Colloquium – Workshop – Digital Museum Expo

Beyond 3D Digitisation:
Applications of 3D Technology in Cultural Heritage

Royal Museum of Art and History – 12-13 March 2015

This colloquium and workshop focuses on the impact of 3D digital assets for cultural heritage. Digitisation of museum objects is not a final stage, but only a start for research, conservation and interpretation. 3D offers us a new set of tools and methodologies that will change the cultural heritage domain significantly. New visualisation technologies, both online and in the museum, and new interaction technologies open a wide range of opportunities for museum curators and cultural heritage experts to share the results of their work and the value and beauty of their collection.

This event contains three parts. In the colloquium on the first day, digital heritage experts from Belgium, the Netherlands and Italy will present different applications of 3D digitisation and virtual reconstruction in research, collection management, publication, education and public presentation. In the second day, several applications are elaborated through a series of workshops. During the colloquium and workshop, a Digital Museum Expo will take place. This is a series of hands-on demonstrations of innovative applications, such as the museum installations that have been developed in the V-MusT project for the multi-museum exhibition Keys2Rome or the online visualisation of 3D digital assets in Europeana, developed in the 3D-ICONS project. Other heritage institutions and companies will be present also.

You can register for the colloquium, the workshop and Digital Museum Expo (see Registration). The official language of the colloquium and the workshop is English.

Educational game showing the chapter room of the Benedictine abbey of Ename (Visual Dimension)

Thursday March 12, 2015 – Colloquium (Petra room)

09:30 – 10:00: Registration & coffee (foyer)

10:00 – 10:05: Welcome

Chris Vastenhoud, Digital Collections, Royal Museums of Art and History, Brussels

Welcome statement, structure and goals of the colloquium

10:05 – 10:20: How to start from scratch

Chris Vastenhoud, Digital Collections, Royal Museums of Art and History, Brussels

Three years ago, 3D was not an item within KMKG. Three years and three projects later it is. In this presentation we will highlight choices and applications of 3D within KMKG, present and future form the perspective of non-technical end-users – but believers.

10:20 – 10:45: 3D digitisation of the Belgian federal collections of Cultural Heritage and Natural History

Patrick Semal, Jonathan Brecko and Aurore Mathys,
Royal Belgian Institute of Natural Sciences, Brussels

Agora3D (2012-2013) is a project of the Belgian federal office of Science Policy (BELSPO) aiming to evaluate different high-resolution 3D digitization techniques. We used a set of case studies representing the needs of digitization in the different federal scientific institutions. We compared the quality of the models (shape and colour texture), the cost of production and requirements of scientists and curators. The evaluation produced guidelines and protocols for the 2D+ focus stacking, for the 3D using photogrammetry, structured light and laser scanner. The combination of those technologies provides technical solutions for many collections to digitize which are now daily used in the framework of the DIGIT-03 program of BELSPO. Collaborating with the European COSCH network and the Synthesys3 FP7 project, we are now working on the possible combination of 3D and multispectral digitization. First results on natural history specimens show the huge potential in term of visible details and of colour accuracy.

3D model of Dame de Bruxelles, Egyptian collections from RMAH, Brussels, Belgium (AGORA3D)

10:20 – 10:45: When the Details Matter: Multi-light, Photometric Stereo and 3D

Hendrik Hameeuw, Ancient Near Eastern Studies, KU Leuven
Antiquity Department, Royal Museums of Art and History, Brussels

3D technologies have emerged and have now been utilised throughout the heritage sector for many years. Their results are hailed all over. The acquisition and dissemination systems have been made user friendly and have accelerated. But what happens when we zoom in on the 3D model, what are the smallest geometric details that are represented? For many research projects, that aspect is crucial. Conservation analyses, art historical interpretations, pattern recognition, … all benefit if the details are not smoothed or decimated away. This presentation focuses on this issue by examining the benefits Multi-light acquisition and Photometric Stereo processing have given in ongoing research projects at the KU Leuven, UC Louvain, RMAH, Jena Universität and Cornell University within the context of Ancient Near Eastern Studies.

11:15 – 11:45: Coffee break (foyer)

11:45 – 12:10: Serious Games in the museum, an overview

Daniel Pletinckx, Visual Dimension bvba, Ename

Real time 3D technology allows to show museum objects in their original environment and to experience that environment. The integration of serious games in museums is a key element in creating understanding and enjoyment of the museum content within the museum walls. This presentation will overview existing implementations in museums and will show new developments that will allow to integrate serious games in an easy way in exhibitions and educational departments, complemented by online resources.

Ename 1288, a serious game with natural interaction, based on serious data (Visual Dimension)

12:10 – 12:35: Re-contextualisation and storytelling

Dries Nollet & Carlotta Capurro, Visual Dimension bvba, Ename

Recent technological developments allow creating new forms of storytelling for museums, going from smart objects to natural interaction. Storytelling and recreating the context of museum objects require also to study the original appearance of these objects and to show their original splendour and function, through digital restoration. This presentation shows how it all fits together.

12:35 – 13:00: izi.TRAVEL as storytelling platform

Arjaan Kunst, izi.TRAVEL, Amsterdam

Open platforms will bring storytelling to a new level. With mobile technology the reach will go beyond the walls of the museum: connect 3D objects with location-based stories to realise a complete and inspiring visitor experience. This presentation will show how a network of connected stories, both in- and outdoor, will enhance the relevance and impact of your collection.

13:00 – 14:00: Sandwich lunch (foyer)

14:00 – 14:30: From Usability to User Experience, challenges for interactive design

Jonathan Huyghe, Centre for User Experience Research (CUO) | iMinds - KU Leuven

While technology has moved at an exponential rate for interactive applications, we are often still stuck with the same ideas about usability we inherited from our 80's and 90's predecessors. How can we move from asking "will people to use this?" to "will people want to use this?". In this presentation we will explore how good UX design can change the way people look at a service, and how this applies to the heritage sector.

14:30 – 15:00: The use of virtual reconstruction in Ename

Daniel Pletinckx, Visual Dimension bvba, Ename

The archaeological site of Ename in Belgium has been excavated for more than 30 years, supported by extensive historical and landscape research. The results of this vast body of research have allowed to create a detailed virtual reconstruction of the evolution of the site and its landscape. This presentation elaborates the methodology and research questions of such a 4D reconstruction, and shows how the results have been used online, on the archaeological site, in the museum and in its new educational department.


TimeScope on the archaeological site of Ename (pam Ename)

15:00 – 15:30: Biographies of Buildings: Exploring 4D modeling and publication

Patricia S. Lulof, Department of Archaeology, University of Amsterdam

The application of 3D modeling during the research into built environments offers new insights and a new approach for analysing data. The many perspectives on the actual building itself (i.e. the spatial context) and the possibility of visualising the architectural phases through time (the '4D' element), makes visual computing an innovative tool for the specialist. When the path that leads to the final reconstruction of the building is thoroughly documented, it generates a vast amount of new data otherwise never encountered. 3D reconstructions offer a virtual world where various kinds of experiments can be conducted by scientists from the Humanities. Consequently, we have to reflect on these methods of digital research and the ways its results can be presented, as well as empirically justified. This presentation centres around architectural case studies from Archaic Italy.
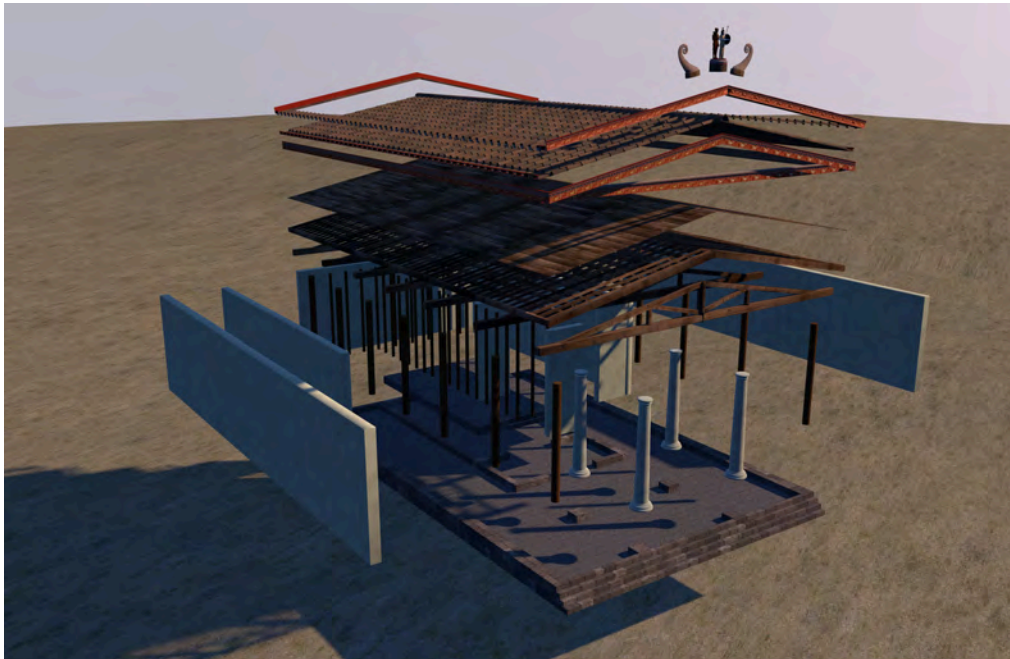
Exploded view of an Archaic temple, Italy (Dept. of Archaeology, UvA)

15:30 – 16:00: Coffee break (foyer)

16:00 – 16:30: Back to the basics: 3D is just a bunch of measures

Marco Callieri, Visual Computing Lab, CNR-ISTI, Pisa

3D data has a double nature: it is (basically) measured scientific data, but can also be "visually" explored and visualized. Too often, however, this visual aspect represents the only use of 3D data in restoration/conservation projects. In this presentation, we will show examples of how we tried, in different real-world cultural heritage projects, to exploit the metric, scientific side of the 3D.

16:30 – 16:45: Closing

Daniel Pletinckx, Visual Dimension bvba, Ename

Friday March 13, 2015 – Workshop (Petra room)

09:30 – 10:30: Digital restoration

Marco Callieri, Visual Computing Lab, CNR-ISTI, Pisa

Detailed discussion of the digital restoration of the Etruscan Sigliano tomb and Luni Temple, with interactive online 3D visualisation of complex 3D digital assets on the 3DHOP platform.
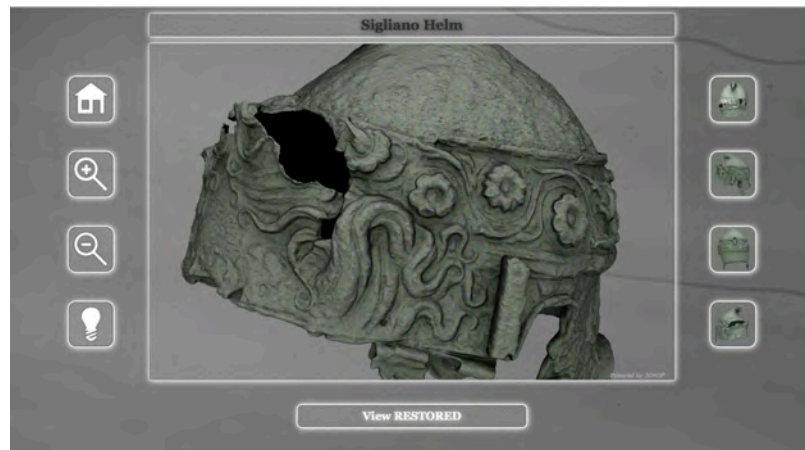
3DHOP visualisation of the Etruscan Sigliano helm (CNR-ISTI)

10:30 – 11:00: Coffee break (foyer)

11:00 - 12:00: Documenting 3D modeling of Etruscan Acquarossa

Maarten Sepers, ACASA - Department of Archaeology, University of Amsterdam

The Etruscan town of Acquarossa revisited: how to collect, document and store complex data when creating virtual reconstructions from archaeological data.

12:00 – 13:00: Ename through eight centuries

Daniel Pletinckx, Visual Dimension bvba, Ename

While reconstructing the evolution of a trade settlement to an abbey village over eight centuries, based upon 30 years of excavation, 70 years of historical study and an on-going project of 18 years of 3D virtual reconstruction, we explain how working in 3D is crucial in our research and documentation. We also explain how we do the 3D virtual reconstruction of historical landscapes in a fully documented way, how we integrate skills and assets from creative industries and how we make all these results available to the research community.

Virtual landscape reconstruction of Ename in 1665 (Visual Dimension)

13:00 – 14:00: Sandwich lunch (foyer)

14:00 – 15:00: Designing Natural Interaction

Dries Nollet, Visual Dimension bvba, Ename

Natural interaction is a key element in integrating serious games into the museum, so that navigation, object selection and object manipulation all can happen through simple hand or body gestures. We show how such a natural interaction interface is designed and how it is made robust for use in education, exhibitions and virtual tours.

15:00 – 15:30: Coffee break (foyer)

15:30 – 16:45: Create your free museum experience in 30 minutes

Team – izi.TRAVEL, Amsterdam

During this session, izi.TRAVEL will cover different aspects of using open platforms for publishing content from museums, employing modern mobile technologies – as well as give a hands-on demonstration on creating high-quality content for mobile audio guides.

Izi.travel app for Thermenmuseum, Heerlen

12-13 March, 2014 – Digital Museum Expo (Foyer)

The V-MusT Digital Museum Expo shows new and innovative ways of using digital technologies in museums, monuments and sites. Most of these technologies have been developed by the V-MusT consortium for the multi-museum exhibition Keys2Rome. In addition, companies and institutions are invited to show their digital heritage activities.

The demonstrations take place during the coffee breaks and lunch break of the colloquium on 12 March, and the full day during the workshops on March 13.

Here is the list of technologies that are demonstrated:

- Augustus di Prima Porta (interactive 3D print of a museum object)

Interactive 3D print of the Augustus di Prima Porta statue (Keys2Rome, Sarajevo)

- Landscape reconstruction (multiple sites in Belgium)

- Ename 1288 (educational 3D game with natural interaction)

- Sarajevo in the 16th century (interactive city model)

- German Imperial Crown, Vienna (interactive museum object)

- **AdMotum** (natural interaction for 11 virtual sites in Netherlands, Italy, Bosnia, Egypt)

AdMotum visualisation of the Early Christian basilica of Cim in the Town Hall of Sarajevo (Keys2Rome)

- Video presentations:

- ARtifact (Mars statue): augmented reality completing a partial statue
- Interactive building model (Ara Pacis): interactive 3D print of a monument
- Spatial Augmented Reality with Natural Interaction: interactive projection of additional information on museum objects

Interactive Spatial Augmented Reality visualisation of a wall painting (Keys2Rome, Rome)

- Poster presentation Agentschap Onroerend Erfgoed

- Demonstrations by Memoire de Patrimoine (Mons)

- History of Virtual Museums: mini exhibition

Registration

This colloquium and workshop is organised by the **Centre for Co-Creative Experiental Design**, the continuation of V-MusT, the European Network of Excellence for Digital and Virtual Museums, managed by Visual Dimension bvba, Oudenaarde, Belgium.

You can register for the colloquium only, for the workshops only, or for both (see registration form). The registration fee for the colloquium and/or workshops is small (50 euro/day) and only covers the cost of the coffee breaks and sandwich lunch. Students pay only 25 euro/day. Please make sure you pay the registration fee in time (see registration form at the V-Must website).

If you want to visit the Digital Museum Expo only, please do register for March 13 (see registration form) but no payment of fee is needed.

How to reach the Royal Museums of Art and History, Brussels, Belgium

The website of the museum can be found here.

Information how to reach the museum can be found here.

Royal Museums of Art and History, Brussels