

## WORKSHOPS & ROUND TABLES

All workshops are on Friday 31 May and will run twice. In the morning at 10.00 AM, in the afternoon at 13.30 PM. The workshops are 90 or 120 minutes, the round tables 60 or 90 minutes (unless otherwise specified). Registration will open for ticket holders shortly.

### **W01 Niki Nakagawa**

J. Paul Getty Trust, Los Angeles, CA, USA

#### **The Fine Art Approach of Photographing Ancient Engraved Gems**

Photographing engraved gems can be challenging and prove to be some of the most difficult objects to capture due to their reflective surfaces, intricate textures, and vibrant colors. Join Getty Villa Museum photographer Niki Nakagawa on set as she demonstrates the Villa Imaging Studios macro-photography workflow—from set build, lighting, to final capture, while maintaining the careful balance between accurate cultural heritage imaging and beauty. Niki's practice of innovative lighting techniques has redefined the cross-section of cultural heritage documentation, discovery, and fine art in her practice of revealing each intricate detail of these tiny works of art.

### **W02 Andrew Bruce and Carola van Wijk**

National Gallery, London and Rijksmuseum, Amsterdam

#### **Imaging Paintings in photo-mosaics**

This workshop is led by Andrew Bruce, Photographer at the National Gallery, London, and Carola van Wijk, Collections Photographer - Technical Imaging at the Rijksmuseum, Amsterdam.

Both photographers specialise in the technical imaging of paintings. This workshop will demonstrate the procedures used to capture photo-mosaics and create high resolution composite images of collection paintings. It will cover how to characterize and calibrate camera equipment, how to light paintings, numerical image quality evaluation, and how to stitch and quality assess composite images.

The workshop will discuss the differences and similarities between the equipment and processes used at both institutions to provide participants with a range of ideas and approaches to apply to the photography of paintings.

### **W03 Francien Bossema**

Rijksmuseum, Amsterdam

With contributions of P.J.C. Van Laar, K. Meechan, D. O'Flynn, J. Dyer, T. Van Leeuwen, S. Meijer, E. Hermens and K.J. Batenburg

#### **Visualizing exterior and interior of objects in 3D**

Several 3D imaging methods (i.e. structured light scanning, photogrammetry), image the outside of the object and have been used to record archaeological and museum objects. X-ray Computed Tomography (CT) on the other hand, captures the interior in 3D and can reveal valuable information about the current state of the object, possible restoration treatments and contribute to unravelling the production process and attribution of objects.

A reconstructed CT volume is often represented as a stack of 2D slices but for art objects a 3D representation can be more intuitive and informative. Combining various 3D imaging techniques promises to be a powerful research tool for object-based investigation as well as digitization of

objects. We have developed an open access plugin for 3D visualization tool Blender, that can be used to register 3D surface scans onto the CT volume.

In a next step, an interactive visualization environment is set up to provide the user with an easy way to inspect the different datatypes simultaneously. Tools for making images and videos are included, which are well suited for outreach of museum activities and promotion of research results. We will give a demonstration of the use of the different data types and 3D-visualization tool and then have a hands-on session where you can try it out yourself on a test dataset!

Please note: bring your own laptop. Installation of Blender software is needed for the hands-on part.

#### **W04 Henni van Beek**

Henni van Beek Photography, Amsterdam

##### **Heritage Photography Unraveled. Life after Delta-E**

This workshop will discuss on a practical level the current way of 2D object photography in the cultural heritage sector. The emphasis here will be on color reproduction. It is not the camera only that determines the result; the shooting method must be appropriate to get the maximum out of each camera. Of course, the camera also affects the quality.

Discussed and demonstrated are the systematics behind shooting and monitoring of the capture with several software-camera combinations. Also, cross polarization will be discussed. The museum professional, not being a photographer, will be explained to assess the capture according to a standard like Fadgi or Metamorfoze, etc.

#### **W05 Frans Pegt**

Rijksmuseum, Amsterdam

##### **From 360° to 3D, the road I took to where I am today**

The workshop is for people who have not yet started using these techniques but want to know more about the process.

Frans Pegt will show 360-degree photography and explain the basics of 3D scanning and photogrammetry and what the differences are, as well as examples of final results and how they are applied.

#### **W06 John Barrett, and Jorge Cano**

University of Oxford and Factum Foundation

##### **Photometric stereo. Creating highly efficient 3D and color recordings from low-relief originals**

This workshop will demonstrate the photometric stereo recording technology which has been used extensively, for the last two years at The University of Oxford's Bodleian Libraries. Conceived by Jorge Cano for Factum Foundation, the Selene Photometric Stereo Scanner, is a recording system capable of simultaneously recording high-resolution 3D and color data. Taking only seconds to capture and process, and producing relatively small file sizes, photometric stereo has enormous potential for the digitization of cultural heritage collections material.

**W07 Annette T. Keller**

artIMAGING / Phase One

**Automated Multispectral Imaging**

Multi Spectral Imaging, including both Multiband and Narrowband illumination, has been studied in an automated and standardized workflow by high level colorimetry and high-resolution data delivery based on a 16-bit 150MP CMOS sensor. Covering all relevant parameters including precise focus across the spectrum, precise image alignment, flat field calibration and exposure compensation, the results, based on reflectance and photo-induced luminescence images, can be analyzed in the same software for statistical analysis as well as for spectral readout on 16 bands delivering accurate spectral information. A surface investigation method is now connecting by data delivery to scientific analysis and measurement.

In this workshop, we will discuss the basics of multi spectral imaging and present a fully automated workflow that delivers perfect image stacks ready for subsequent analysis, whether in the studio or on location. We will run through the analysis steps and show how visual images can deliver scientifically valid data for research and investigation. We will present case studies showing what can be achieved using this method for investigating text, artworks and artefacts.

**W08 Megan Dattoria and Jamie Cope**

Smithsonian Institution, Washington DC, USA

**Immersive Narratives: Best Practices for 3D Storytelling**

Virtual 3D spaces provide new and exciting opportunities for digital storytelling that break through many limitations of traditional linear 2D narratives, but this arena can be a difficult jump for cultural heritage storytellers used to the confines of a gallery space.

This workshop will focus on best practices for 3D storytelling based on the Smithsonian Digitization Program Office's experiences creating hundreds of interactive stories. This will include both good and bad examples of these principles as well as a hands-on walkthrough of creating your own story using Voyager, the Smithsonian's open platform.

**W09 Liselore Tissen**

Leiden University / TU / KNAW, The Netherlands

**Responsible Extended Reality (XR) Workshop**

Extended Reality (XR) encompasses augmented reality, virtual reality, and mixed reality, and is reshaping how users, scholars, and cultural heritage institutions engage with the world and interpret objects. XR has been applied for various purposes (like exhibition design, research, education, and collection care), and has shown its potential in addressing complex issues like (repatriation, restitution, inclusion, and accessibility of collections). However, the journey into XR is not without challenges. Questions arise about the ethical considerations in digitizing objects, the right technology to respect an object's authenticity, data ownership, and the broader societal implications of making cultural heritage accessible in digital spaces. Moreover, prolonged immersion in these alternate realities has potential physical and psychological effects. Recognizing the depth and breadth of these considerations, Liselore Tissen (Leiden University, TU Delft & The Royal Netherlands Academy of Arts and Sciences) has teamed up with SURF to develop a workshop that delves into XR's multifaceted ethical and technological aspects. Participants will have hands-on experiences with various types of cultural heritage and different case studies through VR, ensuring a comprehensive, immersive, and practical exploration of the topic.

**W10 Michael Tetzlaff and Charles Walbridge**

University of Wisconsin – Stout and Minneapolis Institute of Art, USA

**Capturing specularity with Kintsugi 3D and camera-mounted flash**

In 2023, the University of Wisconsin - Stout, Minneapolis Institute of Art (Mia), and Cultural Heritage Imaging (CHI) received an NEH Preservation and Access R&D grant to develop software and a workflow, leveraging camera-mounted flash, to achieve better color appearance reproduction for 3D photogrammetry, including metallicity and specularity. The result is a new open-source software platform called Kintsugi 3D. In this workshop, we demonstrate how to use Kintsugi 3D Builder to build empirically-based textures and materials from photographs taken with camera-mounted flash. We discuss how to calibrate textures to represent physical light reflectance using a ColorChecker. We also show how to calibrate a digital model of the camera-mounted flash to mask out shadows. Finally, we demonstrate how a specular model derived from source photographs in Kintsugi 3D Builder prevents highlights from being baked into the diffuse map and avoids the need to “fake” specularity with specular maps created by hand. The workshop will conclude with a discussion of the ways the results from Kintsugi 3D Builder can be used, including existing platforms like Sketchfab as well as Kintsugi 3D Viewer, which offers a custom specular model with better appearance accuracy than the “PBR” model used by Sketchfab and similar platforms.

Please note: bring your laptop for hands-on experience with the software.

**ROUND TABLES****RT01 Thomas Flynn**

Digital heritage consultant

**Co-creating a Snapshot of Spatial Heritage Today.**

With so many experts in the same place, let’s take the time to take stock of the present while looking to the future!

You are invited to contribute to a facilitated roundtable conversation exploring the 'state of 3D' in the cultural sector today. The session will seek to identify existing needs and challenges related to 3D digitisation and publishing, as well as opportunities that might enable a more sustainable and effective future for the medium in the sector.

Depending on attendee interest on the day, topics of discussion may include data standards & interoperability, licensing & open access, data post-production, reaching new audiences, cross-organisation digitisation initiatives, crowdsourcing, emerging visualization formats, DAM system 3D support, & more.

The session is intended to help attendees gain a "bird's eye view" of how 3D is being used today, share practical knowledge and experience, and bring together like-minded professionals around topics of interest.

**RT02 Tony Nathan**

Studio Oppa, Rotterdam

**Visualizing Color Profiles in Digitization and Printing**

A brief introduction to visualizing what happens when digital files change their profiles or color space. This presentation is perfect for attendees who want to know more about profiles and color spaces, Tony provides a useful way of visualizing color gamuts in 3D and shows what happen when changes to profiles and color spaces are made. Practical examples are used to show consequences of color transitions and differences when using various rendering intents.

**RT03 Iris Labeur and Jarrod Gingrass**

Application manager DAM, Rijksmuseum, Amsterdam and Real Story Group

**The Right (and Wrong) Way to Select Your Next DAM System**

Let's discuss the right (and wrong) way to select Digital Asset Management technology! Whether if you are selecting technology to help you manage your digital assets for the first time or the fifth time, in this roundtable, we'll discuss best practices to follow and pitfalls to avoid.

**RT04 Richard Palmer**

Victoria & Albert Museum, London, UK

Hallucinating authenticity - Developments in generative AI imagery and the provenance of images

The last few years have seen widely-publicized developments in large language models (LLM) which allow for the querying and generation of text, alongside techniques such as generative adversarial networks (GAN) for the generation of images, audio and video. These have brought about a range of opportunities for their use, but equally a range of concerns around the origin of the training data used to create these models, the quality of their output and their potential impact on society unable to identify what is or isn't an AI creation.

For the cultural heritage sector, questions over the veracity and provenance of imagery are not new questions, but the speed of these developments and the ease at which images can now be created does bring up new issues: how does an institution prove the images it provides (and, for born-digital objects, acquires) have not been altered since their creation and how can someone verify this claim. Standards such as C2PA for this purpose are under development, coming from media and technology organizations such as the BBC, Microsoft, Adobe et al, to add digital provenance metadata to images at the point of creation, but do not yet have a wide take-up.

In this roundtable we will discuss the potential impact of generative AI, how it is being used in cultural heritage organizations and how it might be used in the future, and to look at standards such as C2PA and how they may be implemented in an organization.