

VIRTUAL RECREATION OF THE MONROY ROMAN VILLA (EXTREMADURA- SPAIN)

ATKINSON A.D.J., SANJOSE BLASCO J.J., CILLEROS RECUERO J., GARCIA MARTIN A., BERENGUER SEMPERE F.

Univerity of Extremadura, CACERES, SPAIN

BACKGROUND AND OBJECTIVES

The archeological excavations have provided the information necessary in order to be able to reconstruct virtually the villa and the probable lifestyle of its inhabitants. The main objective is to generate the most faithful 3D model possible, based on archeological studies, which can be used in an automated and/or autonomous manner to show both the architectural environment and the mode of life in the villa in the Roman era.

APPROACH AND METHODS

The methodology for the work undertaken consisted in six phases:

- Historical study and preliminary documentation to define the villa.
- Collection of current information through a topographical survey of the site.
- Generation in ArchiCAD of the volumes of the building.
- Generation of textures in 3DStudio Max and PhotoShop to define the buildings, the furniture, and the surroundings of the villa.
- Generation of a virtual tour video using 3DStudio Max and Adobe Premiere.
- Generation of a virtual visit controlled by the user, by means of panoramic flash images, using the software Tourweaver.

The methodology used in this project was previously used in part for generating 3D realistic models of the historical buildings of the heritage of Extremadura.

RESULTS

The result obtained is a digital model of the Roman villa, reconstructed on the basis of the ruins and remains encountered in the various archeological excavations. As a final result, then, two distinct products were obtained: (a) a video was generated following various routes both around the villa and through its interior; (b) an interactive virtual visit was generated, using 18 panoramic views with a spherical camera, both around and within the Roman villa (figure 1).



Figure 1 From left to right: locations of the panoramic views and virtual navigation tools, aerial view, principal entrance, peristyle and patio, tablinum and kitchen.

Both products are available on the free-access website of the Geomatic Engineering and Urban Heritage Research Group (<http://www1.unex.es/eweb/igpu>). Our website is now under construction, but soon there will be a new English and Spanish version.

CONCLUSION AND FUTURE PLANS

From an archeological point of view, the work carried out by a multidisciplinary team of archeologists, cartographers, and structural engineers has permitted the generation of an interactive virtual-reality product of great added value both for the research itself and for the dissemination of results.

The good results achieved permit us to generate new virtual environments based on archeological and historical studies of different monuments in Extremadura. During 2011 the first results will be available on the web from a regional research project working on an interactive multimedia atlas of various monuments of Extremadura: the Aqueduct of San Lázaro (Mérida), Plaza Santa María, Plaza de las Veletas and Plaza Mayor (Cáceres), the Monroy Roman villa, etc.

ACKNOWLEDGEMENTS

We would like to express our gratitude to the Junta de Extremadura for the financing of the project PRI09A025 (Regional Research Project), and to Dr Enrique Cerrillo (Chair of Archeology, University of Extremadura) for the historical information.