TAG 2010

The Theoretical Archaeology Group,
2010 conference at the University of Bristol, UK

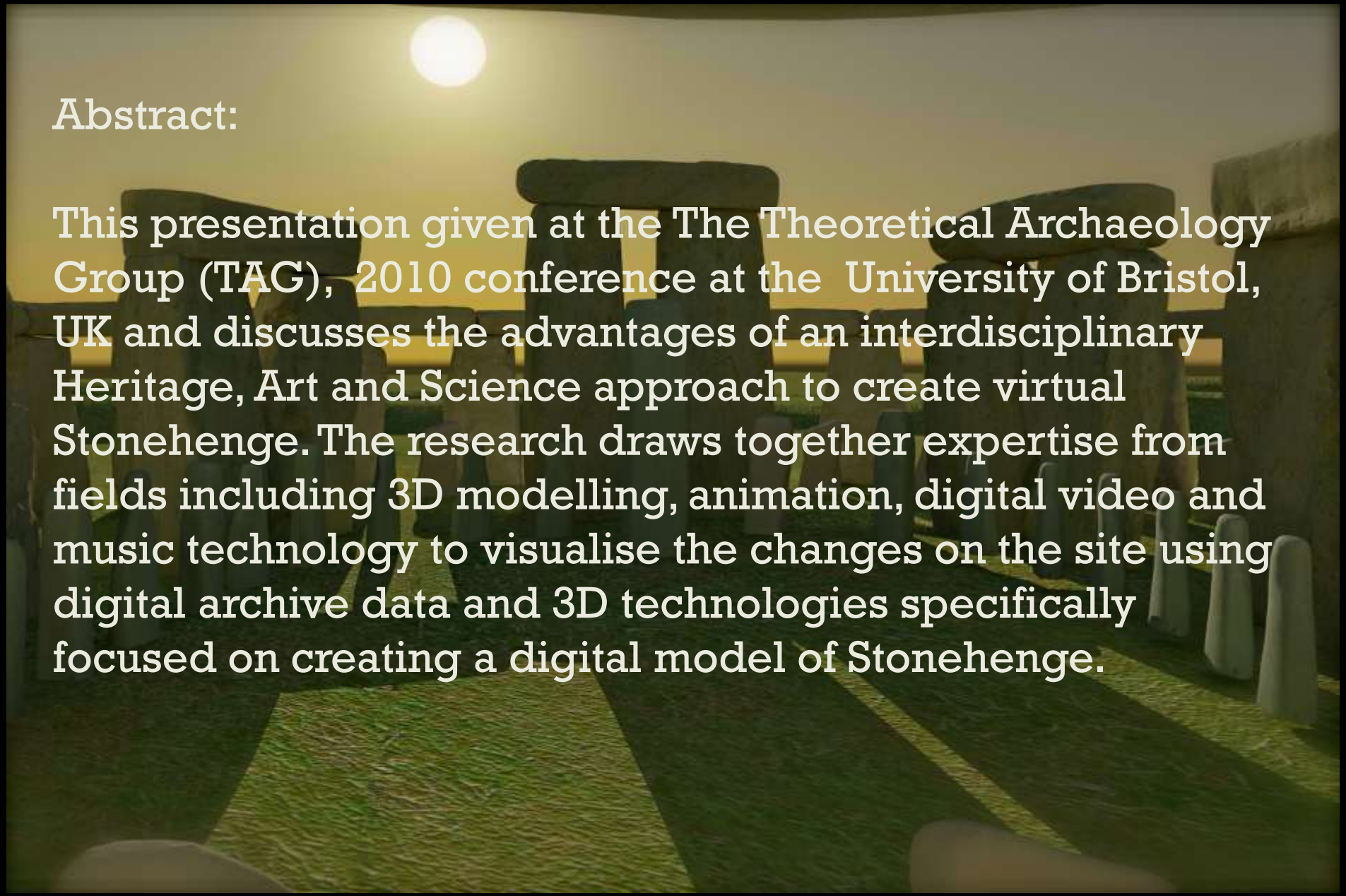
Modelling Stonehenge: an interdisciplinary digital approach to 3D interactive storytelling

- Andrew Taylor, Dr. Ertu Unver and Dr. Rupert Till

- School of Art Design & Architecture and School of Music, Humanities and Media

- University of Huddersfield

Taylor, A. Unver, E, Till, R. (2010) 3D CG Stonehenge model. Winter Solstice.



Abstract:

This presentation given at the The Theoretical Archaeology Group (TAG), 2010 conference at the University of Bristol, UK and discusses the advantages of an interdisciplinary Heritage, Art and Science approach to create virtual Stonehenge. The research draws together expertise from fields including 3D modelling, animation, digital video and music technology to visualise the changes on the site using digital archive data and 3D technologies specifically focused on creating a digital model of Stonehenge.

Taylor, A (2009) Sourced : Stonehenge. August

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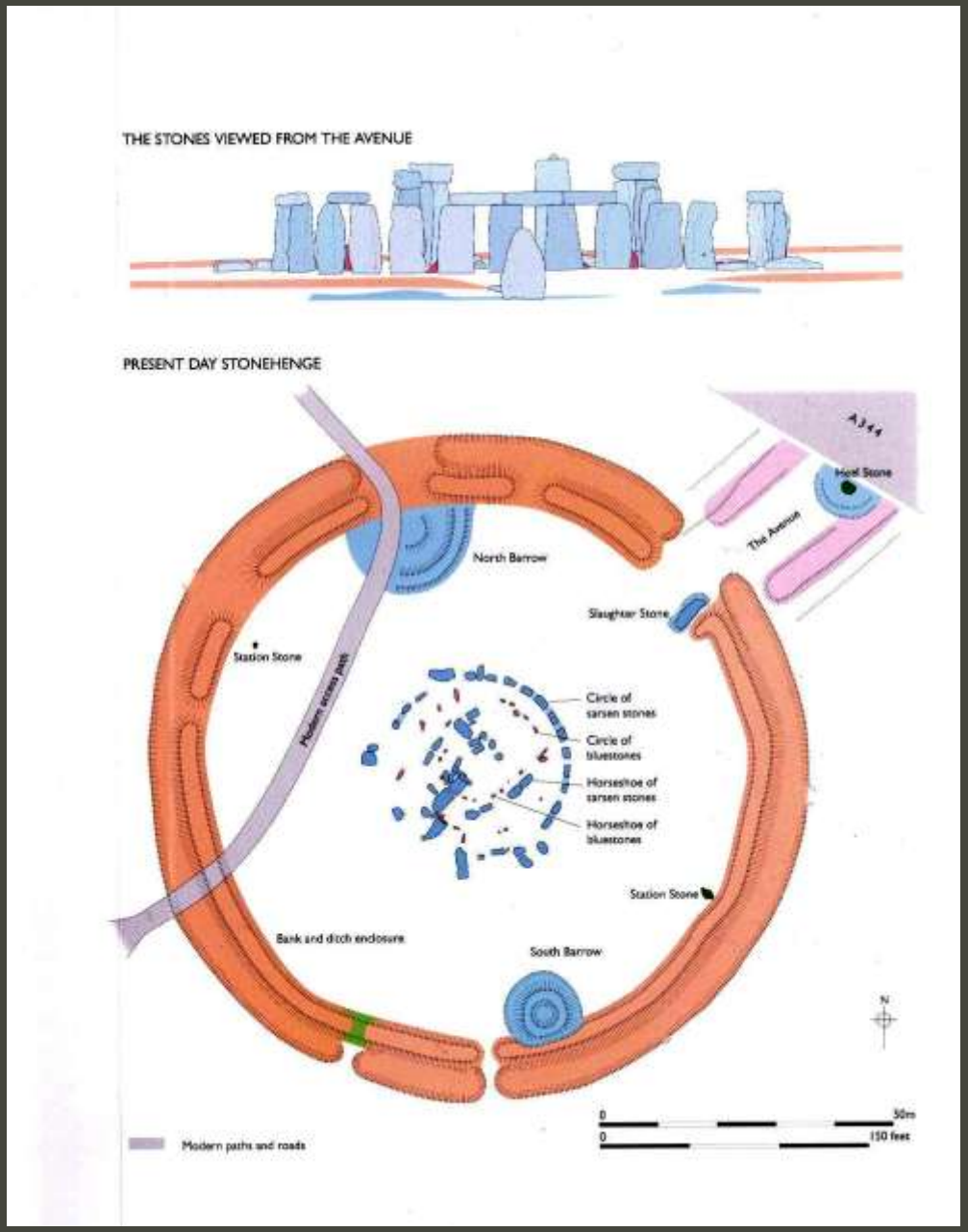

English Heritage Guidebook (2005) Stonehenge.

Taylor, A (2009) Sourced at Stonehenge. August.

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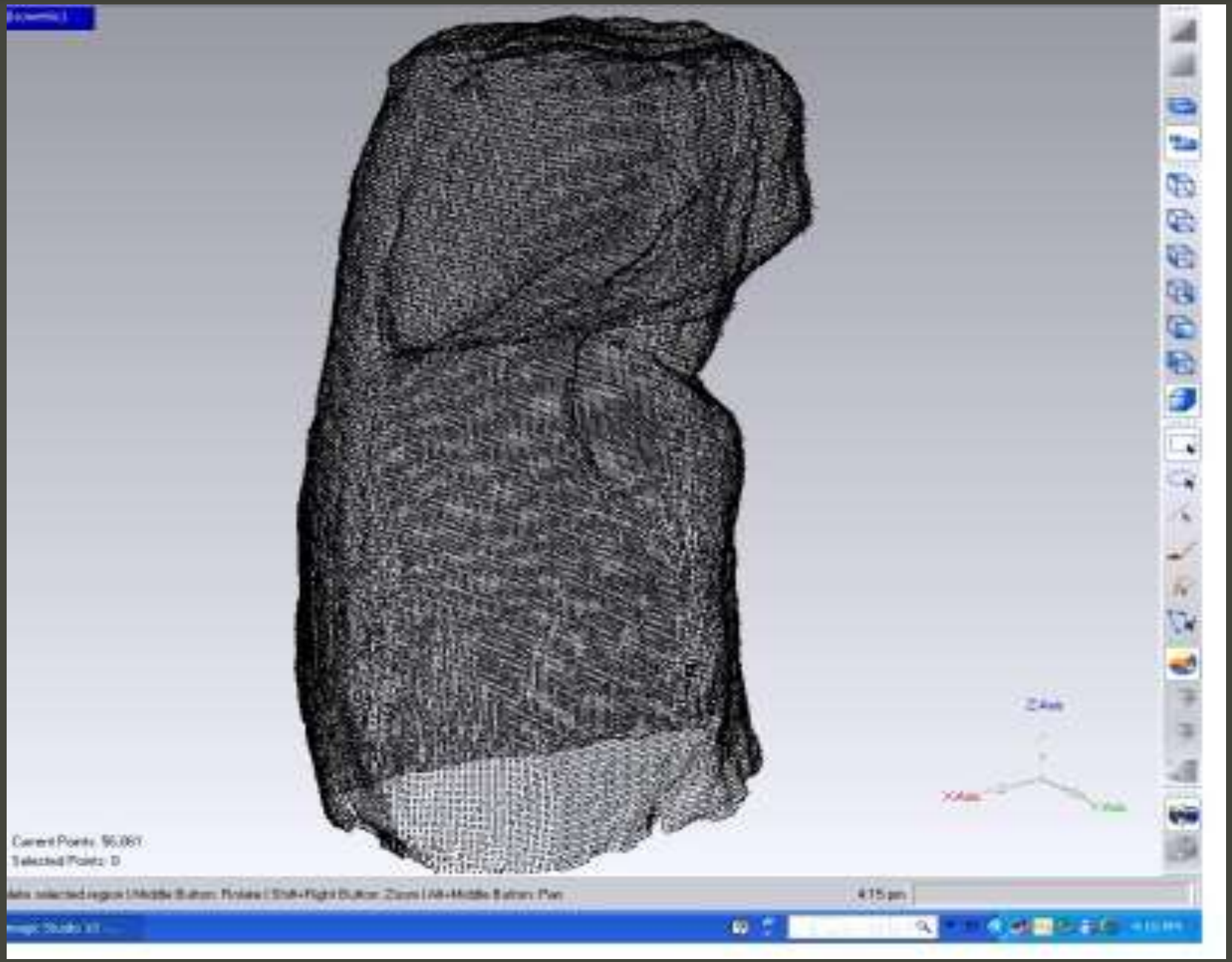
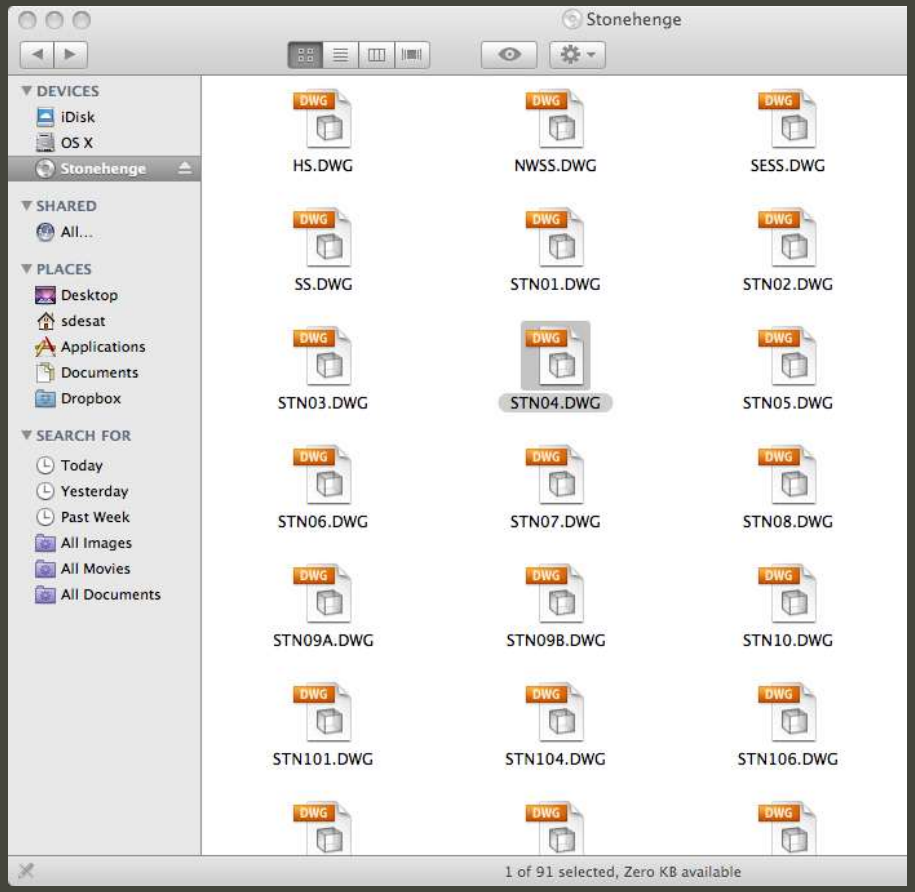
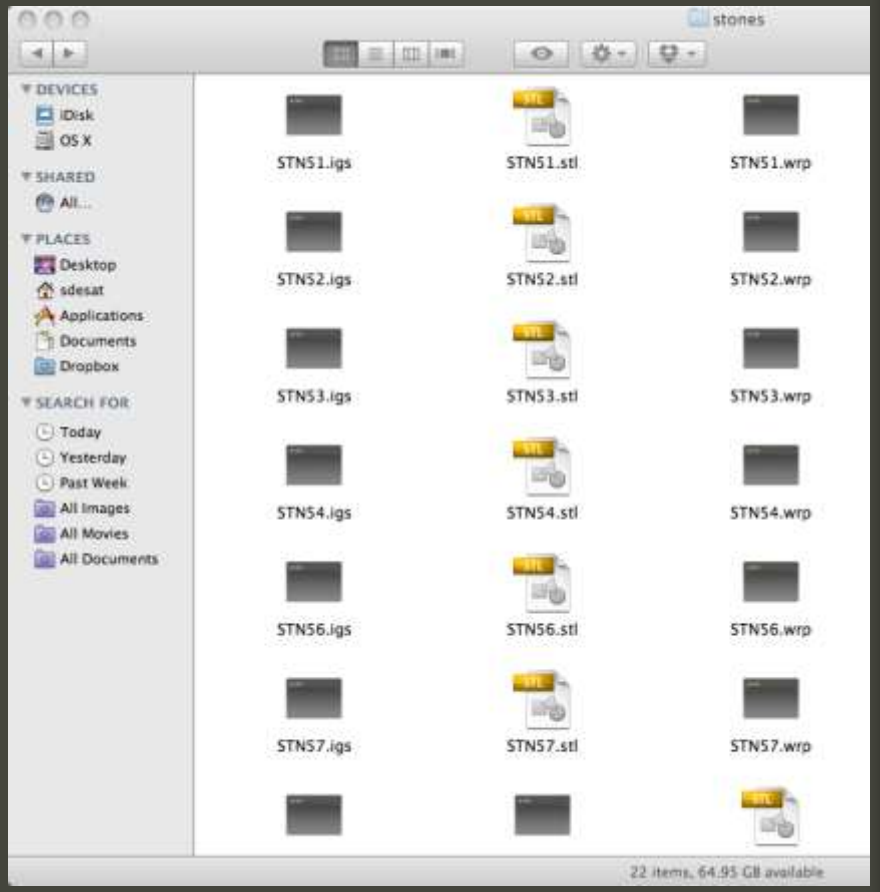


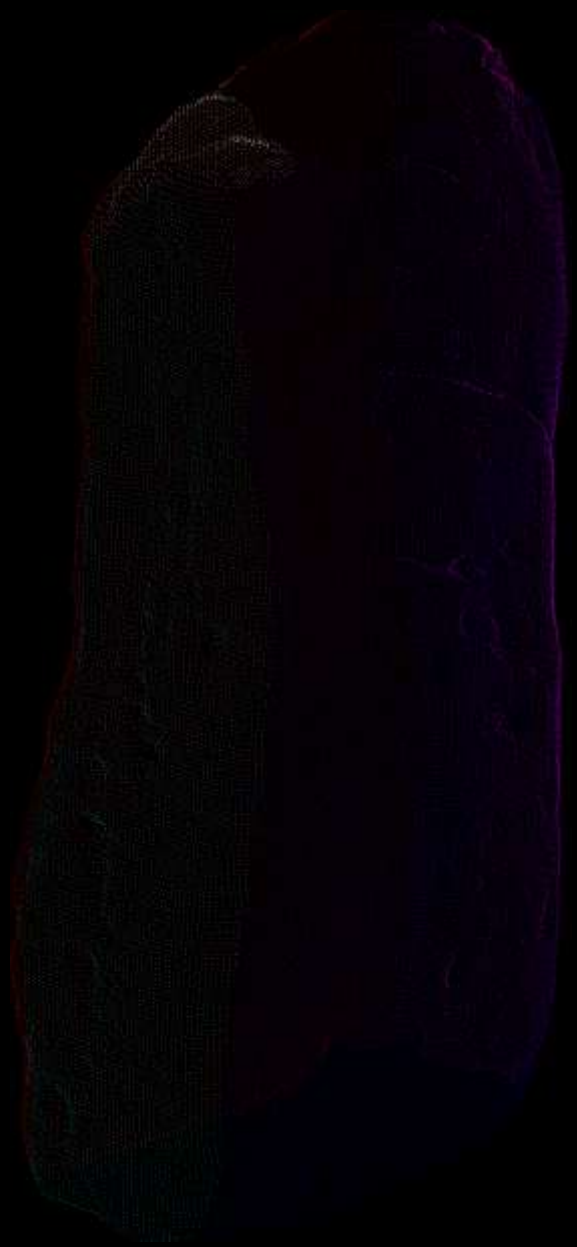
Point cloud data sourced from English Heritage National Monuments Record 2009

Categorizing the Stone scan files.

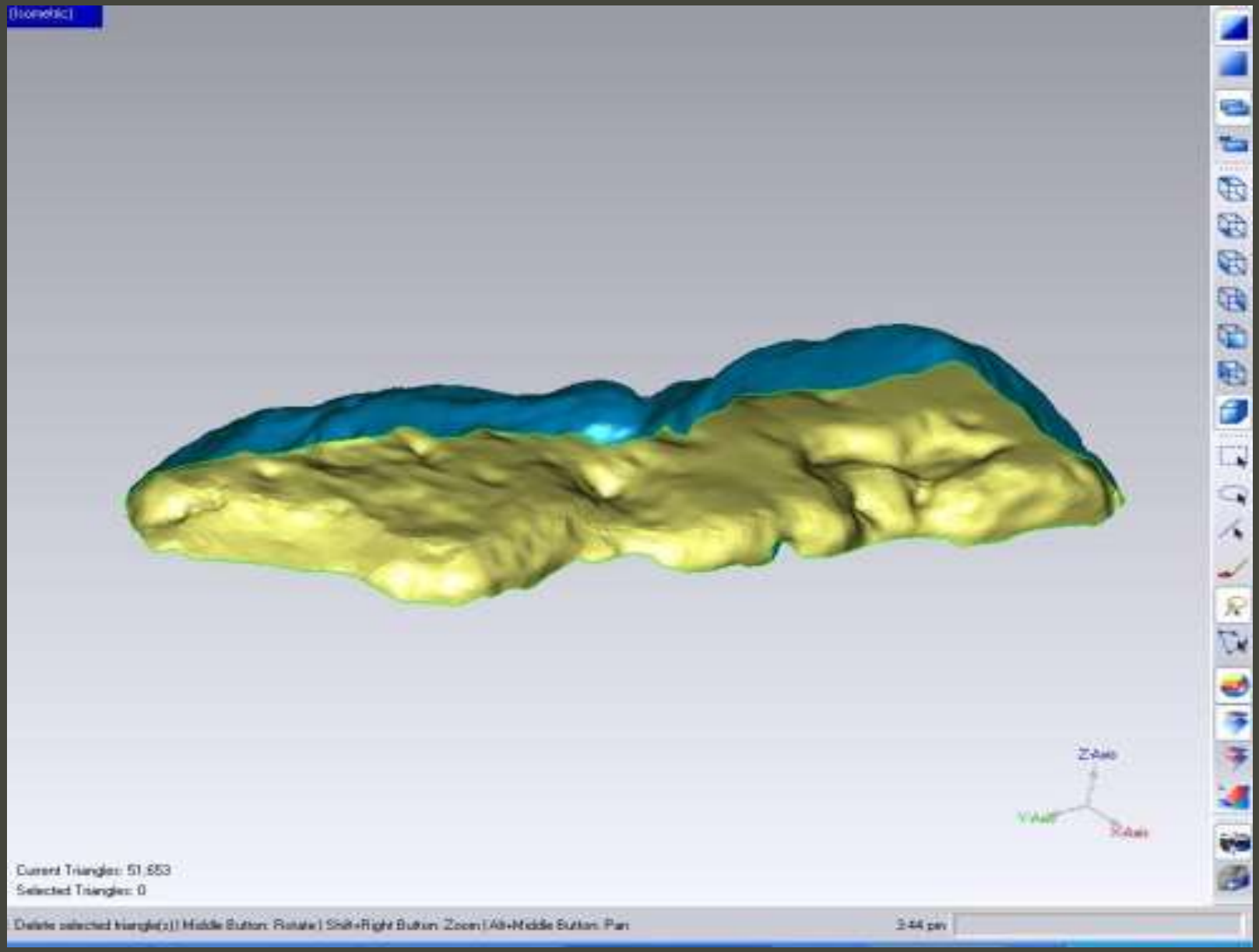


Testing conversion of stone scan files in different 3D software

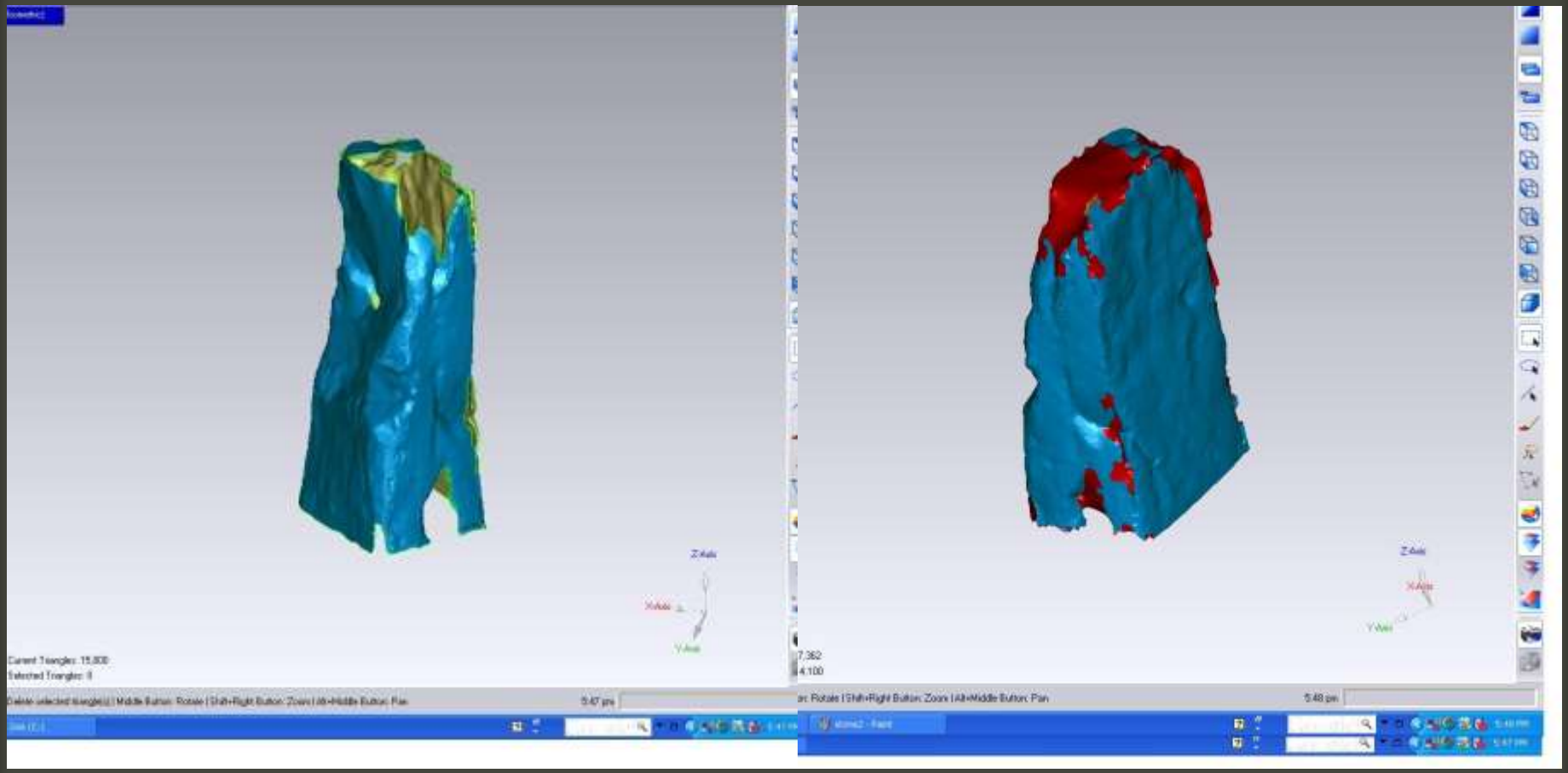




Inverted image of 3D Point cloud scan data to provide detail

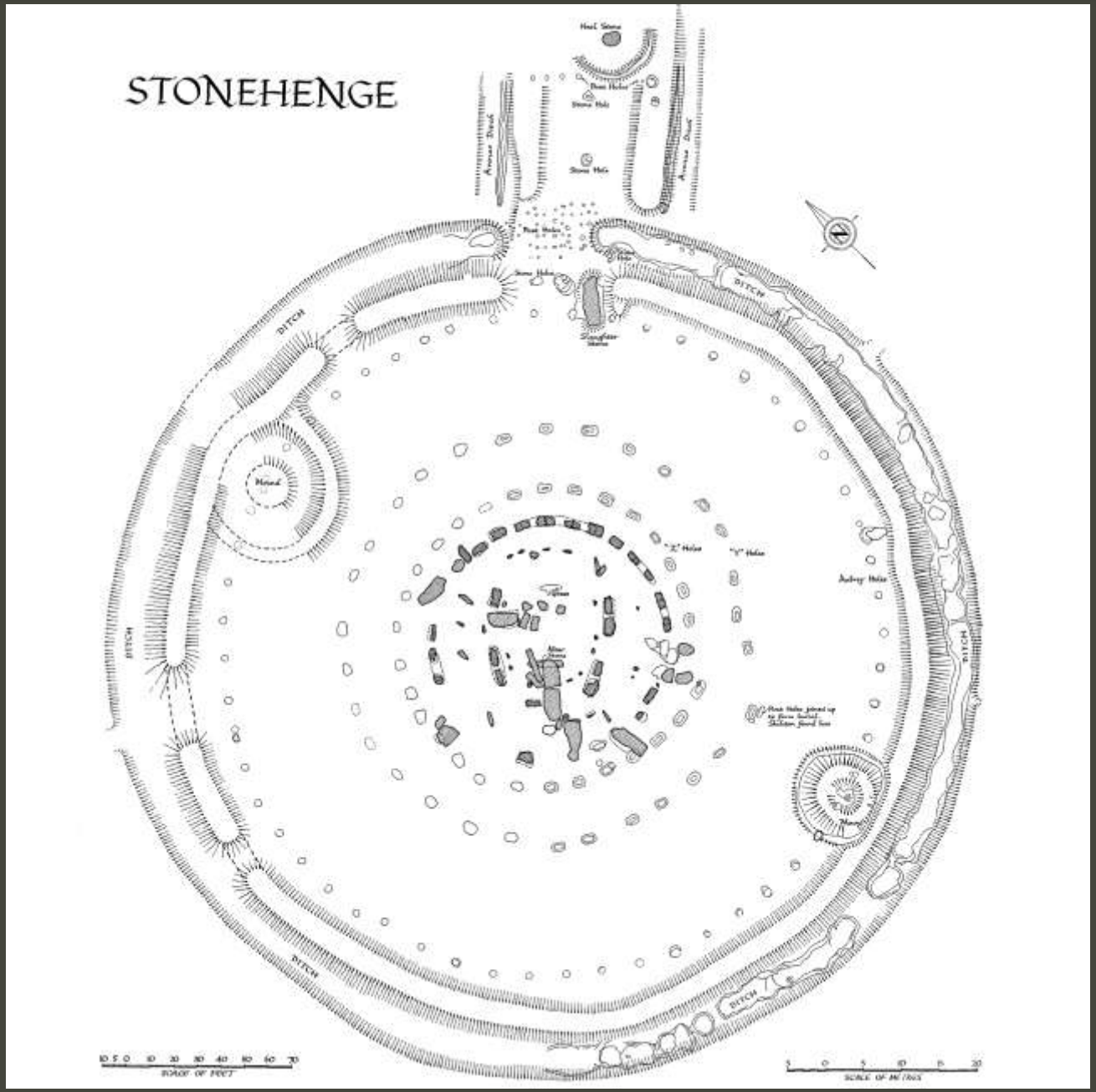


Converted 3D cloud data as a surface in 3D Scanning software .
Surfacing, rebuilding (filling) and merging scan data surfaces to prepare for import into 3D modeling



3D Scanning software used for converting cloud data.

Rebuilding, filling and merging to generate a 3D surface to be imported into 3D modeling & animation software

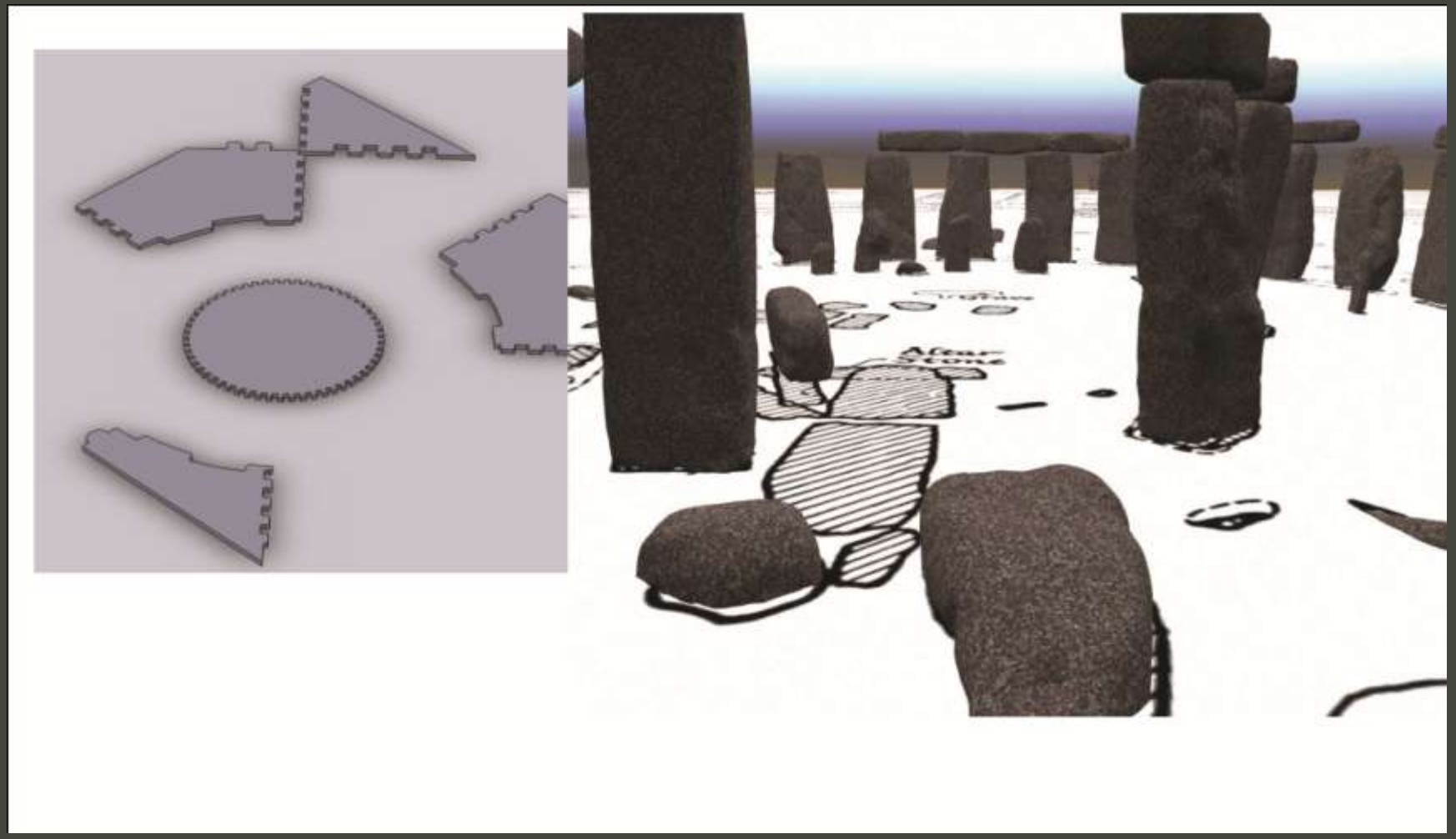


Stonehenge Survey engraving c.1740 Source: English Heritage National Monument Record Archive 2009

MA 3D Digital Design course, Design Puzzle Project (See *).
Source : www.hud.ac.uk & www.huddersfield3d.co.uk

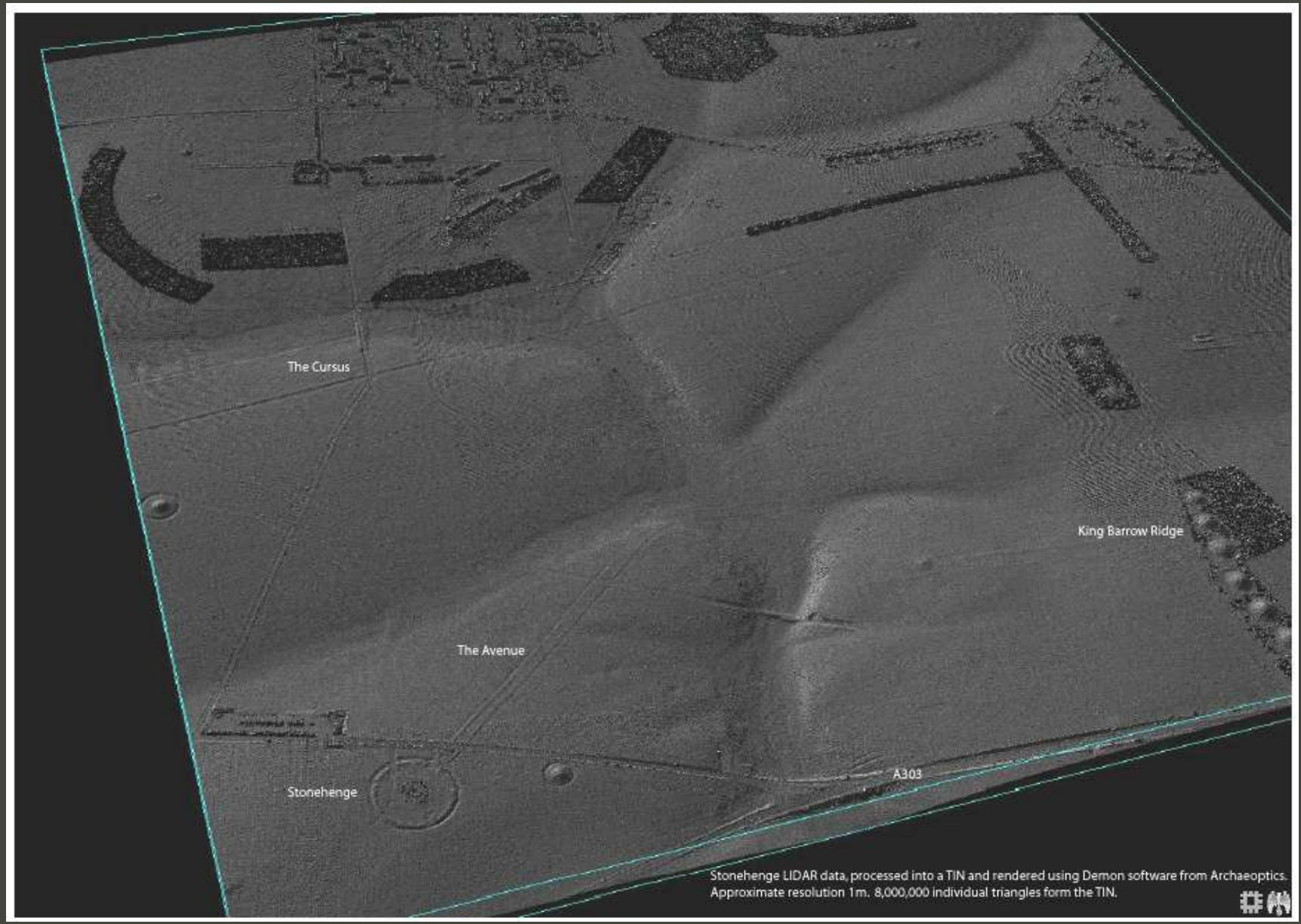
3D Modeling in Autodesk Maya. Laser cutter to hatch the map on the base and cut the placement holes for the stones

* Unver, Ertu, Taylor, Andrew and Hughes, Daniel (2010) *Poster Paper: Editable Artefact: Stonehenge Megalithic Puzzle Project.* In: University of Huddersfield Research Festival 2010 , 8-18 March 2010, University of Huddersfield



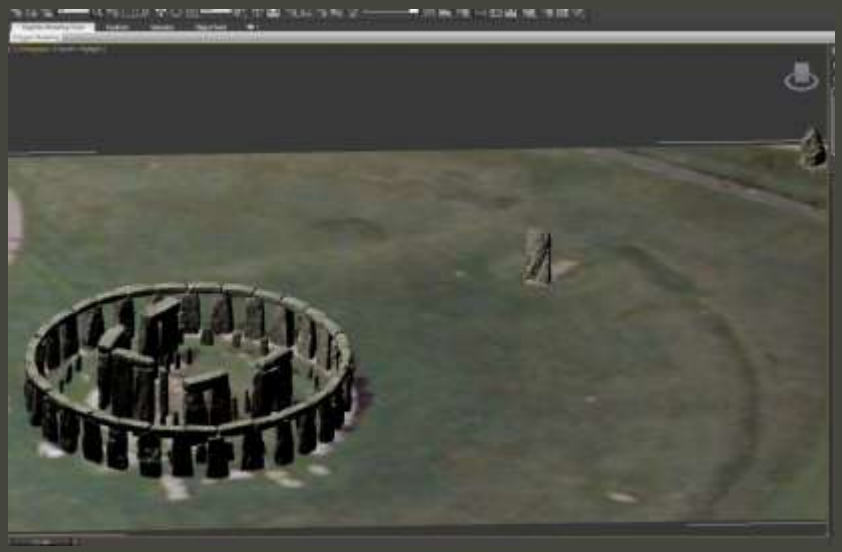
3D Modeling in Autodesk Maya. Laser cutter to hatch the map on base and cut the fittings for stones. Source: www.hud.ac.uk & www.huddersfield3d.co.uk

Google Map measuring tools used to select area for LIDAR Data

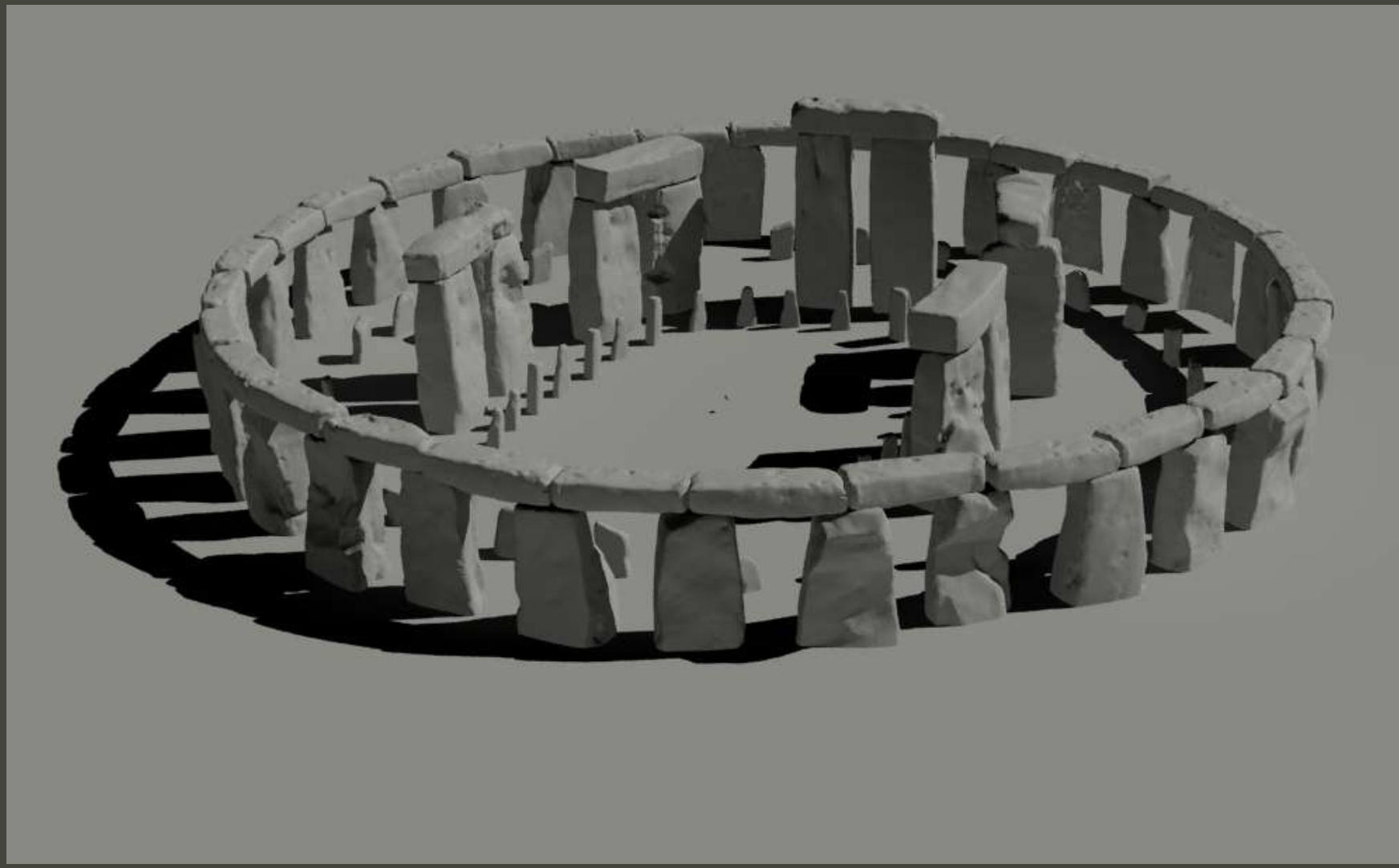


Stonehenge LIDAR data: Source: Geomatics

Scaling and Positioning



Google Map Satellite data is used to visually evaluate and estimate the scale of the model and the location of each stones

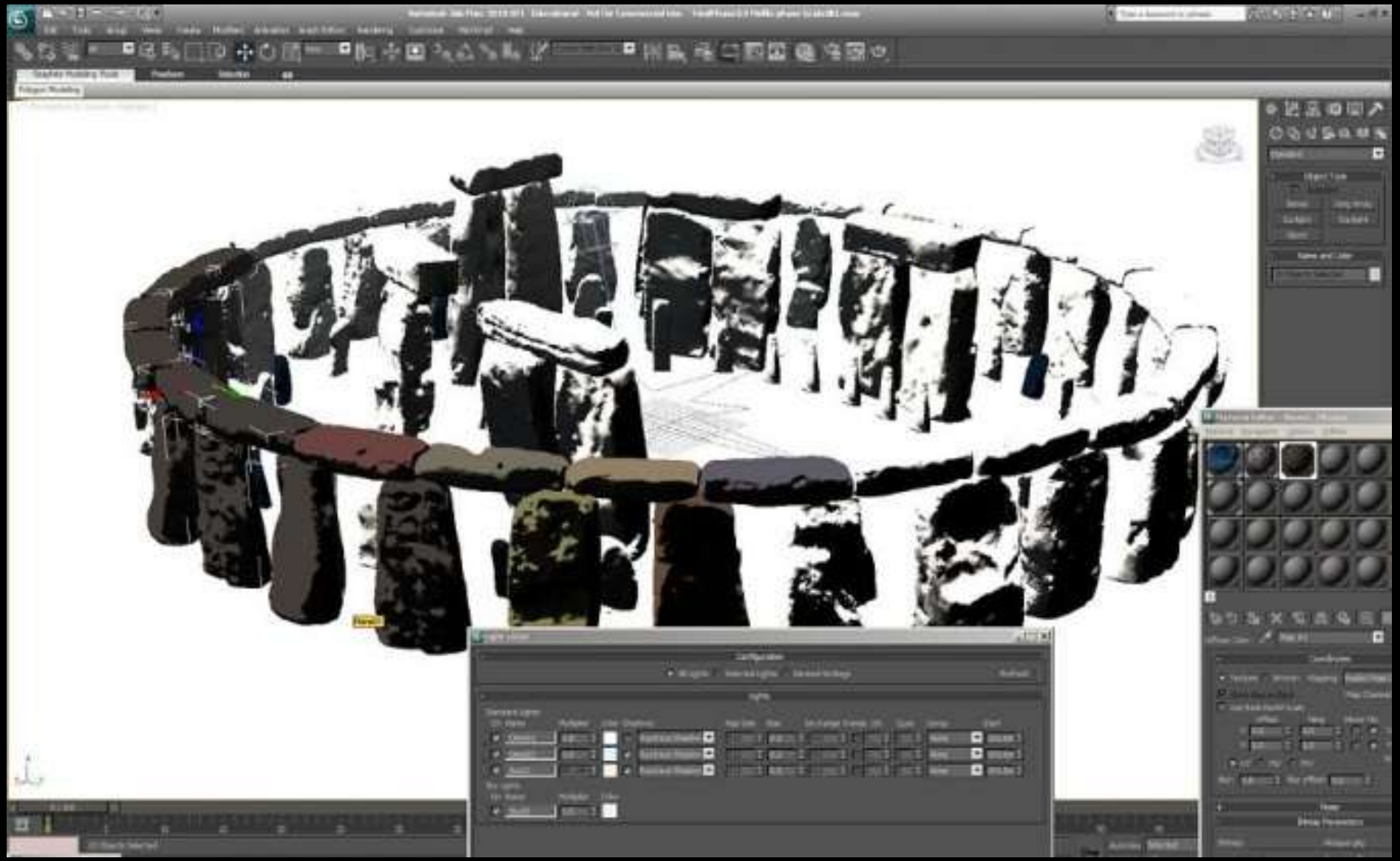


Untextured 3D CG model of Stonehenge phase 3c created by the Huddersfield 3D team

Initial renderings of 3D CG model of Stonehenge

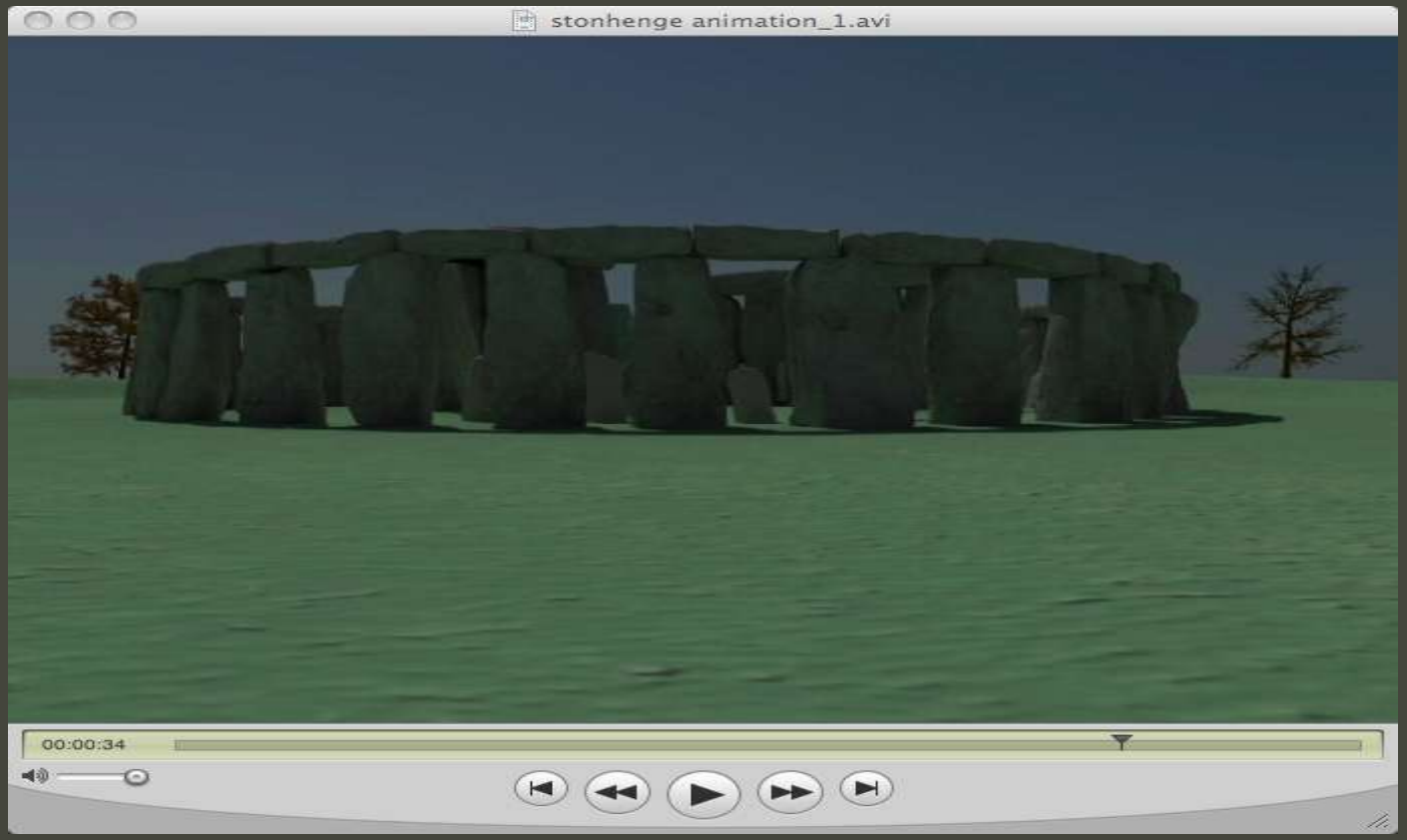
3D CG model of Stonehenge with character test

http://www.youtube.com/watch?v=yqRcgcmWPV4&feature=fvw



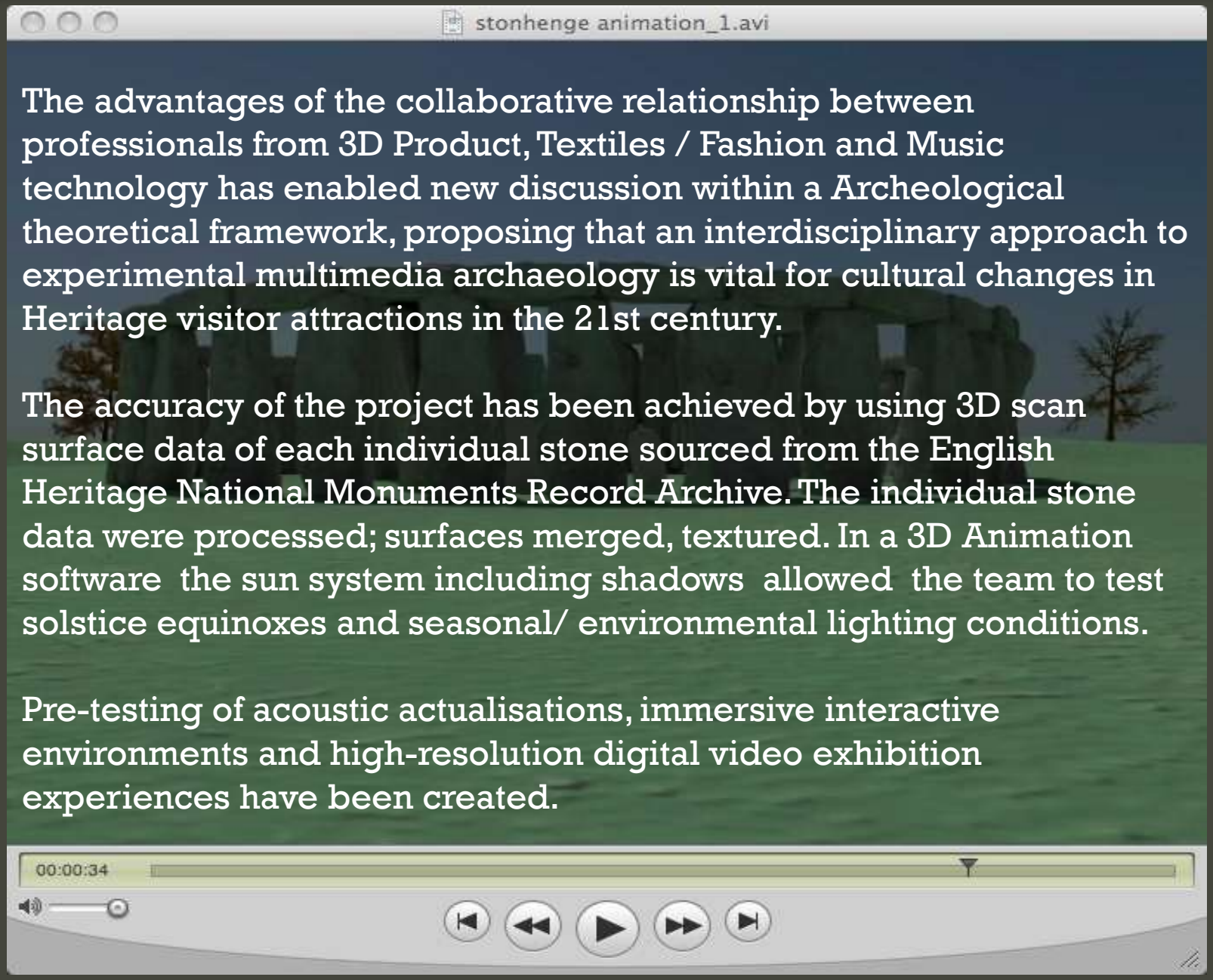
Texturing process of 3D CG model of Stonehenge

Digital photographic images taken during site visit of stones selected & cropped for 3D texture mapping



Animations of Stonehenge phase 3c

http://www.youtube.com/watch?v=VvE8WUw6-VM
http://www.youtube.com/watch?v=uhFn2RTIWQI
http://www.youtube.com/watch?v=byCtWcj3ECI



3D Texture mapped Stonehenge model animation.

Animations of Stonehenge phase 3c visit YouTube:
http://www.youtube.com/watch?v=VvE8WUw6-VM

For further information work please see:

- Poster Paper
- 3D Acoustic Stonehenge Animation

Presented in TAG 2010 Conference in University of Bristol, UK.