institute of media informatics

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Semantic Continuity in Transitions from Virtual Reality to Mixed and Physical Contexts

Background

As digital systems begin to operate across physical, augmented, mixed, and fully virtual environments, users are increasingly asked to shift between these settings within the same task or workflow. These transitions are rarely seamless. Visual cues, interaction patterns, and object meanings that are clear in VR may become ambiguous or misleading when encountered in AR or the physical world. With cross-reality applications expanding in domains such as collaborative work, simulation training, design, and entertainment, maintaining coherent meaning across the reality–virtuality continuum has become a core challenge. This growing need makes semantic synchronicity a key research area at the intersection of interaction design and extended reality.

Approach

Based on an initial review of research on cross-reality interaction, key challenges and strategies related to maintaining semantic synchronicity across the reality–virtuality continuum will be identified and organized into thematic categories. These insights will guide the design of a prototype that demonstrates how consistent meanings, affordances, and cues can be preserved when transitioning from virtual reality to other points on the continuum. The prototype will subsequently be evaluated in a user study to investigate how users interpret and navigate these transitions and to assess the effectiveness of the proposed design strategies.

Based on Bachelor or Master level, the thesis will be adapted.

Contact

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Focus in this project

Software Prototype
Virtual Reality
User Evaluation