



Going Beyond 3D Visualization – **Multidimensional Approaches to Cultural Heritage Studies** –

Link to the webinar: <https://uio.zoom.us/j/67909582984>

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ABSTRACTS

Nicolo Dell'Unto (MCH) and **Espen Uleberg** (MCH)
BitFROST

BitFROST will define an infrastructure for creating and using 3D models for supporting multimodal interaction and advanced research. This will be accomplished through creating a synergy between different departments at UiO and by building an international collaboration with the Visual Computing Lab (<http://vcg.isti.cnr.it/>) in Pisa.

Alexis Pantos (MCH)

Reflections on photographic documentation in archaeology

This talk will give an overview of projects undertaken before joining the museum and provide examples of combined 2D and 3D approaches to documentation as well as experimental applications of capture to reflect on where 3D documentation in archaeology. It will provide some examples of practical challenges faced by 3D capture in the sites, but also draw on also on traditional documentation practice to consider where where these technologies may sit within the archaeological toolkit.

Paola Derudas (LU) and **Federico Nurra** (INHA)

AIR: Managing 3D archaeological interactive reports

Through the use of AIR, three-dimensional excavation campaigns contents are published online, dynamically merged and integrated with structured data and other media. AIR allows the management of archaeological investigations data, from documentation up to narrative and editorial elements, to build archaeological interactive reports.

Datasets and data are archived and managed within Omeka S, a Cultural Heritage collections publishing platform focused on data sharing and interoperability.

Letizia Bonelli (MCH) and Espen Uleberg (MCH)
3D at Museum of Cultural History

This presentation will give an overview of 3D documentation and outreach at the Museum of Cultural History, the University of Oslo. It will also present some future perspectives.

The group for Digital Documentation within the department of Collection Management is the centre for this work at the museum. Several methods are used for documenting archaeological sites as well as artefacts of varying sizes and complexity. The selection of objects and methods is decided in collaboration with archaeologists and conservators at the museum.

Erik Kjellman (UMAK)

Digitization at The Arctic University Museum – establishing DigiLAB as a multidisciplinary documentation hub

The Arctic University Museum of Norway, formerly Tromsø Museum, is one of five regional museums in Norway with responsibilities regarding collecting, documenting, and curating our cultural and natural heritage. At our museum, collections and finds have been curated and documented using traditional mediums, such as text and photographs, and stored in semi-public domains. But in recent years, the development of 3d-scanning techniques and dissemination platforms have matured enough to be seriously considered as part of curation and documentation. In addition to this, the current focus on digitization on a national level, have led to an organizational awareness on the issue and the initiation of DigiLab.

DigiLab is the working title for our project on establishing infrastructure and competence in digital documentation of artefacts and objects, both for cultural as well as natural sciences. The aim of this lab is to create and curate datasets that enable us to extend the dissemination of our collections to both the public and researchers beyond physical interaction.

Håkan Thorén (Vasa)

Documentation and maintenance of a 17th century ship

This year it is 60 years since Vasa was salvaged. Vasa is the mighty war ship that sank in Stockholm harbour on its maiden voyage 1628. After 60 years above the surface it has accumulated a lot of information about maintenance, conservation activities, artefact studies etc. A couple of years ago we started a project at the Vasamuseum that was called 3D-Vasa. The project was aimed to find a management tool where we could gather all information and visualize it together with a 3D-model. The project is now finished and the result is called VASABAS, a tool built upon Intrasis with a dynamic database and 3D-GIS capability. The presentation will show how useful the 3D-environment is for presenting and analysing information together with a 3D-model.

Bjarte Aarseth (MCH)

From Micro to Macro

For those who like to see the big things through the small! The 3D scanning offers the opportunity to see the details and stories in the small objects. This presentation

build on 3D-scanning (SLS) of an artefact, a yoke, in Borre style from the Oseberg ship burial. It is part of the ongoing project to document the finds in the collection of the Museum of Cultural History exhibited at the Viking Ship House at Bygdøy.

Marco Callieri (ISTI)

The fountain of Neptune: a 3D-centric restoration system

The talk will describe the design and implementation of the online Information System used during the restoration of the Fountain of Neptune in Bologna, throughout the entire fieldwork. The web-based Information System, accessible directly from within the scaffolding, was used to collect and archive all the data gathered during the analysis of the state of the artwork and the restoration itself, and geo-reference them to the 3D models of the Fountain. The idea was to create a system strongly based on the 3D models, enabling the restorers to organize all the data related to the restoration in a "3D spatial" way, referencing them directly onto the geometry of the Fountain.

Giacomo Landeschi (LU)

3D models and Visual Analysis. Re-viewing the past: examining integrated computational methods to explore visuality and its archaeological meaning

What is the value of visuality in the archaeological discourse? What contribution can computational methods provide to understand the visual qualities of an ancient space? This paper will present some thoughts and reflections drawing upon some recently examined case studies.

Justin Kimball (MCH) and Christian Rødsrud (MCH)

Sieving through voxels: CT-scanning for the survey and reconstruction of the Gjellestad ship

The Gjellestad Ship is poorly preserved—which is common for prehistoric burials that are situated on arable land and subjected to ploughing. Through meticulous work however, we have uncovered much regarding the construction of the ship. In unison with GIS and photogrammetry, we have also utilised CT-scanning as part of our documentation strategy. For this, the project conservator has developed a new means of collecting the ship rivets—allowing for the production of highly detailed 3D models that will form the basis for ship reconstruction. This novel methodology has the potential to impact how we survey, excavate, and reconstruct not only the Gjellestad Ship, but other cultural heritage monuments as well.

Jani Causevic (NIKU)

3D documentation of the Medieval town Oslo – one method many solutions

Photogrammetry was an integral part of the documentation throughout the Follobane–Bispegata project. The presentation will address how photogrammetry allowed to work in a more flexible way on site, and how we used the models afterwards when working on the reports. Finally, the use of the 3D models to present the Medieval city Oslo to the general public will be shown.

Magne Samdal (MCH)

The possibilities within large scale 3D-models for future research

The Museum of Cultural History (MCH) have used drones for nearly 10 years as an important documentation tool. Besides ordinary overview-pictures and videos we are using photogrammetry for making large scale 3D-models for visualizing archaeological sites and surrounding landscapes. But what are the possibilities in this comprehensive material beyond the pure visualization-aspect? Our latest test with the use of drones with multispectral sensors will also be presented.

Erich Nau (NIKU)

The Svea documentation project. Large scale 3D documentation of an arctic mining settlement

Sveagruva has been the largest coalmine on Svalbard and was important for Norwegian presence and sovereignty over the archipelago. The mine was in use since the early 20th century and in 2016 it was decided to permanently cease all mining activities and to restore the entire area to its natural state. NIKU has been commissioned by the owner (Store Norske Spitsbergen Kullkompani) to carry out a large and comprehensive 3D documentation project covering all mining structures above ground. These comprise of more than one hundred single buildings of varying size: from large industrial plants and harbor facilities to residential buildings and ruins from the earliest mining activities. The documentation project was carried out using a combination of Image Based Modelling and 3D laser scanning and the data was collected from the air, terrestrial and from the sea. The purpose of the project is to digitally preserve the entire mining environment for the future and make it available to a wide public. The fieldwork was carried out in summer 2019 and the final processing of the huge amount of collected raw data is still going on. We will present an overview of the work carried out so far and show some preliminary results.

Magnus Tangen (MCH)

First steps towards 3D Rock Art documentation in the BERG-project – Solving an assignment for Riksantikvaren, The Directorate for Cultural Heritage –

BERG is a program for rock art management; conservation, documentation and preparing of rock art sites for the public in Norway.

From 2018 to 2020 BERG initiated 3D rock art documentation through photogrammetry, in the administrative area of The Museum of Cultural History. A rapid increase in new found rock art sites, resulted in a rising need for easier and quicker documentation. Quantity was desired. Starting out with very little experience, we tested the method and found it very efficient and also discovering new images/data in what we thought was well-documented sites. About 200 models were published. This presentation shows the pros and cons of the undertaking, highlighting some of the challenges and solutions.

INHA	Institut national d'histoire de l'art
ISTI	Institute of Information Science and Technologies "Alessandro Faedo"
LU	Department of Archaeology and Ancient History, Lund University
MCH	Museum of Cultural History, University of Oslo
NIKU	Norwegian Institute for Cultural Research
UMAK	The Arctic University Museum of Norway
Vasa	The Vasa Museum



Background motif from Oseberg ship, designed by Bjarte Aarseth (MCH) 2016

This webinar is organised by Research group **INTER-Action**
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INTER-Action
Linking Practice and Defining Methods
in Heritage Studies

<https://www.khm.uio.no/english/research/research-groups/interaction/index.html>