

# Guiding the “Authentic” Storytelling of Cultural Heritage in Virtual Reality and Extended Reality: A Trust Framework

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The purpose of this research is to describe, analyze, and understand the positioning of authenticity and trust of cultural heritage storytelling in virtual reality (VR) and, more broadly, extended reality (XR) to inform the design of cultural-heritage digital publications and ensure it provides an authentic and trustworthy experience.

Many VR/XR applications have been developed to provide users with immersive experiences of cultural heritage (Bekele et al. 2018), enhancing their immersion and understanding of historical and cultural significance. Using VR/XR for cultural heritage storytelling involves considerations of data sources, narrative and interaction design, technology application, and user engagement.

However, cultural-heritage information resources, as humanistic data, exhibit inherent uncertainty and open-ended interpretive characteristics (Windhager et al. 2019). Employing VR/XR for storytelling and representation of cultural heritage can raise questions about rigor and authenticity. Moreover, users may encounter trust issues during interactive experiences (Muir 1987). Consequently, ensuring the authenticity and trustworthiness of cultural-heritage storytelling in VR/XR becomes a crucial concern. In this study, information systems and VR/XR systems are integrated to develop multi-media pathways for the use of cultural heritage data in the context of human-computer interaction, with the aim of exploring a more holistic design of cultural heritage storytelling and trustworthy experience.

Digital storytelling is a scholarly method with characteristics of reconstruction and reinterpretation. This research presents a trust framework for cultural heritage storytelling in VR/XR. The framework focuses on the linkage of cultural-heritage data and effectively considers not only the credibility of the data but also the connection of data to narratives, interactions, digital representations, and people. The framework can facilitate in-depth knowledge mining of cultural-heritage information resources, creative representation of narrative content, effective interpretation, and

dissemination of cultural value. It aims to enable broader applications of cultural heritage in various scenarios such as VR and XR, creating a more meaningful and trustworthy “phygital world.” Overall, the research contributes to establishing a trust chain for digital storytelling of cultural heritage in VR (and XR more broadly), providing guidance for stakeholders such as cultural institutions, experts, scholars, and practitioners in designing authentic and trustworthy digital representations.

*Works Cited*

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