

3D Imaging in Cultural Heritage

9th-10th November 2017

The British Museum



3D Imaging in Cultural Heritage conference will be held in the British Museum on the 9th-10th November 2017. The conference will cover a wide range of methods and applications of 3D imaging, as well as how 3D data can be used both for research and to engage with the public. The conference is supported by IPERION-CH (Integrated Platform for the European Research Infrastructure on Cultural Heritage).

The British
Museum



IPERION CH

Thursday, 9th November 2017

09.00 – 09.45

Registration

09.45 – 10.00

Welcome & Introduction

Carl Heron & Daniel Pett
British Museum

Session One

Session Chair: *Jennifer Wexler, British Museum*

10.00 – 10.40

Keynote Talk:
3D Imaging, Cultural Heritage and TV

Michael Scott
University of Warwick

10.40 – 11.00

3D Reconstruction of Niniveh

Naphur van Apeldoorn¹,
Boris Lenseigne¹,
Pieter Jonker¹, Joris Dik¹ &
Lucas Petit²
¹*University of Technology Delft*
²*National Museum of Antiquities,
Leiden*

11.00 – 11.15

*The Must Farm Pile dwelling: An Integrated
3D Workflow and Analysis*

Donald Horne
Cambridge Archaeological Unit

11.15 – 11.30

*Virtual Roman Frontiers: 3D Visualisation and
Innovative Technology Applications for the
Antonine Wall*

Lyn Wilson, Patricia Weeks,
Alastair Rawlinson, Erik Dobat,
Christof Fluegel & Carsten
Hermann
Historic Environment Scotland

11.30 – 11.50

Tea, Coffee and 3D Exhibitions Stands and Posters

Session Two

Session Chair: *Robert Speller, University College London*

11.50 – 12.15

*New Investigations and 3D Computed Tomography
Reconstruction of the Antikythera Mechanism,
Using 3D X-ray CT data and 3D CAD Software*

David Higgon, Tony Freeth
Ashkan Pakzad, Francesco
Iacoviello, Andrew Ramsey,
Robert Speller, Jennifer Griffiths,
Adam Gibson, Adam Wojcik,
Lindsay MacDonald, Myrto
Georgakopoulou, Aris Dacanalís
University College London

12.15 – 12.30

*A Micro-CT Reconstruction of a 16th Century
Miniature Carved Boxwood Tabernacle in the
British Museum Waddesdon Bequest (WB.233) and
an Investigation into Methods of its Manufacture*

Philip Fletcher¹, Dora Thornton²
¹*University of Bath*, ²*British
Museum*

12.30 – 12.50

*The Digital Pilgrim Project and
the Object Resource Box*

Amy Jeffs
University of Cambridge

13.00 – 14.00

Lunch and 3D Exhibitions Stands and Posters

Session Three

Session Chair: *Carl Heron, British Museum*

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| 14.00 – 14.15 | <i>Whale of a Project: How to Scan the World's Largest Animal</i> | Kate Burton
<i>Natural History Museum</i> |
| 14.15 – 14.30 | <i>Confocal Microscopy Applied to Natural History Specimens</i> | Tomasz Goral
<i>Natural History Museum</i> |
| 14.30 – 14.45 | <i>3D Documentation of Rock Art in Megalithic Structures in Brittany (France) and its Application as an Aid to Curators</i> | Valentin Grimaud, Serge Cassen
<i>Université de Nantes</i> |
| 14.45 – 15.00 | <i>UAV photogrammetry potential for the recording of fragile fossils: a preliminary assessment</i> | Ashleigh L. A. Wiseman,
Alex Moore, Michael Checkley,
Frederic Bezombes, Isabelle De Groote
<i>Liverpool John Moores University</i> |
| 15.00 – 15.20 | Tea, Coffee and 3D Exhibitions Stands and Posters | |

Session Four

Session Chair: *Chiara Bonacchi, Institute of Archaeology, UCL*

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| 15.20 – 15.35 | <i>How Practical Can It Be? Photogrammetry and 3D Modelling in the Documentation and Conservation of Cultural Heritage</i> | Ana Patrícia Monteiro
<i>CITAR/EAUCP, Porto</i> |
| 15.35 – 15.50 | <i>Integrating Multispectral Imaging, Reflectance Transformation Imaging (RTI) and Photogrammetry for Archaeological Objects</i> | Emily B. Frank, Sebastian Heath,
Chantal Stein
<i>New York University</i> |
| 15.50 – 16.05 | <i>Co-Production in 3D Imaging</i> | Eilish Clohessy
<i>Derby Silk Mill Museum</i> |
| 16.05 – 16.20 | <i>See-Through Museum Project: A Complete Imaging Pipeline for Cultural and Natural Heritage</i> | A. Kostenko, R. van Liere,
K.J. Batenburg
<i>University of Amsterdam</i> |
| 16.20 – 16.40 | Break and 3D Exhibitions Stands and Posters | |

16.40 – 17.30

Session Five: Pecha Kucha

Session Chair: *Daniel Pett, British Museum*

Illegible Forever or Virtually Retrievable? The Possibilities of 3D Tools on Hard-to-Read Inscriptions

Miguel Carrero-Pazos
David Espinosa-Espinosa

Visualising the Operation of a 15th/16th-Century Pottery Kiln at Newport, Pembrokeshire, UK

David Dawson, Oliver Kent,
Bill Stebbing*
**Scan to Plan*

Neutron Tomography of 'Pattern-Welded' Swords From the Viking Age

A. Fedrigo, M. Strobl, A.R. Williams, L. Jørgensen, P. Pentz, K. Lefmann, P.E. Lindelof, B. Schillinger, A. Scherillo, and F. Grazzi
ISIS Neutron and Muon Source, STFC Rutherford Appleton Laboratory

Preserving and protecting Ancient Pueblo Heritage and Landscapes: 3D Scanning in the Canyons of the Mesa Verde Region, Colorado, USA

Radosław Palonka, Bolesław Zych
Institute of Archaeology Jagiellonian University

3D Reconstruction in an Illumination Dome

Lindsay MacDonald, Stuart Robson, Mona Hess
University College London

Combining Scan Technologies to Solve Complex Imaging Problems

Amy Scott-Murray
Natural History Museum

17.30 – 18.00

***Keynote Talk:
Exploring Egyptian Mummies: From CT scans to 3D Visualisations***

**Daniel Antoine
British Museum**

18.30 – 20:30

Wine Reception – Egyptian Sculpture Gallery

Friday, 10th November 2017

09.00 – 09.30 **Registration**

09.30 – 10.10 **Keynote talk:** **Farah Ahmed**
Discovering museum collections using *Natural History Museum*
3D imaging techniques

Session One

Session Chair: *Amelia Knowlson, Sheffield Hallam University*

10.15 – 10.30 *A Victorian Explorer and the Ancient Maya* Claudia Zehrt¹, Kate Jarvis¹, Jago
in 3D: The Google Maya Project at the Cooper¹, Mona Hess²
British Museum ¹British Museum, ² University
College London

10.30 – 10.45 *Education and Professional Development for New* Mona Hess
Cross-Disciplinary Roles in 3D Imaging and Digital University College London
Heritage Technologies in Europe

10.45 – 11.00 *All-Round Experience: Using Gesture-Controlled* Helena Garcia Carrizosa¹, Joanna
Multi-Sensory Technology to Unlock Museums for Wood², Andreas Reichinger³
a Learning Disabled Audience ¹Open University, ²University of
Sussex, ³VrVis Zentrum fur Virtual
Reality und Visualisierung
Forschungs-GmbH

11.00 – 11.20 **Tea, Coffee and 3D Exhibitions Stands and Posters**

Session Two

Session Chair: *Dan O'Flynn, British Museum*

11.20 – 11.35 *Neutron Imaging – A Non-Destructive Testing* David Mannes, Eberhard
Method Providing an Alternative Perspective to Lehmann
Cultural Heritage Objects Paul Scherrer Institute

11.35 – 11.50 *Revealing the Secrets of an Umbrian Madonna* Diana de Bellaigue, Lore Troalen,
and Child at National Museums Scotland Xavier Dectot
National Museums Scotland

11.50 – 12.05 *3D Imaging with Neutrons – Delivering* Burkhard Schillinger¹, Michael
Information beyond X-rays Laass², Clément Zanolli
Amélie Beaudet³
¹Technische Universitaet
Muenchen, ²Universitaet
Duisburg-Essen, ³University
Toulouse III - Paul Sabatier

12.05 – 12.20	<i>A 3D Understanding of the Varnish Layers in Rembrandt's Marten and Oopjen</i>	Katrien Keune ¹ , Petria Noble ¹ , Gwen Tauber ¹ , Susan Smelt ¹ , Esther Van Dijn ¹ , Michel Menu ² , Elizabeth Ravaud ² , Gilles Bastian ² , Witold Nowik ² , Silvia Prati ³ , Giorgia Sciutto ³ , Rocco Mazzeo ³ , Aldo Roda ³ , Mitra Almasian ⁴ , Leah Wilk ⁴ , Maurice Aalders ⁴ , Henk van Keulen ⁵ <i>¹Rijksmuseum, ²C2RMF, ³University of Bologna, ⁴Academic Medical Center, The Netherlands, ⁵Cultural Heritage Agency of the Netherlands</i>
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12.20 – 13.20 Lunch and 3D Exhibitions Stands and Posters

Session Three

Session Chair: Graeme Earl, Kings College London

13.20 – 13.35	<i>Computed Tomography for the Study of Large Artworks and Archaeological Materials by Means of a Customised Instrumentation</i>	Alessandro Re, Alessandro Lo Giudice, Marco Nervo <i>Università di Torino</i>
13.35 – 13.50	<i>A Standard for 3D Computed Tomography of Musical Instruments – the MUSICES-Project</i>	Sebastian Kirsch ¹ , Frank Bär ¹ , Theobald Fuchs ² , Kathrin Fischeidl ¹ , Christian Kretzer ² , Markus Raquet ¹ , Gabriele Scholz ² , Rebecca Wagner ² , Meike Wolter-Rosbach ¹ <i>¹Germanisches Nationalmuseum ²Fraunhofer Development Center for X-ray Technology EZRT</i>
13.50 – 14.05	<i>Lift the Veil off the Block Samples from the Warcq Chariot Burial (Ardennes, France): CT-scan, Photogrammetry, 3D Printing and Mixed Reality</i>	Nicolas T., Gagne R., Tavernier. C., Millet E., Bernadet R., Arnaldi B. and Gouranton V. <i>L'Institut National de Recherches Archéologiques Préventives</i>
14.05 – 14.20	<i>Post-Mortem Practices in the Mesolithic of Brittany : A Multi-Modal Digital Approach</i>	Jean-Baptiste Barreau, Ronan Gagne, Grégor Marchand, Jorge Calvo Gómez, Rozenn Colleter, Valérie Gouranton <i>Centre de Recherche en Archéologie, Archéosciences, Histoire</i>

14.20 – 14.40 Tea, Coffee and 3D Exhibitions Stands and Posters

Session Four

Session Chair: *Adi Keinan-Schoonbaert, British Library*

14.40 – 14.55	<i>SfM Modelling at Amara West</i>	Neal Spencer <i>British Museum</i>
14.55 – 15.10	<i>On Friction & Movement. 3D-Metamodeling Christopher Polhem's Mechanical Alphabet</i>	Pelle Snickars <i>Umea University</i>
15.10 – 15.25	<i>Using a Modified Camera for Integrated Spectral and 3D Imaging to Monitor Cultural Heritage Objects</i>	E. Keats Webb, Lindsay MacDonald, Danny Garside, Stuart Robson <i>University of Brighton</i>
15.25 – 15.40	<i>Old Casts in a New Light: 19th Century Plaster Casts of Classic Maya Artefacts as Cultural Heritage and Efforts for their Digital Preservation and Analysis</i>	Christian Prager ¹ , Hubert Mara ² ¹ <i>Bonn University</i> ² <i>Heidelberg University</i>
15.40 – 15.50	<i>Closing Remarks</i>	

Poster Presentations

Poster board	Title	Author/s
1	<i>The Empty Niche</i>	Jim Walsh <i>Conway Hall</i>
2	<i>Intelligent robotronics: 3D Imaging Technology for Restoration of Tangible and Intangible Cultural Heritage</i>	V. Pryanichnikov ¹ , G. Zmievskaia ¹ , G. Maino ² ¹ <i>KIAM, Russian Academy of Sciences, Moscow, Russia</i> ² <i>University of Bologna, Italy</i>
3	<i>True Colours: 3D Printed mass-coloured replicas of polychromed medieval sculpture as a conservative tool</i>	Marjan Debaene <i>M - Museum Leuven</i>
4	<i>High resolution monitoring of historical surfaces by using Shearography and Structured Light Scanning</i>	M. Rahrig, D. Lang, S. Hoepner, R. Drewello <i>Otto-Friedrich University Bamberg</i>
5	<i>3D Photogrammetry for the analysis of the erosion in an Atlantic coastal site: the case of Roman fish salting plant of Sobreira (Vigo, Spain)</i>	Adolfo Fernández, Patricia Valle and Alba Rodríguez <i>Universidade de Vigo</i>
6	<i>Neutron tomography on IMAT</i>	Winfried Kockelmann, Triestino Minniti <i>STFC Rutherford Appleton Laboratory Harwell</i>
7	<i>3D imaging for unfolding folded papyri</i>	Heinz-Eberhard Mahnke ^{1,2,3} , Tobias Arlt ⁴ , Daniel Baum ⁵ , Hans-Christian Hege ⁵ , Verena Lepper ^{3,6} , Norbert Lindow ⁵ , Kristin Mahlow ⁷ , Ingo Manke ² , Tzulia Siopi ³ . ¹ <i>Freie Universität Berlin, FB Physik und TOPOI</i> , ² <i>Helmholtz-Zentrum Berlin für Materialien und Energie GmbH</i> , ³ <i>Ägyptisches Museum und Papyrussammlung, Staatliche Museen zu Berlin</i> , ⁴ <i>Technische Universität Berlin</i> , ⁵ <i>Zuse Institut Berlin</i> , ⁶ <i>Humboldt-Universität zu Berlin</i> , ⁷ <i>Museum für Naturkunde Berlin</i>
8	<i>Old Russian jewelries studies by means of neutron imaging method</i>	I.A. Saprykina ¹ , A.N. Khokhlov ¹ , S.E. Kichanov ² , D.P. Kozlenko ² ¹ <i>Institute of Archaeology, Russian Academy of Sciences</i> ² <i>Joint Institute for Nuclear Research, Russia</i>

Poster board	Title	Author/s
9	<i>Post-Processing Methods for 3D-Computed Tomography Data of Musical Instruments</i>	Sebastian Kirsch, Niko Plath <i>Germanisches Nationalmuseum</i>
10	<i>The use of micro-computed tomography in cultural heritage</i>	Belén Notario <i>Centro Nacional de Investigación sobre la Evolución Humana (CENIEH)</i>
11	<i>A Matter of Scales - 3D multiscale applications in research and conservation of cultural heritage</i>	Boust, C.; Hochart, Maigret, A. and Mélard, N. <i>Centre de recherche et de restauration des musées de France (C2RMF)</i>
12	<i>Capturing the Cultural Heritage of East Africa</i>	Laura Basell ¹ , Mark Horton ² , Ella Egberts ³ , Henry Webber ¹ , Fergus Hooper ⁴ , Nicholas Mellor ⁵ , Sada Mire ⁶ , Abdullah Ali ⁷ ¹ <i>Queens University Belfast,</i> ² <i>University of Bristol,</i> ³ <i>Bournemouth University,</i> ⁴ <i>University College London,</i> ⁵ <i>mCubed Initiative,</i> ⁶ <i>Horn Heritage,</i> ⁷ <i>Dept. of Antiquities and Museums, Zanzibar</i>