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VIRTUAL STONEHENGE RECONSTRUCTION
Project paper

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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)
c.1340. Scala Mundi chronicle of the world

c.1440. Artist Unknown

c.1575. Lucas De Herre

c.1625. Inigo Jones

c.1665. John Aubrey

c.1700. William Stukeley

c.1790. JW Turner

c.2010. Heritage Key

c.2011. Stonehenge in Second Life

c.2012. Greenhatch grp & English Heritage
Process phases of 3D artwork & introduction to the journey.....
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

Taylor, A (2009) Recorded inside Stone Circle at Stonehenge

Taylor, A (2009) Recorded at Stonehenge

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