# Virtual 3D Reconstruction Of Heritage Sites In Bosnia and Herzegovina


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The Department of Computer Science, University of Bristol and the Faculty of Electrical Engineering, University of Sarajevo would like to embark on a joint project to develop a system capable of achieving the three dimensional computer reconstruction and interactive high fidelity visualization of Bosnian heritage sites. Such a system will enable archaeologists and historians to evaluate hypotheses concerning site utilization, structure, contents and development of the area. Furthermore, a collection of these high fidelity 3D models could illustrate to potential donors the quantity of cultural heritage that existed in Bosnia and Herzegovina and how it used lo look like before destruction.

## Project goal

• develop a system capable of achieving the three dimensional computer reconstruction and interactive high fidelity visualization of Bosnian heritage sites.

• enable archaeologists and historians to evaluate hypotheses concerning site utilization, structure, contents and development of the area

• a collection of these high fidelity 3D models could illustrate to potential donors the quantity of cultural heritage that existed in Bosnia and Herzegovina and how it used lo look like before destruction

## Programme and Methodology

• Creation of high-fidelity computer generated flame-lit environments of ancient sites will require the following:

• Creating accurate models of the site, including the use of laser scanners (University of Bristol team would bring the equipment for project purposes)

• Measuring the spectral profiles of the appropriate ancient fuel type (Bristol team)

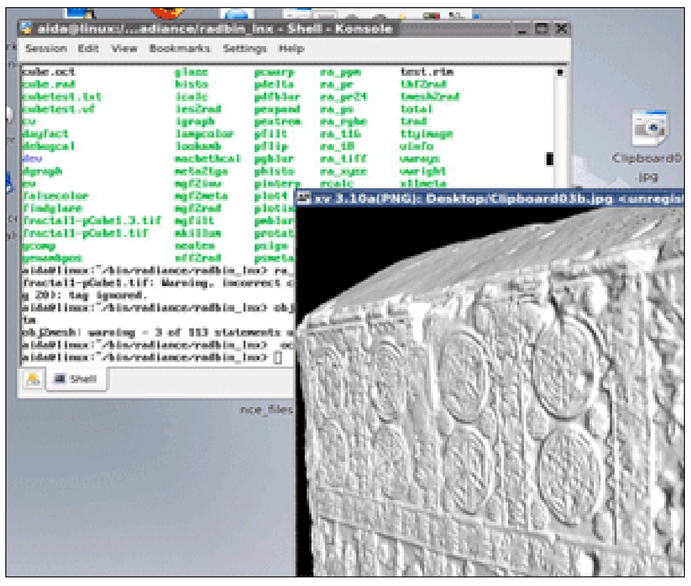
• Simulating the light distribution within the environment to a high level of precision (Sarajevo team and Bristol team)

• Quantifying the perceptual authenticity of the resultant images using psychophysics (computer scientists, archeologists, historians, art historians)

• Creating the final computer animations of heritage sites.

Laser scanning

Radiance


The computer model of the Stećak that has been scanned was transferred from Stitcher to Maya. It is polygonal mesh made up of vertices. Each vertex is a point in three-dimensional space, so is described by three orthogonal coordinates. The points are joined into faces. Any number of vertices can be joined into a face, but the scanner software only uses between three and five points per face. First, the vertices of the similar texture as damaged parts were selected and duplicated, and then they were moved in right position on the damaged part. In combination with the use of appropriate polygon modeling operations, the following representation of the damage part of the Stećak was obtained.