gabrielle Christie (University of Florida, USA), Sean Durkin (University of Florida, USA), Alexander Olson (University of Florida, USA), Maylen Casal (University of Florida, USA), Markus Santoso (University of Florida, USA), Marko Suvajdzic (University of Florida, USA) .....	379
<i>Use of Different Learning Mechanisms to Design a Serious Game for Alcohol Use Disorder</i> Flavien Ehret (Université du Québec à Chicoutimi, Canada), Yannick Francillette (University du Quebec à Chicoutimi & LIARA, Canada), Bob-Antoine Jerry Menelas (University of Quebec at Chicoutimi, Canada) .....	381
<i>Privacy-Preserving 3D Gaussian Splatting</i> Usman Ali (Sejong University, Korea (South)) .....	385
<i>"Alice in Codeland": A Gamified Approach to Web Programming Education</i> Daniele Zolezzi (Università Degli Studi di Genova, Italy), Saverio Iacono (Università Degli Studi di Genova, Italy), Gianni Vercelli (University of Genoa - DIBRIS, Italy) .....	388
<i>An Overview of Online Riichi Mahjong Game Industry in Japanese Internet Society</i> Yasumasa Yamaguchi (Sendai University, Japan) .....	391
<i>Virtual Reality Training for Advanced Radiotherapy</i> Fulvio Damiano Chiesa (University of Turin & I-See Ltd, Italy), Faiza Bourhaleb (I-See Ltd, Italy), Claudia Pardi (I-See Ltd, Italy), Agata Marta Soccini (University of Torino, Italy) .....	394
<i>The Design of Eco-Mania: A Serious Game to Influence Positive Recycling Habits</i> Sagar Suman (Indian Institute of Technology Kharagpur, India), Mikhail Ola Adisa (LUT University, Finland), Victor Okpanachi (The University of British Columbia, Canada), Ifeoma Adaji (The University of British Columbia, Canada) .....	400
<i>Performing a Throw in Mixed Reality: A Validation Study</i> Ilaria Giuseppina Porco (University of Sassari, Italy), Martina Francesca Rizza (University of Sassari, Italy), Andrada Pica (University of Sassari, Italy), Sergio Mauro Gavino Solinas (University of Sassari, Italy), Pietro Picerno (University of Sassari, Italy), Ugo Della Croce (University of Sassari, Italy) .....	404
<i>Gamifying the Classroom: Bringing Videogames to Life Through Innovation in Education to Increase Student Engagement in STEM Subjects</i> Aldo Cortes (Tecnológico de Monterrey, Mexico) .....	408
<i>Digital Twin: Gamified VAR Training for Building Management</i> Jimmy Chi-ho Li (Hong Kong Metropolitan University, Hong Kong), Tsun Sang David Lam (Hong Kong Metropolitan University, Hong Kong), Sai Yuen Chiang, Aaron (Hong Yip Service Company Limited, Hong Kong), King Lok Lam, Pius (Hong Yip Service Company Limited, Hong Kong), Chiu Kit Dickson Lo (Youth College International, Hong Kong) .....	412
<i>Transforming Logistics Education by a Virtual Logistics Simulation Generator: UX Pilot Study</i> María Soledad Ramírez-Montoya (Tecnologico de Monterrey, Mexico), Virginia Rodés-Paragarino (Tecnologico de Monterrey, Mexico), Ernesto A. Pacheco-Velázquez (Tecnológico de Monterrey & Campus Ciudad de México, Mexico), Sergio Augusto Ramirez-Etcheverry (EAFIT University, Colombia) .....	416
<i>Exploring the Concept of Mini Data Sprints as a Methodology to Assess Data Validity and Stimulate Climate Conversation</i> Paul W Watson (University of Bolton, United Kingdom (Great Britain)), Katharina Koller (Centre for Social Innovation, Austria), Celestine Iwendí (University of Bolton, United Kingdom (Great Britain)), Claudia Magdalena Fabian (Centre for Social Innovation, Austria), Paul Hollins (University of Bolton, United Kingdom (Great Britain)), Barbara Kieslinger (Centre for Social Innovation, Austria) .....	422



<i>The Application of Cyberpunk Style in the Costume Design of Chinese Martial Arts Game Characters</i> Qingyun Lin (Fuzhou University, China), Jun He (Fuzhou University, China), Chanyuan Yan (China) .....	428
<i>Research on the Application of Game Rank Mechanism in the Evaluation of Skill Based Courses in Colleges and Universities</i> Xin Fang (Xiamen Academy of Arts & Design, Fuzhou University, China), Siyuan Liu (Xiamen Academy of Arts & Design, Fuzhou University, China), Jun He (Fuzhou University, China) .....	434

## Game Design, Game Development & UX

<i>Automated Difficulty Assessment Model for Comprehensive Difficulty in Games</i> Yannick Francillette (University of Quebec at Chicoutimi & LIARA, Canada), Hugo Tremblay (University of Quebec at Chicoutimi (UQAC), Canada), Bruno Bouchard (University of Quebec at Chicoutimi, Canada) .....	440
<i>A Tool for the Procedural Generation of Shaders Using Interactive Evolutionary Algorithms</i> Elio Sasso (Politecnico di Milano, Italy), Daniele Loiacono (Politecnico di Milano, Italy), Pier Luca Lanzi (Politecnico di Milano, Italy) .....	446
<i>Enhancing Stealth Gameplay Through Procedural Generation: An Algorithmic Approach to Dynamic Guard Paths and Placement in Infiltration Games</i> Audran Bonnot (University of Quebec at Chicoutimi, Canada), Yannick Francillette (University of Quebec at Chicoutimi & LIARA, Canada), Bob-Antoine J. Menelas (Universite of Quebec at Chicoutimi, Canada), Bruno Bouchard (University of Quebec at Chicoutimi, Canada) .....	450
<i>The Correlation Between Quantitative Metrics and Subjective Assessment of Sequential and Scene Landscape in Game Ghost of Tsushima</i> Xiaohan Mei (Tokyo University of Agriculture, Japan), Yoichi Kunii (Tokyo University of Agriculture & Japanese Institute of Landscape Architecture, Japan Association of Surveyors, Japan) .....	456
<i>A Comparison of Performance on WebGPU and WebGL in the Godot Game Engine</i> Emil Fransson (Blekinge Institute of Technology, Sweden), Jonatan Hermansson (Blekinge Institute of Technology, Sweden), Yan Hu (Blekinge Institute of Technology, Sweden) .....	462
<i>Playing Games Without Sight: Sonic Play</i> Alexander Espeseth (Kristiania University College & Kristiania, Norway), Kjetil Raaen (Kristiania University College, Norway) .....	468

## Machine Learning & AI in Games

<i>AI Server-Side Prediction for Latency Mitigation and Cheating Detection: The MPAI-SPG Approach</i> Daniele Spina (Politecnico di Torino, Italy), Andrea Bottino (Politecnico di Torino, Italy), Davide Cavagnino (Università di Torino, Italy), Leonardo Chiariglione (Digital Media Project, Italy), Maurizio Lucenteforte (University of Turin, Italy), Marco Mazzaglia (Politecnico di Torino, Italy), Francesco Strada (Politecnico di Torino, Italy) .....	474
<i>A Reinforcement Learning System for Adaptive Gamification and Hexad User Profile Tracking</i> Ioannis Nikolopoulos (National Technical University of Athens, Greece), Paraskevi Tzouveli (Institute of Communication & Computer Systems & National Technical University of Athens, Greece), Kostas Karpouzis (Panteion University of Social and Political Sciences, Greece), Stefanos Kollias (University of Lincoln/NTUA, United Kingdom (Great Britain)) .....	480
<i>AI-Facilitated Selection of the Optimal Nondominated Solution for a Serious Gaming Information Fusion Module</i> Steve Chan (Harvard University, USA) .....	486

## DeepFakes & Privacy of Media

<i>Improved Deepfake Video Detection Using Convolutional Vision Transformer</i> Deressa Wodajo Deressa (Ghent University, Belgium), Peter Lambert (Ghent University - imec & IDLab, Belgium), Glenn Van Wallendael (Ghent University - Imec, Belgium), Solomon Atnafu (Addis Ababa University, Ethiopia), Hannes Mareen (Ghent University - Imec & IDLab, Belgium) .....	492
<i>Collaborative Decentralized Learning for Detecting Deepfake Videos in Entertainment</i> Made Adi Paramartha Putra (Primakara University, Indonesia), Nengah Widya Utami (Universitas Primakara, Indonesia), I Gede Juliana Eka Putra (STMIK Primakara, Indonesia), Nyoman Karna (Telkom University, Indonesia), Ahmad Zainudin (Kumoh National Institute of Technology, Korea (South)), Gabriel Avelino R Sampedro (University of the Philippines, Philippines & Kumoh National Institute of Technology, Korea (South)) .....	498

## Serious Games for Education and Industry Applications

<i>Introducing "the Sustainable Port": A Serious Game to Study Decision-Making in Port-Related Environments</i> Gianluca Guglielmo (Tilburg University, The Netherlands), Michal Klincewicz (Tilburg University, The Netherlands), Elisabeth Huis in t Veld (Tilburg University, The Netherlands), Pieter Spronck (Tilburg University, The Netherlands) .....	502
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----



<i>Anti-Plagiarism Adventure Game: Using Visual Novels for Feasible Game-Based Learning</i> Terence Govender (Universitat Oberta de Catalunya, Spain), Johanna Catharina Lubbe (Central European University, Austria), Joan Arnedo-Moreno (Universitat Oberta de Catalunya, Spain) .....	508
<i>Unlocking AI Literacy: The SMALLE-App Gaming Experience</i> Santiago Franco (Royal Holloway University of London, United Kingdom (Great Britain)), Maria Giulia Ballatore (Politecnico di Torino, Italy), Sara Bernardini (Royal Holloway University of London, United Kingdom (Great Britain)), Giacomo Como (Politecnico di Torino & Lund University, Italy), Luca Damonte (LUISS, Italy), Alexandra Neacsu (Royal Holloway University of London, United Kingdom (Great Britain)), Martina Vanelli (Politecnico di Torino, Italy) .....	514
<i>Programming Games as Learning Tools: Using Empathic Design Principles for Engaging Experiences</i> Raluca Ionela Maxim (Universitat Oberta de Catalunya, Spain), Joan Arnedo-Moreno (Universitat Oberta de Catalunya, Spain) .....	520
<i>Evaluation of a Serious VR Game Designed to Promote the Sustainable Development Goals</i> Louis Nisiotis (University of Central Lancashire Cyprus, Cyprus), Andriani Piki (UCLan Cyprus, Cyprus), Panayiotis Theodorou (UCLan Cyprus, Cyprus), Susana Leal (Polytechnic Institute of Santarém, Portugal), Luis Claudio dos Santos Barradas (Instituto Politecnico de Santarem, Portugal), João AM Nascimento (Polytechnic Institute of Santarém, Portugal) .....	526
<i>The Design of Food Villain, a Serious Game to Influence Healthy Eating Habits Among African International Students</i> Victor Okpanachi (The University of British Columbia, Canada), Ifeoma Adaji (The University of British Columbia, Canada) .....	532

## Inpiration, Ethical Aspects, Research Insight & Trends

<i>Know Your Bugs: A Survey of Issues in Automated Game Testing Literature</i> Riccardo Coppola (Politecnico di Torino, Italy), Tommaso Fulcini (Politecnico di Torino, Italy), Francesco Strada (Politecnico di Torino, Italy) .....	536
<i>Politics in Games - an Overview and Classification</i> Lisa Gutwenger (University of Graz, Austria), Stephan Keller (TU Graz, Austria), Martin Dolezal (Uni Graz, Austria), Bernhard Schnögl (TU Graz, Austria), Sebastian Rous (Uni Graz, Austria), Klaus Poier (University of Graz, Austria), Johanna Pirker (LMU & Graz University of Technology, Austria) .....	542
<i>The Current Situation and Debate on Gender Segregation in Esports Tournaments</i> Stefania Stamou (Foundation for Research and Technology Hellas, Greece), Konstantinos Cornelis Apostolakis (Foundation for Research and Technology Hellas, Greece), George Margetis (Foundation for Research and Technology - Hellas (FORTH), Greece), Stavroula Ntoa (ICS-FORTH, Greece), Constantine Stephanidis (FORTH, Greece) .....	546
<i>Learning Through Play-How a Game Jam Developed Deeper Social Impact Understanding</i> Lindsay Grace (University of Miami, USA), Vijayendra Sekhon (Anant National University, USA) .....	552
<i>Unleashing Generative Non-Player Characters in Video Games: An AI Act Perspective</i> Martin Sas (KU LEUVEN, CiTiP, Belgium) .....	556
<i>The VR Chronicles: Insights From the VR Factsheet 2024</i> Moritz Albrecht (FH BFI Wien, Austria), Magdalena Eder (FH BFI Wien, Austria), Kai Erenli (University of Applied Sciences - FH DES BFI Vienna & Arx Anima, Austria), Leonie Fankhauser (FH BFI Wien, Austria), Maximilian Mayerl (FH BFI Wien, Austria), Leonard Petak (FH BFI Wien, Austria), Victoria Schachinger (FH BFI Wien, Austria) .....	560
<i>Exploring Taste Sensation in the Metaverse: A Literature Review</i> Matteo Atanasio (University of Pisa, Italy), Francesco Sansone (Institute of Clinical Physiology (IFC) National Research Council of Italy (CNR), Italy), Raffaele Conte (National Research Council of Italy (CNR), Italy), Alessandro Tonacci (Institute of Clinical Physiology (IFC) National Research Council of Italy (CNR), Italy) .....	566

## Demos (Machine Learning and HMI)

<i>COM-PRESS: Dashboard to Detect (AI-based) Image Manipulations</i> Hannes Mareen (Ghent University - Imec & IDLab, Belgium), Stephanie D'haeseleer (Imec-Mict-UGent, Belgium), Kristin Van Damme (Imec-Mict-UGent, Belgium), Tom Evens (Imec-Mict-UGent, Belgium, Belgium), Peter Lambert (Ghent University - imec & IDLab, Belgium), Glenn Van Wallendael (Ghent University - Imec, Belgium) .....	572
<i>Harnessing Foundation Models for Image Anonymization</i> Luca Piano (Politecnico di Torino, Italy), Pietro Basci (Politecnico Torino, Italy), Fabrizio Lamberti (Politecnico di Torino, Italy), Lia Morra (Politecnico di Torino, Italy) .....	573
<i>Level Up Lab projects' showcase</i> Leonardo Pieraccioli (Politecnico di Torino & Level Up Lab, Italy), Daniel Bologna (Politecnico di Torino, Italy), Gabriele Massimiani (Politecnico di Torino, Italy), Iliaria Pasini (Politecnico di Torino, Italy), Martina Plumari (Politecnico di Torino, Italy), Pietro Uras (Politecnico di Torino, Italy), Francesco Strada (Politecnico di Torino, Italy) .....	578

## Demos (VR)

<i>Inviting Motion</i> Wobbe F Koning (Monmouth University & IdeePIX, USA) .....	579
-------------------------------------------------------------------------------------	-----

# Cultural Heritage & Engagement

<i>Is Loot Box Presence in Video Games Being Correctly and Consistently Labelled? Comparing All Age Rating Decisions Made by the German USK, the American ESRB, and the European PEGI in 2023</i> Leon Y. Xiao (IT University of Copenhagen, Denmark) .....	580
<i>Exploring Methodologies to Create a Unified VR User-Experience in the Field of Virtual Museum Experiences</i> Rojin Bayat (Fondazione LINKS, Italy), Elios De Maio (Fondazione LINKS, Italy), Jacopo Fiorenza (Politecnico di Torino, Italy), Massimo Migliorini (Fondazione LINKS, Italy), Fabrizio Lamberti (Politecnico di Torino, Italy) .....	586
<i>Deeply Digging in Serious Games for Archaeology</i> Vittorio Murtas (University of Turin, Italy), Vincenzo Lombardo (University of Turin, Italy) .....	590
<i>From Entertainment to Mental Health Awareness: The "Debris" Case</i> Dalila Martins (University of Aveiro & DeCA, Portugal), Nelson Zagalo (University of Aveiro, Portugal), Ana Patrícia Oliveira (University of Aveiro, Portugal) .....	596

# SS05 (AI Beyond Boundaries)

<i>Designing an Image Classification-Based Mobile Learning App About Fruits and Vegetables for Children</i> Intan Syazwani Abdul Rahim (Universiti Putra Malaysia, Malaysia), Auzi Asfarian (Bogor Agricultural University, Indonesia), Nurul Amelina Nasharuddin (Universiti Putra Malaysia, Malaysia) .....	602
<i>Saliency Map Generation Based on Human Level Performance</i> Ehsan Amini (Science and Research Branch, Islamic Azad University, unknown), Saleh Javadi (Blekinge Institute of Technology, Sweden), Siamak Khatibi (Blekinge Institute of Technology, Sweden) .....	607
<i>A Framework for Individual-First and Public-First Planning Considering Individual Preferences in Theme Park Problem</i> Atsushi Ueno (Osaka Metropolitan University, Japan), Sho Yoshioka (Osaka City University, Japan), Tomohito Takubo (Osaka City University, Japan) .....	612
<i>A Markovian Game Theoretic Framework for Analysing a Queueing System With Multiple Servers</i> Pyke Tin (University of Miyazaki, Japan), Thi Thi Zin (University of Miyazaki, Japan) .....	617
<i>A Stochastics Branching Process Model for Analyzing Rumor Spreading in Social Media Networks</i> Thi Thi Zin (University of Miyazaki, Japan), Pyke Tin (University of Miyazaki, Japan), Hiromitsu Hama (Osaka City University, Japan) .....	621

# Serious & Applied Games for Health and Wellness

<i>Difficulty Evaluation of Yoga Poses by Angular Velocity and Body Area Calculation for GPU-Based Yoga Self-Practice System</i> Cheng-Liang Shih (National Chung Hsing University, Taiwan), Jun-You Liu (National Chung Hsing University, Taiwan), Irin Tri Anggraini (Okayama University, Japan), Yanqi Xiao (Okayama University, Japan), Nobuo Funabiki (Okayama University, Japan), Chih-Peng Fan (National Chung Hsing University, Taiwan) .....	626
<i>A Gamified Framework to Assist Therapists With the ABA Therapy for Autism</i> Matteo Cordioli (Politecnico di Milano, Italy), Laura Delfino (Spazio Autismo Cooperativa Sinergie, Italy), Alessia Romani (Spazio Autismo Cooperativa Sinergie, Italy), Elisa Mortini (Spazio Autismo Cooperativa Sinergie, Italy), Pier Luca Lanzi (Politecnico di Milano, Italy) .....	630
<i>A Design of Handgrip Exergame System for Hypertension Prevention</i> Irin Tri Anggraini (Okayama University, Japan), Yanqi Xiao (Okayama University, Japan), Nobuo Funabiki (Okayama University, Japan), Cheng-Liang Shih (National Chung Hsing University, Taiwan), Jun-You Liu (National Chung Hsing University, Taiwan), Chih-Peng Fan (National Chung Hsing University, Taiwan) .....	636
<i>Virtual Rehabilitation: XR Design for Senior Users in Immersive Exergame Environments</i> Vassilis Charissis (Edinburgh Napier University, United Kingdom (Great Britain)), Soheeb Khan (University of the West of Scotland, United Kingdom (Great Britain)), Samar Altarteer (Dar Al-Hekma University, Saudi Arabia), Ramesh Lagoo (Core Lab plus Ltd, United Kingdom (Great Britain)) .....	638
<i>Virtual Reality Multiplayer Experiential Training: Guiding People with Autism Towards New Habits</i> Nicolò Fumero (University of Torino, Italy), Vittorio Fiscale (University of Torino, Italy), Alessandro Clocchiatti (University of Torino, Italy), Agata Marta Soccini (University of Torino, Italy) .....	644
<i>Extended Reality &amp; Virtual Reality for Return-To-Sports Screening</i> Glenn Van Wallendael (Ghent University - Imec, Belgium), Julie Artois (Ghent University - imec, Belgium), Hannes Mareen (Ghent University - Imec & IDLab, Belgium), Robbe Capelleman (Ghent University, Belgium), Joke Schuermans (Ghent University, Belgium), Evi Wezenbeek (Ghent University, Belgium), Peter Lambert (Ghent University - imec & IDLab, Belgium) .....	650