Index

Theme 1 – Digitization & Acquisition

Full Papers

Digitization & Acquisition - Challenging Items & Materials

The Venice "Archivio di Stato" – Innovating Digitization with X-Ray Tomography
Fauzia Albertin, Eva Peccenini, Yeukuang Hwu, Tsung-Tse Lee, Edwin B. L. Ong, Jung Ho Je, Frédéric Kaplan and Giorgio Margaritondo

Robust Segmentation of Historical Parchment XMT Images for Virtual Unrolling
Chang Liu, Paul Rosin, Yu-Kun Lai and Weiduo Hu

3D and Challenging Materials
Aurore Mathys, Jonathan Brecko, Didier Van den Spiegel and Patrick Semal

One Man’s Trash – Using XRF to Recreate Ancient Narratives from Metallurgical Waste Heaps in Southern Jordan
Brady Liss and Thomas Levy

Customised OCR Correction for Historical Medical Text
Paul Thompson, John Mcnaught and Sophia Ananiadou

Short Papers

Digitization Methodologies – Virtual Reconstruction

3D Reconstruction for Museums and Scattered Collections (Applied Research for the Alexandre Lenoir’s Museum of French Monuments)
Camille Autran and François Guéna

Reflected Infrared Imaging – Revisiting the Fundamentals
E. Keats Webb

The Virtual Reconstructions of an Ancient Musical Instrument – The Aulos of Selinus
Angela Bellia
A New Way to Enrich Museum Experience Through X-ray Tomography: The Diagnostic Study of a Wax Anatomical Model of the 18th Century Made by Anna Morandi Manzolini

Eva Peccenini, Matteo Bettuzzi, Rosa Brancaccio, Franco Casali, Maria Pia Morigi, Laura Piro, Viviana Lanzarini, Antonio Todero, Luisa Leonardi and Elios Sequi

Reconstruction of the Woodblock Using Three-dimensional Scanning and Computer Numerical Control Machining

Joo-Pyo Hong, Zongming Zhang and Jiho Han

Documentation and Preservation of an Iron Age Site Through Photogrammetry – The Case of Monte Bernorio

David Vacas Madrid, Elina Rodríguez Millán and Jesús Francisco Torres Martínez

Remote Sensing Applied to the Study of the Cultural and Natural Heritage in the Mesoamerican Corridor

Juan Gregorio Rejas and Javier Bonatti

Three Modes of a Monument’s 3D Virtual Reconstruction - The Case of Yali Tzamisi in Chania, Crete

Panagiotis Parthenios, Alexandros Petinarelis, Sofia Loussa and Nicky Efraididou

Digitization Methodologies – Architectures

Battery Aachen – Using Landscape Reconstruction for On-site Exploration of a World War One Military Unit

Dries Nollet, Daniel Pletinckx and Carlotta Capurro

Fusion of 3D Data from Different Image-based and Range-based Sources for Efficient Heritage Recording

Estibaliz Muñumer and José Luis Lerma

Virtual 3D Reconstruction of Plans-Reliefs from Historical Document Analysis for Valorisation Applications

Gilles Halin, Christine Chevrier, Kevin Jacquot, Pascal Humbert and Senda Ben Bouheni

GIS-Based Mapping of Archaeological Sites with Low-Altitude Aerial Photography and Structure from Motion – a Case Study from Southern Jordan

Matthew Howland, Brady Liss, Mohammad Najjar and Thomas Levy

Integrative 3D Recording Methods of Historic Architecture - Burg Hohenecken Castle from Southwest Germany

Aaron Pattee, Bernhard Höfle, Christian Seitz
Application of 3D Technology For The Documentation of Late Medieval Wall Paintings in the Church of St. George in Lovran, Croatia
Kristina Krulić and Zlatan Novak

The Recording of Two Late Roman Towers, Archaeological Museum, Milan
Paul Blockley and Simona Morandi

Bridging Monuments Through Digital Repository and Graphic Reconstruction Methodologies, The Digital Enhancement Project of Argolid, Arcadia and Corinthia Castles, Greece
Demetrios Athanasoulis, Xeni Simou, Antonios Georgiou, Anna Sfika, Vasiliki Klotsa, Theodora Zirogianni, Chrysostomos Theodoropoulos and Eleni-Olga Deligianni

Digitization & Acquisition – General Topics

Crowd-sourced Mobile Phone Images For Built Heritage Conservation Monitoring
Greg Bearman, Wensen Ma, Marc Walton, Oliver Cossairt and Eric Doehne

Photogrammetric Surveying and Stereotomy
The East hall of the Palace of Charles V in Granada
Macarena Salcedo Galera, José Calvo López and Anand Shah Kalpeshbhai

A Light Carbon Crane as an Alternative approach for vertical structures and facade surveying
Renato Saleri, Hervé Lequay and Livio De Luca

3D Reconstruction with Fisheye Images – Strategies to Survey Complex Heritage Buildings
João Covas, Victor Ferreira and Luís Mateus

Comparison of Normalized Transfer Functions for Fast Blending-based Color Correction of Scans Acquired Under Natural Conditions
Arnaud Schenkel and Olivier Debeir

The Virtual Reconstruction of the Minaret of Mansourah Mosque (Algeria)
Sara Morena

Representation of the Santander Cathedral by Combination of Different Smart Techniques
Óscar J. Cosido, Leticia Terán, Massimiliano Campi, Raffaele Catuogno, Óscar Ruiz, Jesús M. Sendino, Pedro Sarabia, José Pereda and Andrés Iglesias

Geometry to Web – Jaen’s Cathedral
Dries Nollet, Daniel Pletinckx and Carlotta Capurro

A New Approach to Digitalization and Data Management of Cultural Heritage Sites
Vittorio Amos Ziparo, Fabio Cottefoglie, Daniele Calisi, Francesca Giannone, Giorgio Grisetti, Bastian Leibe, Marc Proesmans, Paolo Salonia, Luc Van Gool, Claudia Ventura and Cyrill Stachniss
A Comparison of Digital Modelling Techniques Analyzing a Section of Qhapaq Ñan
Saúl Retamozo, Fernando Zvetcovich, Diego Arce, Matias Quintana, Sergio Angeles, Benjamin Castañeda and Rafael Aguilar

Optimizing UAV Systems for Rapid Survey and Reconstruction of Large Scale Cultural Heritage Sites
Dominique Meyer, Elioth Fraijo, Eric Kwok Cheung Lo, Dominique Rissolo and Falko Kuester

Bringing Collections to the Digital Era – 3 Examples of Integrated High Resolution Digitisations Projects
Aurore Mathys, Jonathan Brecko, Didier Van den Spiegel, Laurence Cammaert and Patrick Semal

Application of georeferenced Archaeological Information Systems for Archaeological Digital Heritage - The Auxiliary Fortress of Carnuntum (Lower Austria)
Mario Wallner, Torrejón Valdelomar Juan, Wolfgang Neubauer, Matthias Kucera, Joachim Brandner and Vlad Sandici

Recovering the History of Bergen Belsen Using an Interactive 3D Reconstruction in a Mixed Reality Space – the Role of Pre-knowledge on Memory Recollection
Laura Serra Oliva, Anna Mura, Alberto Betella, Enrique Martinez and Paul Verschure

Works in Progress

Digitization Methodologies – Digitization and Understanding

Digitizing the Culture of Beijing – An Introduction of the Memories of Beijing Project
Jihong Liang, Linqing Ma and Yunpeng Wu

Crowd-sourcing the 3D Digital Reconstructions of Lost Cultural Heritage
Matthew Vincent, Chance Coughenour, Fabio Remondino, Mariano Flores Gutiérrez, Victor Manuel Lopez-Mencherio Bendicho and Dieter Fritsch

PATRINAT – The Drawings in Buffon’s Histoire Naturelle, Towards a Digitized Heritage
Laugee Thierry

OCHRE a Powerful Tool for Culture Historical Research – A Chronological Model for Historical Roads and Paths
Willem Vletter

The Chimu Offerings – Integration of Applied Science and New Media in the Preservation and Dissemination of Prehispanic Heritage
Cecilia Vilca, Luis Enrique Castillo, Gladys Ocharan Velasquez and Marco Sarmento

Minor Harbours of the East Coast of Ireland
Elizabeth Shotton
Novel Application of 3D Documentation Techniques at a Submerged Late Pleistocene Cave Site in Quintana Roo, Mexico

Dominique Rissolo, Alberto Nava Blank, Vid Petrovic, Roberto Chavez Arce, Corey Jaskolski, Pilar Luna Erreguerena and James C. Chatters

Nuragic Santa Cristina Sacred Well – from the 3D Analysis to Labour Investment

Lola Vico and Sorin Hermon

Theme 2 – Computer Graphics & Interaction

Full Papers

Multispectral Imaging & Rendering / Visualizing the Invisible (I/II)

Illumination Compensation for High-resolution Multispectral Image Mosaicing of Heritage Paintings

Alexandru Duliu, Vogel Jakob, Sister Serafima, Tobias Lasser and Nassir Navab

Color and Hyperspectral Ink Segmentation for Historical Documents

Irina Mihaela Ciortan, Hilda Deborah, Sony George and Jon Yngve Hardeberg

The WAVEcam – Ultra-High Resolution Imaging of Paintings

Samantha Stout, James Strawson, Eric Lo and Falko Kuester

Near Light Correction for Image Relighting and 3D Shape Recovery

Xiang Huang, Marc Walton, Greg Bearman and Oliver Cossairt

Alchemy in 3D – A Digitization for a Journey Through Matter

Marco Callieri, Paolo Pingi, Marco Potenziani, Matteo Dellepiane, Gaia Pavoni, Aurelia Lureau and Roberto Scopigno

The Etruscans and the Afterlife – An Engaging Exhibition with Accurate Scientific, Technological and Communicative Requirements

Antonella Guidazzoli, Silvano Imboden, Daniele De Luca, Maria Chiara Liguori, Luigi Verri, Giovanni Bellavia, Alfonsina Russo, Maria Anna De Lucia and Rita Cosentino

Digital Study and Web-based Documentation of the Colour and Gilding on Ancient Marble Artworks

Eliana Siotto, Gianpaolo Palma, Marco Potenziani and Roberto Scopigno

The Palmieri Hypogeum in Lecce – From the Integrated Survey to the Dissemination of Contents

Francesco Gabellone, Ivan Ferrari and Francesco Giuri

Improved Appearance Rendering for Photogrammetrically Acquired 3D Models

Seth Berrier, Michael Tetzlaff, Michael Ludwig and Gary Meyer
Interaction with Virtual Worlds

Engaging and Shared Gesture-based Interaction for Museums – The Case Study of K2R International Expo in Rome
Bruno Fanini, Enzo D'Annibale, Emanuel Demetrescu, Alfonso Pagano and Daniele Ferdani

Tangible Interfaces for Digital Museum Applications
Daniel Pletinckx, Carlotta Capurro and Dries Nollet

Exploring the Past with Google Cardboard
Adeola Fabola, Alan Miller and Richard Fawcett

Short Papers

Augmented Reality & Interaction

Heritage Move. A Natural & Lightweight Navigation Schema for Low-Cost, Non-Stationary Immersive Virtual Environments
Manuel Olbrich, Jens Keil and Thomas Makiela

Parallax Occlusion Mapping in Augmented Reality Case Study on Facade of Sino Portuguese Architecture Phuket, Thailand
Kosin Kalarat

Smartphone-based Remote 3D Interaction for Digital Heritage Applications
Alejandro Rodríguez and Alejandro León

Virtual CH on Mobile and Web Platforms (I/II)

Mobile Onsite Exploration of Parallel Realities with Oculus Rift
Chris Davies, Alan Miller and Richard Fawcett

An Immersive Visualization Kit for Online 3D Objects Databases
Violette Abergel, Renato Saleri, Hervé Lequay and Livio De Luca

VirtualTour – A Virtual Reality Experience for Exploring Cultural Heritage
Luigi Malomo, Francesco Banterle, Paolo Pingi, Francesco Gabellone and Roberto Scopigno

A Hand-held 3D-Printed Box Projector – Study for a Souvenir from a Mixed-Reality Experience
Daniele Rossi
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Augmented Reality and Storytelling in Heritage – Application to Public Gardens</td>
<td>317</td>
</tr>
<tr>
<td><em>Francisco Guimaraes, Mauto Figueiredo and Jose Rodrigues</em></td>
<td></td>
</tr>
<tr>
<td>Engaging Community Members with Digitally Curated Social Media Content at an Arts Festival</td>
<td>321</td>
</tr>
<tr>
<td><em>Patrick C. Shih, Kyungskik Han and John Carroll</em></td>
<td></td>
</tr>
<tr>
<td>Inside AR Application – Bringing Art Closer to Citizens by Promoting the Use of Smartphones and Tablets</td>
<td>325</td>
</tr>
<tr>
<td><em>José Antonio Sánchez, Marcos Fernández and Javier Gutiérrez</em></td>
<td></td>
</tr>
<tr>
<td>The Application of Service Orientation on a Mobile AR Platform – A Museum Scenario</td>
<td>329</td>
</tr>
<tr>
<td><em>Sasithorn Rattanarungrot, Martin White and Ben Jackson</em></td>
<td></td>
</tr>
<tr>
<td>Smart Devices for Intangible Cultural Heritage Fruition</td>
<td>333</td>
</tr>
<tr>
<td><em>Alessandro Pozzebon and Silvia Calamai</em></td>
<td></td>
</tr>
<tr>
<td>A Contextualized Educational Museum Experience – Connecting Objects, Places and Themes Through Mobile Virtual Museums</td>
<td>337</td>
</tr>
<tr>
<td><em>Holger Graf, Jens Keil, Alfonsina Pagano, Timo Engelke and Sofia Pescarin</em></td>
<td></td>
</tr>
<tr>
<td><strong>Computer Graphics &amp; Interaction – General Topics</strong></td>
<td></td>
</tr>
<tr>
<td>Resolving the Conflict Between High Visual Quality and High Performance in Virtual Reality Applications Keys to Rome Project as Case Study</td>
<td>341</td>
</tr>
<tr>
<td><em>Mohamed Khalil, Karim Omar and Sameh Oransa</em></td>
<td></td>
</tr>
<tr>
<td>Enabling Social Interaction in the Museum Through the Social Display Environment</td>
<td>345</td>
</tr>
<tr>
<td><em>Paloma Diaz, Andrea Bellucci and Ignacio Aedo</em></td>
<td></td>
</tr>
<tr>
<td>Innovative Systems for the Enjoyment of Pictorial Works - The Experience of Gallerie dell’Accademia Museum in Venice</td>
<td>349</td>
</tr>
<tr>
<td><em>Davide Pantile, Roberto Frasca, Antonio Mazzeo, Matteo Ventrella and Giovanni Verreschi</em></td>
<td></td>
</tr>
<tr>
<td>Interactive Experiences in the Stedelijk Museum, A Living Lab Experiment with the CHESS Framework</td>
<td>353</td>
</tr>
<tr>
<td><em>Maria Vayanou, Akrivi Katifori, Vassilis Kourtis, Erna Bomers and Niels de Jong</em></td>
<td></td>
</tr>
<tr>
<td>The Lion’s Gate and the Persian Wall in Byblos - Opening the Doors of Digital Representation to the Cultural Heritage of a Resilient City in Lebanon</td>
<td>357</td>
</tr>
<tr>
<td><em>Simone Garagnani, Luisa Bravo and José Manuel Pagés Madrigal</em></td>
<td></td>
</tr>
<tr>
<td>Digital Panorama</td>
<td>361</td>
</tr>
<tr>
<td><em>Davide Borra</em></td>
<td></td>
</tr>
</tbody>
</table>
Sarcophagus of the Spouses Installation - Intersection Across Archaeology, 3D Video Mapping and Holographic Techniques Combined with Immersive Narrative Environments and Scenography
*Franz Fischmaller, Antonella Guidazzoli, Silvano Imboden, Daniele De Luca, Maria Chiara Liguori, Alfonsina Russo, Maria Anna De Lucia and Rita Cosentino*

High-Quality Point Based Rendering Using Fast Single Pass Interpolation
*Markus Schütz and Michael Wimmer*

Virtual Museums and Audience Studies, the Case of “Keys To Rome” Exhibition
*Alfonsina Pagano, Giulia Armone and Elisabetta De Sanctis*

A Realistic Gamification Attempt for the Ancient Agora of Athens
*Georgia Kontogianni and Andreas Georgopoulos*

The Digital ArchiMusic Patterns in Alhambra
*Osama Elrawi*

Environment Map Based Lighting for Reflectance Transformation Images
*Michael Ludwig and Gary Meyer*

VR Multiple Channel Authoring with Immersive Display
*Mohamed Farouk, Mohamed Ismail Ibrahim and Karam Mustafa*

A Location-Based Augmented Reality System for the Spatial Interaction with Historical Datasets
*Daniel Pacheco, Sytse Wierenga, Pedro Omedas, Habbo Knoch, Stephanie Billib, Stefan Wilbricht and Paul Verschure*

A Radicalized Phenomenological Transformation Of Greek/Unani Humoral Theory Into A Virtual Reality Based Game Engine
*Muqeem Khan*

**Works in Progress**

*Computer Graphics & Interaction – Interactive and Immersive Experiences*

User Experiences in Three Approaches to a Visit to a 3D Labyrinth of Versaille
*Copper Giloth and Jonathan Tanant*

Using a Gaming Engine for Historical Road and Path Research
*Willem Vletter*

Travelling Through Space and Time in Lisbon's Religious Buildings
*João Gouveia, Fernando Branco, Armanda Rodrigues and Nuno Correia*
A Virtual Reality Platform for 3D Representation of Seokguram Grotto World Heritage Site

Park Jinho, Muhammad Tufail and Kim Jisoo

Leicester Castle Tells its Story – Beacon-based Mobile Interpretation for Historic Buildings

Giasemi Vavoula, Maria-Anna Tseliou, Sally Coleman, Rheinallt Ffoster-Jones, Paul Long and Esther Simpson

A Fulldome Interactive Visitor Experience – A Novel Approach to Delivering Interactive Virtual Heritage Experiences to Group Audiences in Full Dome Projection Spaces, Evaluated Through Spatial Awareness and Emotional Response

John Tredinnick and Paul Richens

Computer Graphics & Interaction – General Topics

StoryTECH 4 EVER - Storytelling TECHnologies for European Values and hERitage

Sara Monaci, Domenico Morreale, Gianluca Cuniberti, Mariano Equizzi and Andrea Sanna

New Memory Spaces for Cultural History – Digital Heritage Games in a Augmented World

Susanne Haake and Wolfgang Müller

A MetaViewer for Sharing Multiple Media by WebGL-based Interfaces

Laurent Bergerot

Development of a Low-cost Application of Virtual Reality for the Promotion of Cultural Heritage

Javier Esclapés, Daniel Tejerina, Alejandro Martín and Laia Fabregat

X-Top – An Interactive Exhibition for Building Experience with Mini-components of Stone Pagoda

Kyung-Kyu Kang, Jihyung Lee, Chang Joon Park, Jae Woo Kim and Man Hee Lee
Index

Theme 3 – Analysis & Interpretation

Full Papers

Analysis & Interpretation

An Automatic Word-spotting Framework for Medieval Manuscripts

*Ruggero Pintus, Ying Yang, Enrico Gobbetti and Holly Rushmeier*

5

Surface Shape Studies of the Art of Paul Gauguin

*Oliver Cossairt, Jack Tumblin, Xiang Huang, Harriet Stratis, Mary Broadway, Greg Bearman, Eric Doehne, Marc Walton, Nathan Matsuda, Aggelos Katsaggelos and Dale Kronkright*

13

An integrated Survey Experience for Assessing the Seismic Vulnerability of Senigallia’s Fortress (Italy) – Documentation for Conservation and FEM Modeling

*Alessandra Meschini, Graziano Leoni, Enrica Petrucci, Filippo Sicuranza, Alessandro Zona, Quintilio Piattoni, Luigi Dezi and Andrea Dall’Asta*

21


*Marco Gaiani, Fabrizio I. Apollonio, Paolo Clini and Ramona Quattrini*

29

Interactive Segmentation of Rock-Art in High-Resolution 3D Reconstructions

*Mathias Zeppelzauer, Georg Poier, Markus Seidl, Christian Reinbacher, Christian Breiteneder, Horst Bischof and Samuel Schulte*

37

Unraveling the Classic Proportions Through the Anthropometric Analysis of the Architectural Heritage The Case of the Pantheon

*Francisco Javier Roldan-Medina*

45

Studying Shape Semantics of an Architectural Moulding Collection – Classifying Style Based on Shape Analysis Methods

*Karina Rodriguez Echavarria and Ran Song*

53

VisProcH – Visual Reasoning Process for Heritage Valuation

*Arantza Respaldiza and Monica Wachowicz*

61
Short Papers

Understanding, Representing & Visualizing Architectures

Exploration of the Changing Structure of Cities – Construction and Use of Temporal City Models
Clémentine Périnaud, Gilles Gesquière and Georges Gay

BIM: An Integrated Model for Planned and Preventive Maintenance of Architectural Heritage
Luigi Fregonese, Cristiana Achille, Andrea Adami, Francesco Fassi, Anna Spezzoni and Laura Taffurelli

4D Investigation of Digital Heritage – An Interactive Application for the Auxiliary Fortress of Carnuntum
Torrejón Valdelomar Juan, Kucera Mathias, Mario Wallner, Joachim Brandner, Vlad Sandici and Wolfgang Neubauer

Procedural Modeling for Ancient Maya Cityscapes – Initial Methodological Challenges and Solutions
Heather Richards-Rissetto and Rachel Plessing

A 3D Kinematic Model for Assessing the Seismic Capacity of the Frigidarium of the Baths of Diocletian
Aaron Sadholz, Christopher Muir and Renato Perucchio

GIS Intelligence for a Cutting-edge Management of 3D Cities
Laura Baratin, Sara Bertozzi and Elvio Moretti

Moravian School in Digital Catalogue of 'Cultural Monuments in Serbia'
Sandra Vajošević, Marija Segan and Jelena Jovanović

Analysis of 2D/3D Documents

Automated Color Clustering for Medieval Manuscript Analysis
Ying Yang, Ruggero Pintus, Enrico Gobbetti and Holly Rushmeier

Morphological Analysis of Shape Semantics from Curvature-based Signatures
Anthony Pamart, David Lo Buglio and Livio De Luca

Assistive Visual Framing
Zaynab Habibi, Guillaume Caron and El Mustapha Mouaddib

Analyzing the Evolution of Deterioration Patterns – A First Step of an Image-based Approach for Comparing Multitemporal Data Sets
Friederike Peteler, Eloi Gattet, Philippe Bromblet, Odile Guillon, Jean-Marc Vallet and Livio De Luca
3DHOG for Geometric Similarity Measurement and Retrieval for Digital Cultural Heritage Archives

Katharina van Eckeren, Reimar Tausch, Pedro Santos and Dieter Fellner

Precise 3D Recording for Finite Element Analysis

Ilias Kalisperakis, Christos Stentoumis, Lazaros Grammatikopoulos, Maria Eleni Dasiou and Ioannis N. Psycharis

Analysis & Interpretation – General Topics

Building Information Modelling for Historical Building Historic Jeddah – Saudi Arabia

Ahmad Baik and Jan Boehm

Mass Customization for Cultural Heritage 3D Models

Matthieu Quantin, Benjamin Hervy, Florent Laroche and Jean-Louis Kerouanton

From Knowledge to Complex Representation – Interpretation of Material Systems, Survey Guidelines and its Reading Criteria, Multi-Representations of Virtual 3D City Models for Cultural Heritage

Alessandro De Masi

Multidisciplinary Investigations on the Byzantine Oratory of the Catacombs of Saint Lucia in Syracuse

Antonino Cosentino, Mariateresa Galizia, Cettina Santagati, Carmelo Scandurra, Mariarita Sgarlata and Samantha Stout

Mapping Identity with Geo-technology: Montelupo/Italy Versus Santa Leopoldina/Brazil

Bruno Amaral de Andrade and Renata Hermanny de Almeida


Dai Whan An and Hyun Woo Yang

3D Visualization of Archaeological Structures from Geophysical Explorations in Alarcos site Sector III (Ciudad Real)

José Luis Sánchez, Jesús Sánchez and Óscar Merlo

INSIDDE Project – Unveiling the Secrets of Art Through Graphene-based Terahertz Technologies

Insidde Consortium and Javier Gutiérrez Meana

An Ontological Model for Conservation-restoration of Cultural Objects

Cheikh Niang, Elise Leboucher, Luc Bouiller, Christine Capderou and Claudia Marinica

Exploiting Program Guides for Contextualisation

Lotte Baltussen, Themistoklis Karavellas and Roeland Ordelman
Reconstructing a Historical Temporary Structure – Henry VIII’s Pop-up-Palace
Phil Morris and Stephanie Marsh

Documentation and 3D Modeling of Railway Industrial Heritage – Study of the Cajo-Santander Locomotive Shed
Oscar Jesús Cosido Cobos, José Luis Lalana Soto, Leticia Terán, Massimiliano Campi, Raffaele Catuogno, Lucía Hernández Ramírez, José Pereda Llamas and Esteban Sainz Vidal

Integrating Traditional Methods with New Technologies
Maria Cristina Manzetti, Panagiotis Parthenios and Apostolos Sarris

Interdisciplinary Workflow for Virtual Archaeology
Nika Luznik and Michael Klein

Palazzo Raimondi in Cremona – 3D Survey and Diagnostic Tests for the Knowledge of Construction Techniques and Historical Materials
Alessio Cardaci, Antonella Versaci and Giulio Mirabella Roberti

Works in Progress

Experience, Learning and Intangible Heritage

AMICA – Virtual Reality as a Tool for Learning and Communicating the Craftsmanship of Engraving
Marcello Carrozzino, Cristian Lorenzini, Chiara Evangelista, Franco Tecchia and Massimo Bergamasco

Knowledge-based Approach for the 3D Modeling of Masonry Structures
Kevin Jacquot, Tommy Messaoudi and Livio De Luca

Managing Digital Heritage – an Analysis of the Education and Training Curriculum for Africa’s Archives and Records Professionals
Shadrack Katua and Mpho Ngoepe

Create Your Menu – Discovering Traditional Recipes
Isabella Gagliardi and Maria Teresa Artese

Archive To Repertoire – Motion Capture & Motion Sensing Data for Digital Intangible Heritage (DIH)
Muqeem Khan

Maria Teresa Artese and Isabella Gagliardi

The Lost of Myth in the Digital Age – A Study Based on Investigation of China’s Guangxi Province
Huaxiang He
Digital Exhibitions, a Powerful Tool for Cultural Institutions Audience Development –
The Athenaplus-supported International Working Group on Digital Exhibitions

Giuliana De Francesco, Monika Hagedorn-Saupe, Maria Teresa Natale and Werner Schweibenz

Analysis & Interpretation – General Topics

A.I.M. - Advanced Interactive Map
Nicola Maiellaro

Quantitative + Qualitative Information for Heritage Conservation,
Paving the Way to Historical-BIM
Jorge Garcia Fernandez, Joutsiniemi Anssi, Yushin Ahn and Juan Jose Fernandez

Virtuuvius - Automated Drawing of Temple Architecture According to Vitruvius –
the Case of the Temple of Hercules in Celje, Slovenia
Maja Jerala

GIS Applications for Environmental Archaeology and Historical Ecology – Problems and
Potentialities. The Case Study of Punta Mesco (Cinque Terre National Park - Italy)
Nicola Gabellieri, Alessandro Panetta and Valentina Pescini

Time-based Database for Creation of Korean Traditional Wooden Building
Jongwook Lee, Jihyung Lee, Jae Woo Kim, Kyung-Kyu Kang, Man Hee Lee and Boncheol Goo

Ceramics and 3D Modeling – A Medieval Assemblage from Nemea, Greece
Effie Athanassopoulos and Kim Shelton

XVII
Theme 4 – Theory, Methodologies, Preservation & Standards

Full Papers

Theory, Methodologies, Preservation and Standards

Reconstructing Cultural Heritage Objects from Storytelling

Selma Rizvic and Izabela Skalonjic

Reconstructing the Lost Reality. Archaeological Analysis and Transmedial Technologies for the Fruition of the Etruscan Town of Kainua Through an Augmented Reality Approach

Andrea Gaucci, Simone Garagnani and Anna Maria Manferdini

Digital Urban History as an Interpretation Key of Cities’ Cultural Heritage

Rosa Tamborrino and Fulvio Rinaudo

Medieval Craftsmen at Castle Waldenfels - Historical Construction Work as Serious Game

Hoang Nu Kieu Giang, Peter Ferschin and Monika Di Angelo

Digital Archaeology Field Recording in the 4th Dimension – ArchField C++ a 4D GIS for Digital Field Work

Neil Smith, Matthew Howland and Thomas Levy

Managing Cultural Heritage: Theories and Tools for Digital Documentation and Archiving

Cristiana Bartolomei and Alfonso Ippolito

A Scientific Community of Digital Heritage in Time and Space

Sander Münster and Marinos Ioannides

Towards a Semantic Data Infrastructure for Heterogeneous Cultural Heritage Database – Challenges of Korea Cultural Heritage Data Model (KCHDM)

Sunhyuck Kim, Jaeyeon Ahn, Juhee Suh, Hayun Kim and Jungwha Kim

Metadata Schema for Context-Aware Augmented Reality Application in Cultural Heritage Domain

Eunseok Kim, Jungwha Kim and Woontack Woo

A 'Historical Case' of Ontology-based Data Access

Diego Calvanese, Alessandro Mosca, José Remesal, Martin Rezk and Guillem Rull

A Genealogy of the Work of Collector: the Document and its Image

Myriam Bahia Lopes, Marcos Andre Goncalves and Thiago Cunha Moura Salles

The MONDIS Project – Semantic Web and the Protection of Historic Buildings

Riccardo Cacciotti and Jaroslav Valach
Short Papers

Assessment of Methodologies and Tools in DH

Image-based 3D Capture of Cultural Heritage Artifacts – An Experimental Study about 3D Data Quality

Gabriele Guidi, Laura Micoli, Sara Gonizzi, Matthew Brennan and Bernard Frischer

321

An Assessment of Research on 3D Digital Representation of Ancient Greek Furniture, Using Surviving Archaeological Artefacts

Dimitris Tsipotas and Vassiliki Spathopoulou

325

Evaluation of the Educational Potentials of Interactive Technologies Applied to Cultural Heritage – The “Keys To Rome” Exhibition Case Study

Alfonsina Pagano and Ivana Cerato

329

Online Survey about Current Use of 3D Imaging and its User Requirements in Cultural Heritage Institutions

Mona Hess

333

Policies on Digitalization of Cultural Heritage versus On-Line Strategies and Practices – The Case Study on Poland

Mariusz Dzieglewski

339

How Was This Done? An Attempt at Formalizing and Memorizing a Digital Asset’s Making-of

Iwona Dudek, Jean-Yves Blaise, Livio De Luca, Laurent Bergerot and Noémie Renaudin

343

PACT-ART: Adaptive and Context-Aware Processes for the Transportation of Artworks

Raef Mousheimish, Yehia Taher, Karine Zeitouni and Michel Dubus

347

Culture’s Definition

Nikolaos Myridis

351

Ontologies, Metadata and Archival Technologies (I/II)

Mind the Red Thread! 3D Metaphors for Cultural Heritage Visualization

Rossana Damiano, Vincenzo Lombardo, Antonio Lieto and Davide Borra

355

Constructing Motif-index of China Mythologies Database – Design, Implementation and Potential Applications

Cuixiao Guo, Xianzhao Wang, Qubumo Bamo and Gang Li

359

Using Archival Diplomatics and Object-Oriented Programming to Build Preservation Objects in the Cloud

Adam Jansen

363
Contexts for Trust in Cloud-based Services – An Historical Perspective
Jim Suderman

Government Use of Cloud-based Long Term Digital Preservation as a Service – An Exploratory Study
Patricia Franks

And How Much Does This Cost? Some Reflexions on Long Term Preservation from the Costing Models Analysis
José-Ramón Cruz-Mundet and Carmen Díez-Carrera

Towards an Ontology for Annotating Degradation Phenomena
Tommy Messaoudi, De Luca Livio and Veron Philippe

Building an Argumentation Platform for 3D Reconstruction using CIDOC-CRM and Drupal
Anais Guillem, George Bruseker and Roko Zarnic

Semantically Enhanced Search System for Historical Medical Archives
Paul Thompson, Jacob Carter, John McNaught and Sophia Ananiadou

Aggregating Temporal Forensic Data Across Archival Digital Media
Walker Sampson

Authenticity of Digital Records in Practice
Corinne Rogers

Archival Metadata for Digital Cultural Heritage Conceptual Provenance, Contextual Forensics, and the Authority of the Found Digital Object
Joseph Tennis

Theory, Methodologies, Preservation and Standards – General Topics

Digital Archiving – The Current State at the National Archives of Zimbabwe
Amos Bishi

Computational Lexicography and Digital Epigraphy – Building Digital Lexica of Fragmentary Attested Languages in the Project DASI
Annamaria De Santis, Irene Rossi, Matteo Gallo, Daniele Marotta and Alessandra Avanzini

Re-defining the Concept of Immersion in Digital Immersive Environments
Patrizia Schettino

A Role-based Methodology for Data-Driven Workflows, and Nephelai – A Scalable Infrastructure which Enables It
John Mangan, Falko Kuester and Michael Hess
Quantitative Imaging to Study New Conservation Materials 417
Elettra Barberis, Emilio Marengo and Marcello Manfredi

UAV-Based Post Disaster Assessment of Cultural Heritage Sites Following the 2014 South Napa Earthquake 421
Dominique Meyer, Michael Hess, Eric Kwok Cheung Lo, Christine Wittich, Tara Hutchinson and Falko Kuester

The Pursuit of Authenticity in Preserving Digital Art 425
Perla Innocenti

Digital Heritage from the Smart City and the Internet of Things – History or Stasis? 431
Michael Losavio, Corinne Rogers and Adel Elmaghraby

ArtefactViewer – A 3D Tool for Archeologists 435
Daniel Wickeroth, Andreas Pastoors, Dominik Laurentius and Ulrich Lang

Open Source Tools for Collaboration in Cultural Heritage Digital Assets Production Pipeline 439
Luigi Calori, Silvano Imboden, Antonella Guidazzoli

Ebla 3D Project – Documenting and 3D Reconstructing a Vanishing Site 443
Saverio Giulio Malatesta, Francesco Lella, Lucia Marsicano, Francesco Iaia and Eloisa Casadei

Portable Non-invasive Imaging Method for Monitoring the Conservation of Frescoes 449
Marcello Manfredi, Elettra Barberis, Greg Bearman and Emilio Marengo

Proteus – A Platform for Born Digital Critical Editions of Literary and Subliterary Papyri 453
Alex Williams, Annapaola Santarsiero, Chiara Meccariello, Gertjan Verhasselt, Hyrum Carroll, John Wallin, Dirk Obbink and James Brusuelas

Building Cyberinfrastructure from the Ground Up for the North Atlantic Biocultural Organization – Introducing the cyberNABO Project 457
Colleen Strawhacker, Philip Buckland, Gisli Palsson, Adolf Fridriksson, Emily Lethbridge, Adam Brin, Thomas McGovern, Rachel Opitz and Thomas Dawson

Works in Progress

Archival, Metadata, Preservation, and Architectures

Digitizing Early Farming Cultures – Customizing the Arches Heritage Inventory & Management System 463
Edeltraud Aspöck and Anja Masur

Preservation as a Service for Trust (PaaST) 465
Giovanni Michetti

XXI
WIP – Creating an Online Interactive Database for Tridimensional Models in Preventive Archaeology at the La Courneuve Base of the INRAP (French National Institute of Research in Preventive Archaeology)

Mehdi Belarbi, Aurelia Lureau and Pascal Raymond

Digital Atlanta – A Collaborative Approach to Remapping Atlanta’s Past

Michael Page, Jeffrey Glover, Joe Hurley and Brennan Collins

Decoding Kashgar

Serdar Aydin and Marc Aurel Schnabel

Social Media Mapping, as a Catalyst for Social Realm Actions

Bogdan Stojanovic

Theory, Methodologies, Preservation and Standards – General Topics

Safeguarding Intangible Cultural Heritage through Youth Employment and Public/Private Partnerships

Richard Moore and Elizabeth Celi

Enhancement of Science Fiction Collection – Proposal for Standard Cataloguing Datasheet and Engagement Best Practices for the Exhibit

Chiara Feriotto, Massimo Marchetto, Roberto Meschini and Matteo Fabbri

Open History Map – a New Approach to Open Access for Archaeology and Cultural Heritage

Marco Montanari, Raffaele Trojanis, Silvia Bernardoni and Luca Tepedino

Networked Communities/Invisible Cities – Internet Pioneers @ H.C. Andersen Museum

Paola Castellucci, Sara Mori and Francesca Gallo

Restructuring Cultural Heritage Collections in the Basic Formal Ontology

Qing Zou and Eun Park

Acquisition and Digital Representation of Prototype of Changsha Kiln Things

Jun Yi

Reformulating the Repository – Digital Intangible Heritage Empathic Design and Greek/Unani Medicinal Practices

Muqeem Khan

Enhancement of Arabic Script Documents and Manuscripts in Spanish Libraries and Archives – A Digitization Project

Ismael Abder-Rahman Gil
Theme 5 – Digital Heritage Projects & Applications

Full Papers

*Storytelling, Virtual Exhibitions, Interactive Presentations*

Schifanoia Palace in Ferrara – A Virtual Storytelling for its Knowledge and Dissemination 495

*Stefania Iurilli and Manuela Incerti*

One Place, Many Stories – Digital Storytelling for Cultural Heritage Discovery in the Landscape 503

*Jacqueline Floch and Shanshan Jiang*

"Livia's Villa Reloaded" – An Example of Re-use and Update of a Pre-existing Virtual Museum, Following a Novel Approach in Storytelling Inside Virtual Reality Environments 511

*Eva Pietroni, Massimiliano Forlani and Claudio Rufa*

Virtual Lost Cities – the Case of Pre-Earthquake Lisbon 519

*Helena Murteira, Paulo Rodrigues, Luís Miguel Sequeira and Alexandra Câmara*

Exhibit Design with Multimedia and Cognitive Technologies – Impact Assessment on Luca Giordano, Raphael, the Chapel of the Magi in Palazzo Medici Riccardi, Florence 525

*Perla Gianni Falvo*

Capturing and Indexing Rehearsals – The Design and Usage of a Digital Archive of Performing Arts 533

*Rémi Ronfard, Benoit Encelle, Nicolas Sauret, Pierre-Antoine Champin, Thomas Steiner, Vineet Gandhi, Cyrille Migniot, Florent Thiery*

The Digital Caen Virtual Museums? 541

*Alan Miller and Anna Vermeheren*

Generalized Digital Reassembly Using Geometric Registration 549

*Anthousis Andreadis, Georgios Papaioannou and Pavlos Mavridis*

Digital Mont'e Prama – 3D Cultural Heritage Presentations in Museums and Anywhere 557

*Marcos Balsa Rodriguez, Marco Agus, Fabio Bettio, Fabio Marton and Enrico Gobbetti*

Through the Loupe – Visitor Engagement with a Primarily Text-based Handheld Augmented Reality Tool 565

*Merel van der Vaart and Areti Damala*

The Virtual Repository of Arctic Archaeology and the Democratization of Science 573

*Herbert Maschner, Buck Benson, Nicholas Clement, Nicholas Holmer, Jonathan Holmes and Corey Schou*
Cultural Heritage – Displaying the Forum of Nerva with New Technologies

Tommaso Empler

A Real-time 3D Interactive Interface for Unidirectional and Multidirectional Communication of Architectural Heritage Information – The Case of Sri Chum Temple, Sukhothai Historical Park

Chawee Busayarat, Prittiporn Lopkerd, Varodom Sukawaddi and Sakonporn Tantisantisom

Fusion of Multimodal Three-dimensional Data for Comprehensive Digital Documentation of Cultural Heritage Sites

Michael Hess, Vid Petrovic, Dominique Meyer, Dominique Rissolo and Falko Kuester

Using 4D Modelling in a University-museum Research Partnership

Nathalie Charbonneau, Léon Robichaud and Joanne Burgess

Short Papers

Serious Games, Storytelling and Intangible Heritage

Designing Serious Games for ICH Education

Francesca Dagnino, Francesca Pozzi, Erdal Yilmaz, Nikos Grammalidis, Kosmas Dimitropoulos and Filaretis Tsalakanidou

Amphiboly of Digital Heritage

Marc Aurel Schnabel and Serdar Aydin

Interface Design for Serious Game Visual Strategies – the Case Study of “Imago Bononiae”

Bruno Fanini and Alfonsina Pagano

Archiving Broadcasters’ Websites – Considerations on Web Archiving as Context to the Radio and Television Collection

Arnoud Goos

Voices of Al-Khor – A Study in Digital Cultural Heritage

Aisha Al-Missned and Divakaran Liginlal

The National Cinema Museum of Torino: A Comprehensive Digital Strategy

Maria Grazia Girotto and Stefano Pisu

A Virtual Laboratory – an Immersive VR Experience to Spread Ancient Libraries Heritage

Cristian Lorenzini, Marcello Carrozzino, Chiara Evangelista, Franco Tecchia, Massimo Bergamasco and Alexandra Angeletaki
Virtual Museums and Interactive Technologies

Advances in Virtual Heritage – Conditions and Caveats 643
Donald Sanders

A Dynamic Web-based 3D Virtual Museum Framework Based on Open Data 647
Chairi Kourt, Anestis Koutsoudis, Fotis Arnaoutoglou, Georgia Petsa, Stella Markantonatou and George Pavlidis

Lessons Learned from Reconstruction of a Virtual Grotto – From Point Cloud to Immersive Virtual Environment 651
Jaehong Ahn and Kwang-Yun Wohn

A SAR-based Interactive Digital Exhibition of Korean Cultural Artifacts 655
Yong Yi Lee, Junho Choi, Bilal Ahmed, Yong Hwi Kim, Jong Hun Lee, Moon Gu Son, Jae Doug Yoo and Kwan H. Lee

Virtually United in Real Time – Museum Collections and Archaeological Context Explored 659
Eiman Elgewely and Willeke Wendrich

Digital Heritage Projects and Applications – General Topics

Stereo Visualization of Historical Aerial Photos – a Valuable Digital Heritage Research Tool 663
Anders Hast and Andrea Marchetti

3D Tour Through University Spaces for the Management and Dissemination of the Cultural Heritage of the University of Cantabria 667
Oscar Jesús Cosido Cobos, Leticia Terán, Oscar Ruiz, Jesús Manuel Sendino, Massimiliano Campi, Raffaele Catuogno, Nuria García Gutierrez and Elena Martin

Playing Design – Mobile Serious Games to Valorize Design Culture in the Urban Space 671
Mauro Ceconello, Alessandra Spagnoli, Davide Spallazzo and Umberto Tolino

A Puzzle in 4D – Digital Preservation and Reconstruction of an Egyptian Palace 675
Edeltraud Aspöck, Matthias Kucera, Karin Kopetzky, Barbara Horejs, Wolfgang Neubauer and Manfred Bietak

Is it Possible, a Virtual-Eco-Museum? 679
Julian Llanos

Revitalizing Peale’s Museum as a Digital Interactive Learning Environment 683
Glen Muschio, Jichen Zhu and Aroutis Foster

Visual Technologies and Virtual Restoration. The Foro Mussolini (1939-1941) by Oriolo Frezzotti in Littoria, Latina (Italy) 687
Elena Ippoliti and Michele Calvano
Virtual Documentation of Different Structures in the Urban Archaeological Site of Velarde Square in Santander
Oscar Jesús Cosido Cobos, Pedro Sarabia, Leticia Terán, Óscar Raiz, Diego Arévalo Casuso, Diana Vega Almazán and Esteban Sainz Vidal

Young People for an Interactive Archaeology in Calabria
Manuela Bassetta, Francesca Fatta and Rossella Agostino

Virtual Reconstruction and Representation of an Archaeological Terracotta Statue
Carmen Díaz-Marín, Elvira Aura-Castro, Carlos Sánchez-Belenguer, Eduardo Vendrell-Vidal, Andrea F. Abate and Fabio Narducci

Virtual Museums and Calabrian Cultural Heritage – Projects and Challenges
Simona Giglio, Francesca Bertacchini, Lorella Gabriele, Pietro Salvatore Pantano, Assunta Tavernise and Eleonora Bilotta

Serious Games for Interactive Stories about Emotionally Challenging Heritage
David C. Moffat

Towards a Web-based Archaeological Excavation Platform for Smartphones – Review and Case Studies
Georgios Styliaras and Nota Pantzou

Hypercolumna – an Archaeological Hub for a New Way to Do Culture
Virginia Cirilli

Technological Solutions for an Innovative Fruition – The “Museo delle Terme di Diocleziano” Project
Sara Esposito, Giulia Armone, Elisabetta De Sanctis, Maximilian Ventura and Maria Letizia Vinci

Imagining the Past. Visitor Specific Applications for Al Zubarah Archaeological Site, Qatar
Moritz Kinzel and Mina Tanaka

3D Reconstruction of a Balneum in a Roman Villa Rustica, Mošnje, Slovenia
Maja Lavrič

Digital Documentation for the Restoration of the Anargyros Mansion
Lydia Koutoula and Andreas Georgopoulos
Works in Progress

Digital Heritage Projects and Applications – General Topics

Reuse of Europeana Metadata for Geo-location Services 737
Franc Zakrajsk and Vlasta Vodeb

Touching an Ancient Stone – 3D Modeling and Augmented Reality Techniques for a Collection of Petroglyphs from the State Hermitage Museum 739
Daria Hook, Nikita Pikov, Maxim Rumyantsev, Maria Vishnyakova and Inna Kizhner

The old Parish Church of Montemor-o-Novo in the 16th century – a Manuelino Example and its Virtual Reconstruction 741
Carlos Carpetudo and Gonçalo Lopes

The 3D Modelling of the Spire of Senlis Cathedral 743
Mathieu Lejeune, Sabine Berger and Eduard Antaluca

Developing a Flexible Web-based System for Documenting Archaeological Excavations 745
Ángel-Luis García-Fernández, Andrés Molina-Aguilar, Carlos-Javier Ogayar-Anguita and Manuel Molinos-Molinos

Creation of 3D Models of Chosen Historical Buildings for Supporting Knowledge Transfer 747
Lenka Chadimova

Soft Sensors for Social Sensing in Cultural Heritage 749
Giovanni Pilato and Umberto Maniscalco

A Serious Game in the Stoa of Attalos – Edutainment, Heritage Values and Authenticity 751
Christos Koutsafits and Andreas Georgopoulos

ArkTeller – a New 3d Real-time Storytelling Platform for Cultural Heritage Interpretation 753
Nicola Schiavottiello

An Enhanced Navigation Kit for Virtual Heritage Exploration Using a Game Engine 755
Luis Hernandez and Viviana Barneche Naya

Remote Access to 3D Models of Cultural Heritage 757
Sven Ubik, Jiří Navrátil, Jiří Melnikov and Zdeněk Trávníček

The Bethlen Castle of Boiu – A Digital Renaissance 761
Raluca Bărbulescu and Raluca Zaharia