



4D-CULTURAL HERITAGE WORLD



Technical University of Crete



Cyprus University of Technology



Universität Stuttgart



Fraunhofer



DIGINEXT
Advanced Computing Systems



7reasons
Medien GmbH

THE AIM

To enable historians, architects, archaeologists, urban planners, and other affiliated scientists to gather data on public repositories for virtual collection & reconstruction of cultural heritage in space (3D) and time (4D), create novel views of urban environments & interact with the temporal variance model.

DOCUMENT • STUDY
UNDERSTAND • PRESERVE

1. PREVIOUS WORK

For 3D scene-reconstruction and flow-estimation our approach is based on computer vision and Photogrammetric techniques that require optical flow, as well as disparity estimation. Both can be described as the challenge of finding corresponding points in different images.

2. VISUAL SEARCH ENGINE

We propose visual computing methodologies with the purpose of encoding the 4D computational geometry of detected moving objects, to retrieve 3D/4D data based on a content oriented framework, and to fit and retrieve models based on the properties of „real“ captured data.

3. VISUALISATION AND AUGMENTED REALITY

The main purpose of this research is to provide the TECHNOLOGICAL FRAMEWORK for enriching content with additional overlays and virtual objects using smart and cost effective augmented reality methods.

5. SEMANTIC ENRICHMENT OF CH ARTEFACTS

The digital representation of an artefact should consist of a geometric structure, accompanied by annotation to associate semantics and context with its geometry or parts of its 3D shape. In this way the Integrated Viewer Browser (IVB) is an interactive semantic enrichment tool for 3D Cultural Heritage collections.

4. THE VISUAL AUTHORIZING INTERFACE

This tool will enable NON-PROGRAMMERS to intuitively create scenarios in order to bring life to the content produced by the other components of the project without advanced programming skills. In order to create an attractive experience to the final user, excepting a MINIMAL COMPUTATIONAL COST our system will be based on an out-of-core architecture.

