Elevating and Safeguarding Culture Using Tools of the Information Society

Dusty traces of the Muslim Culture
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Elevating and Safeguarding Culture Using Tools of the Information Society: Dusty traces of the Muslim culture
ESCUTIS

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Visualizations in cultural heritage
Visualizations in cultural heritage

A simulation is the representation of an object, a natural or social phenomenon by software, where the user may manipulate conditions and parameters for study purposes. A simulation causes the machine to respond mathematically to data and changing conditions as if it (the machine) were the same object or phenomenon. A simulation places the user in situations similar to reality, providing real – time feedback to questions, decisions and actions.

The results of a simulation can be represented in a variety of ways, mainly as numerical data and graphics. Simulations are powerful tools through visualizations, defined as optical representations of information and mental images. Optical hermeneutic experimentation is what we mean by visualizations, arguing that animations that are not based on modelling and simulation processes do not have great value (Bellou, 2008).

The visualizations that are part of the ESCUTIS project are three dimensional (3D) representations of buildings, especially mosques, and follow the basic principles of accuracy, representativeness, visual clarity and interest (Sheppard, 2001).

Three dimensional visualizations of buildings and artifacts are the key concept of virtual archaeology. The term virtual implies an “allusion to a model, the notion that something can act as a surrogate or replacement of the original” (Barcelo et al., 2000). This key concept can be generalized and cover the domain of cultural heritage. Archaeological visualization is a way of modeling past information. It is not a photograph of ancient data (Daniel, 1997).

An element of major importance in the archaeological record which visualizations contribute to is that in most of the cases it is incomplete. Many things of the past are not in their previous state. They are damaged or have been transformed into other objects or uses. “Virtual archaeology uses computer assisted techniques to develop realistic 3D replicas of ancient objects and buildings. Normally these objects have disappeared or are preserved in a way that makes it difficult or impossible to interpret their original shape” (Gutierrez et al., 2004).

In the context of this project, 3D visualizations are used for reconstructions of conserved sites, of sites that have not been conserved, have been destroyed or of which only the foundations remain.

The starting point for our visualizations is the 3D reconstruction of the existing Fetihe mosque. One reason for the representation is the possibility of virtual visits to the virtual Fetihe mosque in the context of a virtual museum at the ESCUTIS web site. Another reason is the addition of a portico to the front side of the mosque in order to restore it virtually to its initial state. Finally, a third reason is that the 3D visualization of the Fetihe mosque is the basis for the two other reconstructions. The second virtual reconstruction is the Veli mosque. This is an existing mosque that is enclosed in walls added at later times. During the virtual reconco-
struction the added walls have been removed and the virtual Veli mosque is in its original state. The last visualization is the reconstruction of the Konitsa mosque. This is a mosque in ruins, with only part of its minaret in place. The visualization reconstructs the mosque and represents the mosque in its original state.

“Computer graphics, and in particular high-fidelity rendering, make it possible to recreate cultural heritage on a computer, including a precise lighting simulation. Achieving maximum accuracy is of the highest importance when investigating how a site might have appeared in the past. Failure to use such high fidelity means there is a very real danger of misrepresenting the past” (Gutierrez et al., 2007). Although this is of major importance to cultural heritage experts, “non-experts are usually interested in general information about all historical and artistic notes that may increase a deeper appreciation and understanding of cultural heritage sites” (Rossi et al., 2004).

ESCU TIS is not a research project. Despite this, our visualizations are based on archaeological data and modeling processes giving the optimum of accuracy for experts, as well as the information for the sensitization and culture of the non experts.

References


Fetihe Mosque: the real building and drawing.

Fetihe Mosque: Views from the 3D reconstruction with the addition of the portico.
Visualizations in cultural heritage
Veli Pasha Mosque:
Views from the 3D reconstruction in its original state without the added walls.
Visualizations in cultural heritage
Mosque of Konitsa:
Views from the 3D reconstruction in its original state.