

Reliving the Past: 3D models and Virtual Reality as supporting tools for Archaeology and the Reconstruction of Cultural Heritage: The case study of the Roman Villa of Freiria

Virtual reality allows us to experience places that do not exist – parallels of the past, present and future. In archaeology it may be said to correspond in some way to a “time machine” which offers “journeys to the past”.

This paper presents the work involved creating the buildings that comprise the Roman Villa of Casal da Freiria, in São Domingos de Rana, Lisbon (Portugal). The modelling, presented in the results, was based on the remains found on the ground and on the opinions and reports of the archaeologists in charge of the campaigns.

These buildings were occupied from the first to the fourth century C.E., and consist of a manor house, which, in typical Roman style, was constructed round a central courtyard and infrastructures needed for daily life. These were arranged around a second courtyard and consisted of servants' quarters (cells) and bath, and outbuildings related to farm work – presses and barn. Despite the information provided by the excavations about the built area, the true extent of the *pars rustica* is still unknown.

The importance of this archaeological site stems not so much from the wealth of its owners, normally reflected in the quality of the items found, but by the discovery of a rare example of a barn in Iberia.

The creation of the 3D model of the Freiria site was based on CAD software. It first focused on the building of the barn since it corresponds to the structure that most people agreed upon in relation to its vertical component.

All the technical documents collected, on the site and in the laboratory, were used to help establish a model that would allow several interpretations to be assessed, to cater for new inferences which may enter the equation in the future.

Even though the modelling followed the procedures of a scientific study, this project intended the outcome to be an interactive scenario that users could manipulate so as to visualize how the inhabitants went about their lives. So, after the virtual reconstruction of the model of the Freiria Villa, it was exported to a game engine, to learn about the area when it was being fully used.

Even before the work is completed (for more information, go to: <http://www.civil.ist.utl.pt/~hrua/celeiro/Freiria-Filme3.avi>), the interim results so far obtained are definitely promising, and could be disseminated and discussed in the scientific community, as a way of promoting unwritten knowledge of the past by “Making History Interactive”.

Keywords:

3D Model, Virtual Scenarios, Recreation of Social, Urban and Architectural Environments, Visualization of a Recreated Space.