

The Virtual Museum of the Western Han Dynasty: 3D Documentation and Interpretation

Maurizio FORTE, University of California, Merced, USA, mforte@ucmerced.edu

Nicolo' DELL'UNTO, University of California, Merced, USA, ndellunto@gmail.com

Paola Di Giuseppeantonio Di FRANCO, University of California, Merced, USA
pdifranco@ucmerced.edu

Fabrizio GALEAZZI, University of California, Merced, USA, fgaleazzi@ucmerced.edu,

Claudia LIUZZA, University of Stanford, USA, claudia.liuzza@gmail.com,

Sofia PESCARIN, CNR-ITABC, Istituto per le Tecnologie Applicate ai Beni Culturali,
Rome, Italy, sofia.pescarin@itabc.cnr.it.

This project is aimed to the digital documentation of archaeological sites, artifacts and cultural relics of the Western Han Dynasty, starting in 2008. The outcome of this process will be the creation of a virtual museum, based on collaborative environments, dedicated to the Western Han Dynasty and able to integrate new archaeological datasets coming from fieldwork activities (most part of them unpublished), monuments, and famous collections of artifacts of the Xi'an archaeological museums. All the archaeological datasets will be virtually reconstructed in a very accurate way, keeping all the spatial information even in the cyber space: GIS, remote sensing and laser scanning data, DGPS surveys, 3D reconstructions (landscapes, sites, monuments, artifacts). The Virtual Museum of the Western Han Dynasty will be the first archaeological example of international collaboration between Chinese institutions and Western countries based on virtual heritage methodologies and real time outputs.

The archaeological fieldwork, mainly encompassing 3D documentation of new tombs in the center and in the surroundings of Xi'an, is managed integrating different technologies and methods: laser scanning, digital photogrammetry, photomodeling, remote sensing, and GIS. The final plan is to create at least two installations, one in Xi'an and one in California. At UCM, the Virtual Heritage Lab is working on the set up of two different virtual reality systems based on participatory learning: a stereo collaborative environment (virtual heritage room) and a simulation environment (Powerwall). The primary purpose is to visualize and display very high-resolution data from large scientific simulations performed via high-resolution imaging applications. In addition to this high resolution,

the PowerWall provides a large 6-foot by 8-foot display area to facilitate collaborations of small groups of researchers using the same data.

This paper will give an overview on the principal technologies and methods used in the field for the documentation of monumental wall paintings' tombs, archaeological sites, landscapes and museum artifacts.