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VIRTUAL STONEHENGE RECONSTRUCTION

Project paper

Dr. Ertu Unver & Andrew Taylor
University of Huddersfield, School of Art, Design & Architecture, Huddersfield, UK.

International Conference on Cultural Heritage. EUROMED 2012. CYPRUS.
PROJECT RESEARCH: Introduction
Artists & Designers in Cultural Heritage
Photo: Marc Cairns.

Source: Peter Macdiarmid/Getty Images Europe)
Process phases of 3D artwork & introduction to the journey....
3D Digital Stonehenge
University of Huddersfield
PROJECT RESEARCH:
Stone Circle site visit & English Heritage Archives
Taylor, A (August 2009) Images recorded inside the Stone Circle at Stonehenge at Sunrise. Stone Circle access granted by permission of English Heritage.
Heel Stone. Digital recording of the stone: shape, surface/textures and effects of daylight environment.

Diagram of Stonehenge 1550 bce  
Source: Britannica.com & English Heritage

Stonehenge Survey engraving c.1740  
Source: English Heritage National Monument Record Archive 2009
PROJECT RESEARCH: Point cloud data processing
Single Stone data. Point cloud data processing and stages of surface generation for each individual stone.
Image of completed stone surface mesh
PROJECT RESEARCH: Use of LIDAR data
Use of Google map for position of site, location of stones & LIDAR for accurate land surface
Scaling and Positioning: Google Earth & LIDAR
PROJECT RESEARCH:
Modelling
Mesh view of untextured 3D model of Stonehenge during modelling.
Initial renderings of 3D CG model of Stonehenge
3D model of Stonehenge with a rigged human character imported to test realistic scale
PROJECT RESEARCH:
Texturing & Rendering
Digital photographic surface texture images for 3D texture mapping
Experimental materials and texturing processes
Mental Ray renderings using daylight system
PROJECT RESEARCH:
Product design developments
Product Design application: Stonehenge Megalithic Puzzle game
Product design applications:
Solid modeling, Vector drawing & Rapid prototyping

1. NURBS mesh for product analysis
2. FEA (Finite element analysis)
3. Laser cut maps for puzzle game
4. 3D printed stones and characters
Digital illustrations & Product graphics
PROJECT RESEARCH:
Visual effects & Game applications
Visual physics & Environmental effects (VFX): fire, smoke, rain and water
3D game environments & Interactive heritage applications
3D Digital Stonehenge
University of Huddersfield
Conclusion