University of Huddersfield Repository

Unver, Ertu and Taylor, Andrew

Virtual Stonehenge Reconstruction

Original Citation


This version is available at http://eprints.hud.ac.uk/16130/

The University Repository is a digital collection of the research output of the University, available on Open Access. Copyright and Moral Rights for the items on this site are retained by the individual author and/or other copyright owners. Users may access full items free of charge; copies of full text items generally can be reproduced, displayed or performed and given to third parties in any format or medium for personal research or study, educational or not-for-profit purposes without prior permission or charge, provided:

- The authors, title and full bibliographic details is credited in any copy;
- A hyperlink and/or URL is included for the original metadata page; and
- The content is not changed in any way.

For more information, including our policy and submission procedure, please contact the Repository Team at: E.mailbox@hud.ac.uk.

http://eprints.hud.ac.uk/
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

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