

## **XR Research Laboratory**

**Department of Public Management and Information Technology**  
**Faculty of Public Governance and International Studies, Ludovika University of Public Service**  
**Year of foundation: 2024**

### **Report on activities carried out in the 2024/2025 academic year**

Mentor of the research group: Prof. Balázs Budai, Head of Department

Founding Head: Dr. Ágnes Jenei, Associate Professor, VR and Bio & Neurofeedback Trainer

Scientific Director: Dr. Noémi Császár-Nagy, Associate Professor, Clinical Psychologist, Hypnotherapist and Trainer, Forensic Medical Expert

Scientific Secretary: Gergely Kovács, XR Lead Researcher, Defense Innovation Research Institute (VIKI)

Research Collaboration Partner: Psychosomatic Outpatient Clinic Ltd., XR Working Group, Budapest

Supporter: Areus Infocommunication Ltd.

Research focus: Application of disruptive tools (XR, XR & Gen AI, Bio- and Neurofeedback) in the development of leadership competencies, soft skills, and in pain management.

### **Publications**

Jenei, Ágnes; Császár-Nagy, Noémi; Sousa, Maria José; Reddy, Maliga: From Potential to Practice: Applying VR in University-Based Soft Skills Training (2025) In AI in the Education and Learning Taylor&Francis Fortcoming

Sousa, Maria José; Sousa, Miguel; Jenei, Agnes (2025) Artificial Intelligence and New Pedagogies: Transforming Teaching and Learning through AI-Driven Innovations. In: Sousa, Maria José Human Resources Development in a Digital Age. Cham, Switzerland: Springer Cham (2025) 395 p. pp. 321-330.

Jenei Ágnes (2025) Next-Level 3D Spatial Modeling Powered by XR Tech. In: Attila, Korompai (szerk.) Spatial Analysis and Informatics

Kecskemét, Hungary: John von Neumann University, Centre for Economic Geography and Urban Marketing (2025) pp. 171-188.

Jenei, Agnes; Sousa, Sousa, Maria José (2025) Immersive Learning: Leveraging VR for Sustainable Soft Skills Development In: Sousa, Maria José; Santos, João Rodrigues; Sousa, Miguel; Pani, Subhendu Kumar Economic Sustainability Potentiated by Artificial Intelligence. Singapore, Singapore: Springer Nature Singapore (2025) 362 p. pp

## Conferences and Workshops

Dr. Ágnes Jenei, Dr. Noémi Császár-Nagy, Dr. Maliga Reddy and Dr. Maria José Sousa: *From Potential to Practice: Integrating AI-Powered VR into University-Based Negotiation Skills Development Course. Opportunities, Challenges, and Lessons Learned*. Futures 2025 Conference on AI in Education, ISEC – Instituto Superior de Educação e Ciências, Lisbon, Portugal, 9 July 2025.

Dr. Ágnes Jenei: Stream Lead – Virtual and Augmented Reality in Learning. Futures 2025 Conference on AI in Education, ISEC – Instituto Superior de Educação e Ciências, Lisbon, Portugal, 9 July 2025.

Dr. Ágnes Jenei (in cooperation with Bálint Derényi): VR Workshop Leadership. Futures 2025 Conference on AI in Education, ISEC – Instituto Superior de Educação e Ciências, Lisbon, Portugal, 8 July 2025.

Dr. Ágnes Jenei (in cooperation with Bálint Derényi): *Workshop on the Use of Virtual Reality in Leadership Development*. Bucharest, INA – National Institute of Administration, 8 July 2025.

Dr. Noémi Császár-Nagy, Dr. Ágnes Jenei, Bálint Derényi: *BrainLab Workshop on VR, Bio & Neurofeedback in Stress Management*. Expo, Hungarian Pavilion, Osaka, Japan, 26 June 2025.

Dr. Noémi Császár-Nagy, Dr. Ágnes Jenei (in cooperation with Bálint Derényi): *Tech-Driven Solutions for the 21st Century in Leadership Development (Session: Empowered Minds – New Challenges in Mental Health in the 21st Century)*, Expo, Conference and Event Centre, Osaka, Japan, 24 June 2025.

Ágnes Jenei (in cooperation with Bálint Derényi): *The Power of Immersive Learning*. ITL Business Event, Budapest, 6 June 2025.

Dr. Ágnes Jenei: *XR Workshop for PhD Students – Virtual Reality in Education and Learning: Research Opportunities and Challenges*. ISCTE, Lisbon, Portugal. Erasmus Programme, 13 May 2025.

Dr. Ágnes Jenei: *Virtual Training, Real Success*. HVG HR Professional Afternoon – Presentation for HR Leaders, Hotel Balaton, Siófok, 9 May 2025.

Dr. Ágnes Jenei: *Perché le zebre non hanno l'ulcera? (Why Zebras Don't Get Ulcers)* – Stress Management in the 21st Century Using Bio & Neurofeedback Tools. DANTE Professional Event, Novotel, Budapest, 11 April 2025.

Dr. Ágnes Jenei: *VR Workshop – Utilization of Virtual Reality in Leadership Development*. INA – National Institute of Administration, Bucharest, Romania, 20 March 2024.

Dr. Ágnes Jenei: *Bio & Neurofeedback Workshop on the Use of Bio & Neurofeedback in Leadership Development*. Durban, South Africa. Erasmus Programme, 28 February 2025.

Dr. Ágnes Jenei: *VR Workshop – Use of Virtual Reality in Leadership Development*. Durban, South Africa. Erasmus Programme, 29 November 2024.

Dr. Noémi Császár-Nagy: *Digital Psychology*. Hungarian Pain Society Congress, 9 November 2024.

Dr. Noémi Császár-Nagy, Dr. Ágnes Jenei: *VR Anatomy in Medical Education* – Exhibition. Hungarian Pain Society Congress, 9 November 2024.

Dr. Ágnes Jenei: *DISPA (Directors of Institutes and Schools of Public Administration) Conference – Two Workshops: VR Leadership Development and Use of VR Glasses for Training Purposes: Learning & Development in the 21st Century*. LUPS, Budapest.

Dr. Ágnes Jenei: *Experience and Health Development with Innovative Tools – Virtual Reality, Bio & Neurofeedback*. Presentation for SKAL Tourism Senior Executives, W Hotel, Budapest, 10 September 2024.

## **Incorporating VR practice into university courses**

### **Spring Semester 2024/2025**

*International Protocol and International Negotiation*: Implementing Flat and Full VR Practice in the learning process, with student feedback collected as part of dedicated research.

*Intercultural Communication, Managing Diversity*: Implementing Flat VR Practice in the learning process, with student feedback collected as part of dedicated research.

## **Implementing VR Practice into university courses**

### **Autumn Semester 2024/2025**

*Negotiating in an International Context*: Implementing Flat and Full Negotiation VR Practice in the learning process. Pilot phase

*Negotiation Techniques*: Implementing Flat and Full Negotiation VR Practice in the learning process. Pilot phase

*Intercultural Communication, Managing Diversity*: Implementing Flat and Full VR Practice in the learning process. Pilot phase

## **Digital Competence Development Workshops and Trainings (RRF Project)**

### **Autumn Semester 2024/2025**

Organized at LUPS for the leaders and staff of VTK, KTI, and the Innovation Office, as well as for students at the Ludovika Special College:

*Cooperation skills development and collaborative problem-solving skills development training enhanced with VR elements*

*Immersive competence development workshops*

*Stress management training supplemented with individual Bio & Neurofeedback development*