

The Use of Mixed-Realities Techniques for the Representation of Islamic Cultural Heritage

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Abstract

Left in the wake of cataclysmic change are the knowledge creation and holding structure of the past. Information knowledge and culture are central to human freedom and human development. How they are produced and exchanged in our society critically affects the way we see the state of the world as it is and might be. In recent years Mixed Reality (MR) has emerged as an area of extreme interest for visualizing and interacting with three-dimensional (3D) information in context, set in a story that reinforces learning and understanding of the cultural content. A commonly used and very inclusive definition of MR is that of all applications between pure Virtual Reality and the real world. How can we provide an intuitive user-friendly application for cultural heritage, which blends virtual imagery with the actual world, where users operate and interact with the information? How effectively can historical information and visual interpretations of the past be disseminated through such technologies? ‘Tangible Pasts’ consists of cultural domain expressing and analyzing the intended meaning of the shared vocabulary of concepts and relations in a domain of knowledge containing hierarchical classification systems and structured vocabularies with rich inter-linking of conceptual ‘trees’ i.e.: an object-oriented conceptual KC “Knowledge Cube”, which combines audio-visual information and three dimensional models and animations. Modern cultural heritage exhibitions have evolved from static exhibitions to dynamic and challenging multimedia explorations. The main goal of visualization is to bring understanding of data. The task is to present complex information in the most comprehensive manner. Considering architectural artefacts, the visualization process is mostly focused on the understanding of spatial relations and on the recognition of particular style and form, letting users see characters and events in the past. This paper describes a storytelling-driven framework for Islamic Cultural Heritage representation that supports a new communication strategy able to combine content belonging to different cultural archives and accessed through an ontology-based integration and discovery mechanism, and fosters new data sharing and distribution policies that preserve the intellectual property rights of the involved institutions.

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