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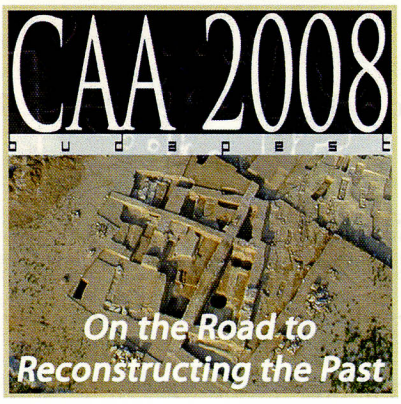

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On the Road to Reconstructing the Past

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Interactive presentation of archaeological objects using virtual and augmented reality

(long paper)

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The paper presents a system, called ARCO (Augmented Representation of Cultural Objects), which enables museums to build virtual exhibitions of artefacts based on virtual and augmented reality technologies. The forms of virtual reality exhibitions can range from simple three-dimensional presentation of digitised objects, through interactive presentation of 3D spaces such as reconstructed interiors or architectural objects, to highly-interactive 3D educational games. With augmented reality it is possible to build exhibitions that present selected virtual objects in the context of real objects or real places, enabling a user to interact with the virtual object in a natural way. These new forms of highly interactive presentation of cultural objects offered by ARCO are interesting and engaging for museum visitors, especially for young generations. Importantly, ARCO provides innovative technologies and tools that allow users without experience in programming or 3D graphic design to quickly and easily create such virtual exhibitions.

Using the ARCO system museums can present countless artefacts that could not be exhibited directly to the public due to limited space, the fragility of the items, or the prohibitive cost of creating and managing appropriate displays. Moreover, ARCO enables the creation of exhibitions that draw on multiple collections, without the expenses associated with transporting and insuring priceless objects. Virtual exhibitions accessible over the Internet enable different audiences, including the disabled and students of all ages, as well as the general public to remotely access and interact with vast numbers of objects scattered among various localities.

The ARCO system has been deployed in several museums with very promising initial results. Examples of virtual exhibitions built with the ARCO technology as well as their practical use in the museum context are presented in the paper.

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