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Introduction to HICSS-56 Minitrack – Mixed, Augmented and Virtual Reality: Services and Applications

Jani Holopainen
University of Eastern Finland
jani.holopainen@uef.fi

Petri Parvinen
University of Helsinki
petri.parvinen@helsinki.fi

Essi Pöyry
University of Helsinki
essi.poyry@helsinki.fi

Tommi Laukkanen
University of Eastern Finland
tommi.laukkanen@uef.fi

The concept of Mixed Reality (MR) refers to the integration of various types and levels of virtual and real environments (Flavián et al., 2019; Milgram & Kishino, 1994), and it can consist of augmented reality (AR) or virtual reality (VR) technologies and applications, or the combination thereof. Due to the maturing of VR, AR and MR technologies, and the increased need for remote and virtual access to services in our society, the variety of use cases and benefits these technologies provide is still on to rise. MR technologies and systems have also been increasingly merged with other contemporary media technologies (e.g., metaverse systems), which contributes to the way these technologies are consumed and the services they support.

Organized already for the sixth time in HICSS, the minitrack received eight submissions out of which three papers were accepted. This year, the accepted papers concentrated particularly on theoretical, conceptual, and methodological advancements in the field. We recognize that the field is moving from introducing novelty and creating hype to more thoroughly understanding the underlying elements and affordances these technologies provide and the caveats in our present knowledge. Next, the accepted papers are introduced.

A paper called ***Towards Design Principles for Experimental Simulations in Virtual Reality – Learning from Driving Simulators*** by *Jannes Menck, Henrik Lechte, Tim-Benjamin Lembcke, Alfred Brendel and Lutz Kolbe* introduces VR as a viable technology to conduct experiments in IS research. By using the example of driving simulators, the authors argue that using VR to conduct experiments, researchers can create controlled yet realistic experiment setups with human subjects. The use of VR technology in experimental research would also allow the creation of more easily comparable and transferable research data. To further the idea, the authors derive six design principles (immersion, presence, user-friendliness, reproducibility, data collection, customizability) based on a literature review on VR simulators and in-car warning systems.

In their paper ***Immersive Virtual Reality in Experiential Learning – A Value Co-creation and Co-destruction Approach***, *Tomi Tonteri, Jani Holopainen, Juuli Lumivalo, Tuure Tuunanen, Petri Parvinen and Tommi Laukkanen* investigate the role of VR in experiential learning. Experiential learning theory suggests that gaining experience is central in learning, meaning that learners need to be able to experiment, try out, observe, and abstract so that they can fully learn something. As VR is suited for experiential leaning, the authors conduct a literature review to identify the key dimensions of VR-supported experiential learning (engagement, sociability, contextual information, physical sensation, interactivity, cognition, and presence). Then, the paper empirically scrutinizes the elements of value co-creation and value-destruction that contribute to different experiential learning stages when VR technology is used. Altogether 33 value co-creation and 19 value co-destruction items were found.

In their paper ***Is There More Than Pokémon Go? – Exploring the State of Research on Causal Modeling in the Field of Augmented Reality***, *Julia Bräker and Martin Semmann* conduct a structured literature review and create a graph database to understand what constructs are applied in causal research models when studying AR technology, and which theoretical perspectives guide this field of research. The authors identify 103 relevant papers that cover a range of disciplines, topics, and theories.

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According to the authors, the most studied application type is mobile AR, most typically in the context of retail, gaming and tourism. Technology acceptance model is the most influential theorical approach, which also dictates which constructs are usually utilized in AR research. The authors conclude that research on professional use of AR is largely missing, which provides an avenue for future research.

References

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