2+3D Photography

Practice and Prophecies

15 & 16 April 2015

RIJKSMUSEUM

Amsterdam

RIJKS MUSEUM

Official Partner HASSELBLAD

Contents

Welcome

In the next two days 220 representatives from 20 countries will be convening here in the Rijksmuseum to discuss the state of affairs on Practice and Prophecies in 2 and 3D photography in the world of national heritage. Where are we now and where are we going? Which decisions can we make collectively to qualitatively secure the work we do now for the future?

This conference has come about thanks to the advice and support of the members of the Program committee and the Advisory board. A special word of gratitude goes out to the Association For Historical And Fine Art Photography (AHFAP), who has been gracious enough to allow us to use their contact files, knowledge and experience. Final thanks goes to our partner Hasselblad, whose generous contribution has enabled us to organize these two days.

Furthermore, this conference would not be possible without the efforts made by all the volunteers who are at your disposal throughout the conference.

We hope that this conference is the first of a biennial event for the photography professional in world of national heritage.

We wish you all an inspiring conference! Strengthen your network, gather knowledge, and enjoy these two days, which may even turn out to be three!

2and3D Photography – Practice and Propecies

Organizing committee

Cecile van der Harten

Sandra Plukker

Program committee:

Cecile van der Harten, Head Image Department, Rijksmuseum

Robert Gillese, Senior consultant ICT and Cultural Heritage , The DEN Foundation

Wim Hupperetz, Director, Allard Pierson Museum

Tim Zaman, PhD Researcher on Photothermal Tomography, Technical University Delft

Carola van Wijk, Photographer, representing Rijksmuseum photography staff

Advisory board:

Tony Harris, Digital Media & Photography Officer at Government Art Collection and Chair of AHFAP

Barbara Bridgers, General Manager for Imaging, Metropolitan Museum of Art

Scott Geffert, Senior Imaging Systems Manager, Metropolitan Museum of Art and President at ImagingEtc.com

Stanley Smith, Head of Collection Information and Access, J. Paul Getty Museum

James Stevenson, Director, Cultural Heritage Digitisation Ltd

Practical Information

The main venue of the 2+3D Photography - Practice & Prophecies conference is the Rijksmuseum in Amsterdam, Museumstraat 1.

Location - lectures

All the lectures are held in the Auditorium, accessible via the south-east side of the Atrium.

Location - workshops

The workshops are located in all over the Rijksmuseum campus. See page 7 for a map. There is a 15 minute break between the workshops to get from one location to the other. Guides are available to show the way. Please stay with your guide as some areas are not accessible.

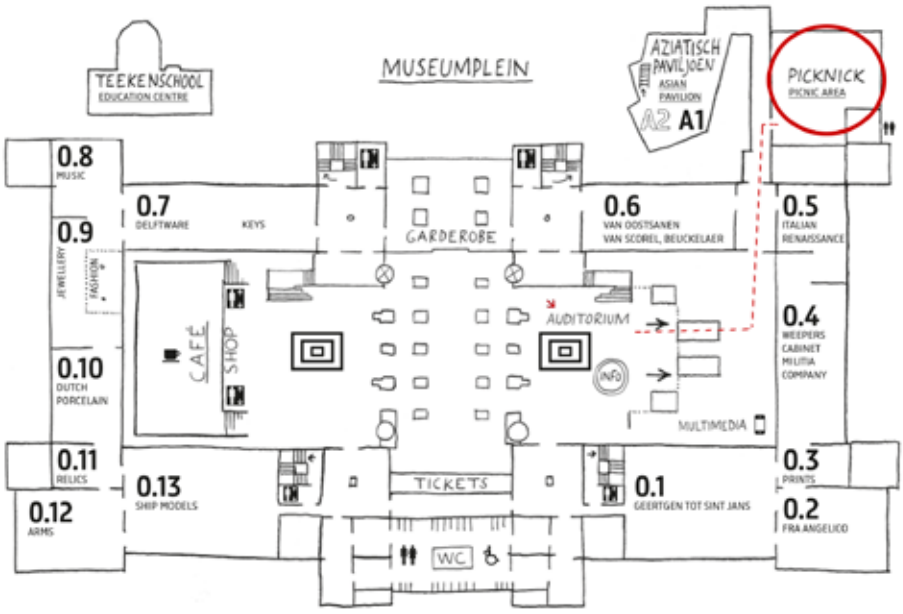
Information market

The information market is located in the Foyer in front of the Auditorium. For a list of companies represented see page 46.

Food & Drinks

Coffee and tea is served in the Foyer in front of the Auditorium. Lunch is served in both the Foyer and in the Picknick area. The Picknick area is recommended if you would like to sit or have a more quiet environment for a conversation.

Please don't bring food & drinks into the Auditiorium itself or any of the museum galleries.



Visiting the Museum

During the conference and on Friday the 17th, your conference badge gives you free admittance to the galleries of the museum (excluding the Late Rembrandt exhibition). If you would like to visit The Late Rembrandt exhibition, you can purchase a supplement ticket –either on line or at the ticket desk in the Atrium.

Please keep your conference badge visible at all times during your visit.

Program Wednesday April 15

08.15-09.00	*Registration – tea and coffee*	*Plenair Atrium and Foyer*
09.00-09.10	Cecile van der Harten, Head Image Department, Rijksmuseum - *Welcome and introduction*	
09.10-09.30	Taco Dibbets, Director of Collections, Rijksmuseum - *Opening*	
09.30-10.00	1.01 Jan de Bont, Cinematographer, Director, Producer, Collector - *Keynote speech*	
10.00-10.30	1.02 Bianca du Mortier, Curator of Costume, Rijksmuseum - *The importance of object-based photography or, How the Rijksmuseum photographers opened up a curator's collection*	
10.30-11.00	1.03 Tim Zaman, PhD Researcher, TU Delft - *The Future Photographer: Artist or Scientist?*	
11.00-11.45	*Coffee/tea and information market*	*Plenair Foyer*
11.45-12.15	1.04 Robert Erdmann, Senior Scientist, Rijksmuseum - *A New View: Advanced Visualization for Art History and Art Conservation*	
12.15-12.45	1.05 Günter Waibel, Director, Digitization Program Office, Smithsonian Institution - *Smithsonian x 2d: moving cost-efficient rapid digitization pipelines from prototype to production*	
12.45-13.45	*Lunch and information market*	*Plenair Foyer and Picknick area*
	Lectures *Auditorium*	Workshops *multiple locations*
13.45-14.15	1.06 Nick Poole, Chief Executive, Collections Trust - *The digitisation machine – building photography into practice*	14.00-14.45 Workshop *(see workshop program on page 6)*
14.15-14.45	1.07 Marianne Peereboom, Project Manager IT, Van Gogh Museum - *Digital Asset Management for Everybody: Think Big and Act Small*	
14.45-15.15	1.08 Stephanie Schnörr, Coördinator Digital Collections, Naturalis - *Digitizing a huge collection in a digital street*	15.00-15.45 Workshop *(see workshop program on page 6)*
15.15-15.45	1.09 Barbara Bridgers, General Manager for Imaging and Scott Geffert, Senior Imaging Systems Manager, Metropolitan Museum - *Looking* back and f*orward*	
15.45 -16.30	*Coffee/tea and information market*	*Plenair Foyer*
16.30-16.45	1.10 Tony Harris, Digital Media & Photography Officer, Government Art Collection (GAC) and Chair, Association for Historical and Fine Art Photography (AHFAP) - *The AHFAP story – building UK cultural heritage imaging knowledge nodes*	
16.45-17.30	1.11 Adam Lowe, Director, Factum Arte - *De-materialising and Re-materialising – tone and form in harmony.*	
17.30-17.40	1.12 Cecile van der Harten, Head Image Department, Rijksmuseum - *Closure*	
17.45-19.30	*Canal cruise with drinks*	

Program Thursday April 16

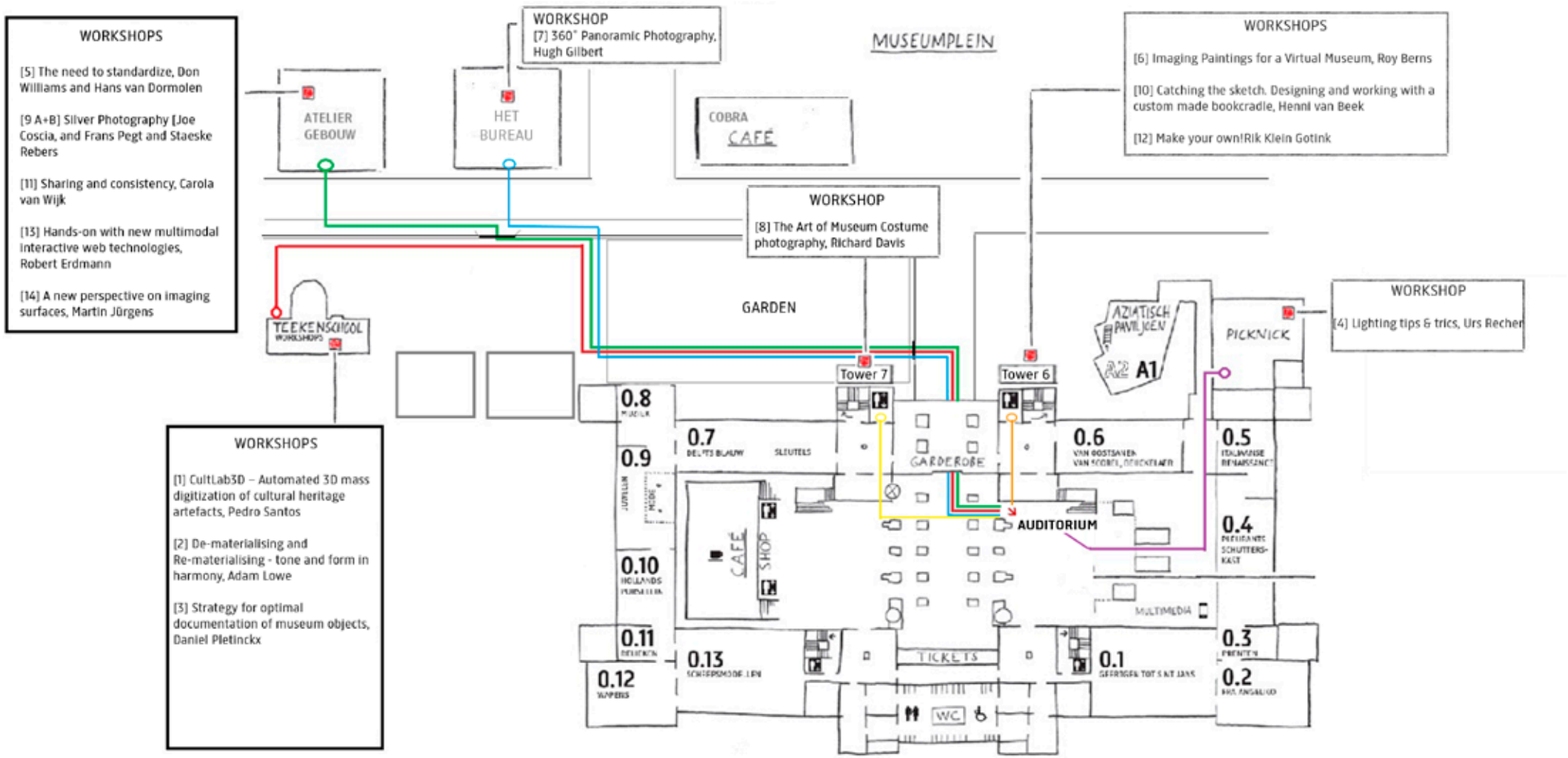
08.30-09.00	*Coffee/tea*	*Plenair Foyer*
09.00-09.05	Cecile van der Harten, Head Image Department, Rijksmuseum - *Opening*	
09.05-09.45	**2.01** Roy Berns, Professor, Center of Imaging Sciences - *Scientific Imaging of Cultural Heritage: Minimizing visual editing and relighting*	
09.45-10.15	**2.02** Scott Geffert, Senior Imaging Systems Manager, Metropolitan Museum - *Accuracy and standardisation in sharpness and color*	
10.15-10.45	**2.03** Marzia Niccolai, Technical Program Manager, Google Cultural Institute - *Accessibility of 3D objects*	
10.45-11.30	*Coffee/tea and information market*	*Plenair Foyer*
11.30-12.00	**2.04** Pedro Santos, Head of Competence Center Cultural Heritage Digitization, Fraunhofer IGD - *CultLab3D – Automated 3D mass digitization of cultural heritage artefacts*	
12.00-12.30	**2.05** Vincent Rossi, 3D Program Officer, Smithonian Institution - *Smithsonian X 3D: The tale of a 168-year-old institution, laser-scanners, and 3D printers*	
12.30-13.30	*Lunch and information market*	*Plenair Foyer and Picknick area*
	Lectures *Auditorium*	Workshops *multiple locations*
13.30-14.15	**2.06** Bernard Frischer, Professor, Indiana University - *3D Modeling of Monuments: Recent Work of the Virtual World Heritage Laboratory*	13.45-14.30 Workshop *(see workshop program on page 6)*
14.15-14.45	**2.07** Sarah Saunders, Electric Lane; *2D or 3D - stick the label to the image How to create and use standards for embedded metadata*	
14.45-15.30	**2.08** Alonzo Addison, Co-Chair, Digital Heritage Federation - *Capture, Compute, Curate - the opportunities and challenges of digital heritage*	14.45-15.30 Workshop *(see workshop program on page 6)*
15.30-16.15	*Coffee/tea and information market*	*Plenair Foyer*
16.15-17.30	**2.10** Introduction Amsterdam principles - Cecile van der Harten, Head Image Department, Rijksmuseum	
	Forum; Chair: Nick Poole	
	Presentation Amsterdam principles & closure	
17.30-19.00	*Drinks*	*Plenair Foyer*
20.00	*Dinner* (optional, not included in entrance fee)	De IJ-kantine, MT. Ondinaweg 15-17 (NDSM werf) Amsterdam

2+3D PHOTOGRAPHY PRACTICE AND PROPHECIES

Overview Workshops

		Location
1	CultLab3D – Automated 3D mass digitization of cultural heritage artefacts [Pedro Santos, Fraunhofer IGD]	Teekenschool Workshop area
2	De-materialising and Re-materialising - tone and form in harmony [Adam Lowe, Factum Arte]	Teekenschool Medialab II
3	Strategy for optimal documentation of museum objects [Daniel Pletinckx, Visual Dimension]	Teekenschool Medialab I
4	Lighting tips & trics [Urs Recher, Broncolor]	Main building Picknick Area
5	The need to standardize [Don Williams and Hans van Dormolen]	Atelier Building Meeting room B
6	Imaging Paintings for a Virtual Museum [Roy Berns]	Main building Tower 6 –Studio Image dept
7	360° Panoramic Photography [Hugh Gilbert, Photography for Artists]	Het Bureau Main Meeting room BG
8	The Art of Museum Costume photography [Richard Davis, V&A]	Main building Tower 7 studio
9 A	Silver Photography [Joe Coscia, Metropolitan Museum]	Atelier Building Studio -1
9 B	Silver Photography [Frans Pegt and Staeske Rebers, Rijksmuseum]	Atelier Building Studio -1
10	Catching the sketch. Designing and working with a custom made bookcradle [Henni van Beek, Rijksmuseum]	Main building Tower 6 Studio PK Online
11	Sharing and consistency [Carola van Wijk, Rijksmuseum]	Atelier Building Meeting room A
12	Make your own! [Rik Klein Gotink, Rijksmuseum]	Main building Tower 6 offices
13	Hands-on with several new multimodal interactive web technologies for image exploration [Robert Erdmann, Rijksmuseum]	Atelier Building Meeting Room C
14	A new perspective on imaging surfaces: the use of Micro Reflectance Transformation Imaging to examine surface topography [Martin Jürgens, Rijksmuseum]	Atelier Building Paper Atelier

Floor Plan



If you have a transfer, please follow your guide!

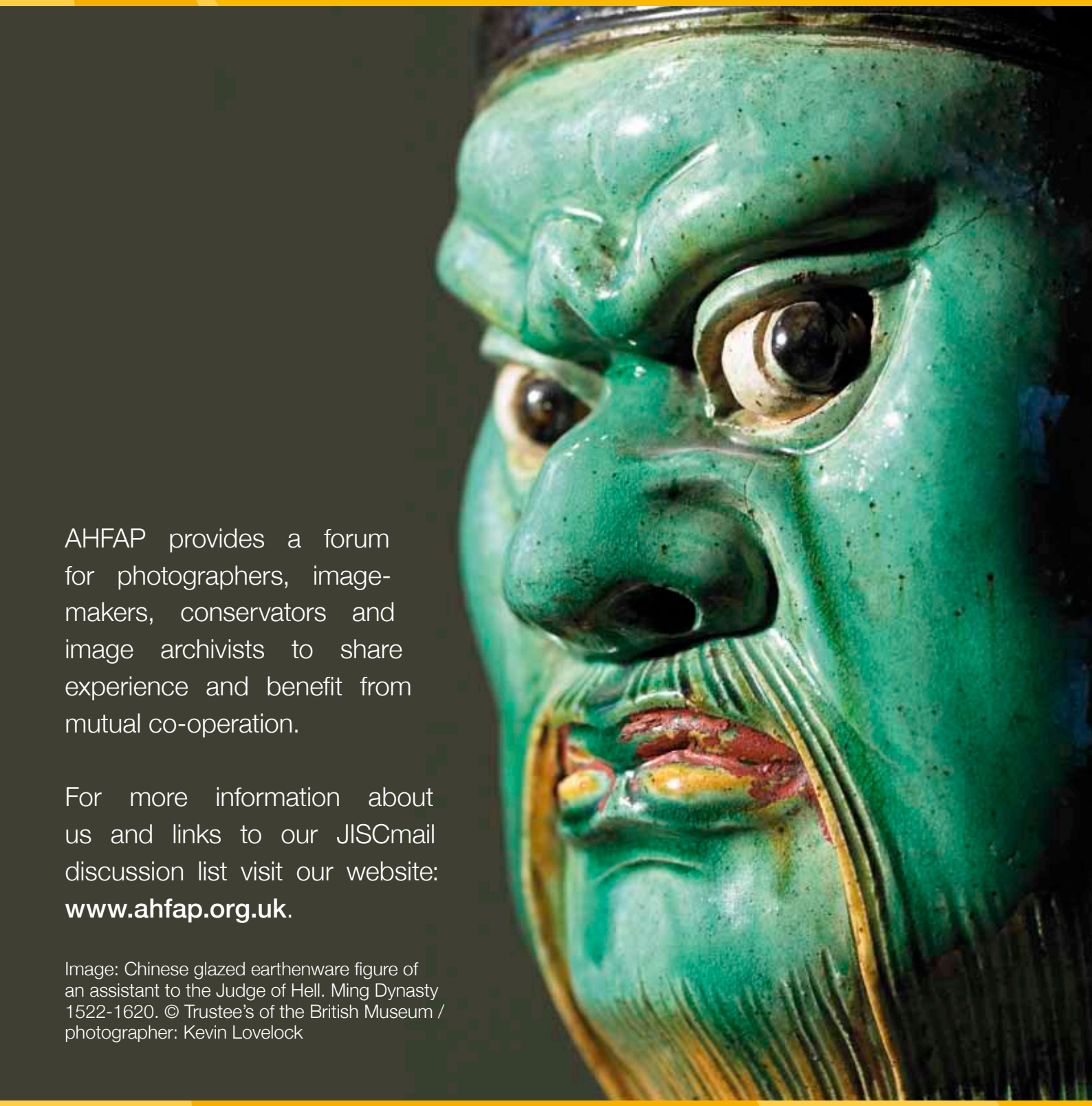
MASTERS OF PHOTOGRAPHY

Hasselblad H5D-50c Multi-Shot

HASSELBLAD

Association for Historical and Fine Art Photography

…for cultural heritage imaging professionals in the UK & Ireland



AHFAP provides a forum for photographers, image-makers, conservators and image archivists to share experience and benefit from mutual co-operation.

For more information about us and links to our JISCmail discussion list visit our website: **www.ahfap.org.uk**.

Image: Chinese glazed earthenware figure of an assistant to the Judge of Hell. Ming Dynasty 1522-1620. © Trustee's of the British Museum / photographer: Kevin Lovelock

Apply for membership at **www.ahfap.org.uk**

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Lectures - Day 1

1.01

Jan de Bont

Cinematographer, director, producer, collector, Los Angeles

Wednesday April 15, 09.30 -10.00, Auditorium

Born in Eindhoven, The Netherlands in 1943, Jan de Bont has been fascinated by new forms of photography and film since childhood when he started experimenting with both media at the age of 10. After completing his studies at the Film Academy in Amsterdam, his first love was film which led to a long career in the film industry. He was the cinematographer for many television documentaries (predominantly about art and music), and he also worked on very successful Dutch films such as Turkish Delight, Keetje Tippel, and Max Havelaar.

In search of new challenges, he moved to Hollywood, California where he worked as a director of photography on a long list of films that includes Diehard, The Hunt for Red October, Black Rain, and Lethal Weapon. His directorial debut was with the big international hit movie Speed. He also directed Twister and The Haunting etc.

Photography has never disappeared from his life. He started collecting photographs in the mid-seventies with one goal in mind, to create an in-depth collection of the best prints of works from his favorite photographers. His collection is almost evenly divided between European and American photographers from the start of the 20th Century. His favorites include Edward Weston, Edward Steichen, Jaromir Funke, Frantisek Drtikol, Josef Sudek, André Kertesz, Man Ray, Dorothea Lang, Rudolf Koppitz, Robert Frank, Ray Metzker, Harry Callahan, Manuel Álvarez Bravo, Otto Steinert, as well as a long list of contemporary photographers. Jan de Bont is head of the Getty photo council and has supported the photo collections of several other museums.

A private collectors point of view on preservation and conservation

Keynote speech

1.02

Bianca du Mortier
Curator of Costume, Rijksmuseum, Amsterdam
Wednesday April 15, 10.00 – 10.30, Auditorium

Bianca M. du Mortier, MA started in 1980 as Curator of Costume in the Rijksmuseum. As costume & fashion require a special kind of photography, from the 1990's we have worked with Maarten Spruyt (stylist & exhibition designer) for various publications. He introduced Dutch photographers Tom van Heel, Viviane Sassen and Koen Hauser to the museum. For editorials and external photo shoots we worked with Victor Bergen-Henegouwen, Miep Jukkema (1954–2012) and set designer Ben van Os (1944–2012).
In 2007 some 250 accessories were photographed by the team of Rijksmuseum photographers for the 2008 web exhibition 'Accessorize! 250 Objects of Fashion & Desire' (design Joost van Grinsven) which won the 2008 Dutch Design Award, largely because of the outstanding images. For the past two years the Rijksmuseum photographers and du Mortier have been working together on the upcoming book on the Costume Collection.

The importance of object-based photography
or, How the Rijksmuseum photographers opened up a curator's collection

In 2006 Frans Pegt, Rik Klein Gotink and I started with the digital photography of the c. 4.000 accessories in the Rijksmuseum collection. The quality of the pictures set a new standard in the Netherlands and during the first year the desire to open this 'treasure trove' up to the general public grew. What better way than to attract attention than to make a customized web exhibition, which would operate separate from the Rijksmuseum website. The standardized pictures – against a grey background – aimed at scientific research and reference were considered not attractive enough for the 'Accessorize! 250 Objects of Fashion & Desire' a different format – with the objects on a shiny black surface – was designed in cooperation with graphic designer Joost van Grinsven. During this project it became clear that the new digital techniques allowed us – especially the curator and restorers – to explore the objects from 'within'. The digital size of the photographs made it possible to zoom into the smallest corners, the fabric, the embroidery, the techniques used etc.etc. The images literally became eye openers and revealed secrets that had been hidden for ages.

As we started to work on the images of the costumes in the collection – which are primarily shot by Carola van Wijk and Frans Pegt – it was decided that this would form the basis for a book (to be published) with a selection of c. 100 highlights from the collection. This time the standard grey background was maintained – for pragmatic reasons – but the number of photographs taken of each item would be increased (front, back, side and several details). The latter allows the curator and restorers, as well as the general public and researchers later to 'delve' once again into the materiality of the objects. The presentation will illustrate the importance of this new technology and how it has led to new discoveries and better understanding of many of the costumes and accessories. I have been curator of costume at the Rijksmuseum for the past 35 years and most of the above objects had passed through my hands many times, yet if it had not been for these new possibilities and experienced photographers many a detail or aspect would not have surfaced!

1.03

Tim Zaman
PhD Researcher at Quantitative Imaging Group
Delft University of Technology, Delft

Wednesday April 15, 10.30 – 11.00, Auditorium

Tim Zaman grew up with his family's business in the digitization of cultural heritage. The love for cultural heritage and the curiosity for imaging and computer vision is deeply rooted. Throughout his education, he has focussed on imaging and automation and obtained a masters of science degree in biorobotics. He is currently a PhD researcher at the Delft University of Technology (NL), where he develops imaging devices for cultural heritage. He has since developed hardware and software that speed-up, improve or expand what technology has to offer to cultural heritage.

The Future Photographer: Artist or Scientist?

The evolution of the digitization of cultural heritage has been very progressive the past decade. The digital camera, digital storage and the database have unlocked almost unlimited possibilities for the ways we conserve our cultural heritage. We want to digitize more, better and faster. It is clear that the unlimited amount of possibilities for digitizing one single object can not all be employed. Ideally you want only one image that grasps the entire object. These possibilities need to be managed; they need to be standardized. Standardization calls for standards, standards call for guidelines, guidelines call for unambiguous instructions. The difficulty lies in the fact that the relevant objects are obviously non-standard. Moreover, the standards and guidelines themselves are not standardized, there exist multiple that are all different. For the photographer, a picture raises a thousand questions. What imaging device should I use, what lighting, camera, lens or guideline? Can it be captured at all, and should I improvise or develop something new? The answers to these questions can only be answered with a thorough in-depth understanding and experience with all imaging devices, whatever the dimension. Therefore, this is knowledge that any future photographer needs to have. This calls for scientific photographers or creative scientists. How do we entirely grasp objects of human emotion with science and rationalism?

1.04

Rob Erdmann

Senior Scientist, Rijksmuseum, Amsterdam

Wednesday April 15, 11.45 – 12.15, Auditorium

Prior to earning his Ph.D. from the University of Arizona in 2006, Prof. Erdmann started a science and engineering software company and worked extensively on solidification and multiscale transport modeling at Sandia National Laboratories. He subsequently joined the faculty at the University of Arizona in the Program in Applied Mathematics and the Department of Materials Science and Engineering as Assistant Professor and then Associate Professor on multiscale modeling and image processing. In 2014, he moved to Amsterdam to become Senior Scientist at the Rijksmuseum and Professor at the University of Amsterdam.

A New View: Advanced Visualization for Art History and Art Conservation

By combining very high resolution digital photographs, infrared photographs, infrared reflectograms, x-radiographs, raking-light photographs, and other imagery using novel techniques into a single multi-modal dataset for an art object, we are at risk of drowning in a sea of data. Through the design of several new interactive visualization techniques, we arrive at an intuitive and powerful system for exploring artworks and their secrets deeply. Ongoing projects from the Rijksmuseum, the Bosch Research and Conservation Project, the Museum of Modern Art, The Art Institute of Chicago, and the Van Gogh Museum provide several examples of the new approach.

1.05

Günter Waibel
Director, Digitization Program Office
Smithsonian Institution, Washington DC

Wednesday April 15, 12.15 – 12.45, Auditorium

Günter joined the Smithsonian Institution in December 2010 as Director of the Digitization Program Office, where he oversees policy and strategy for digitizing and managing Smithsonian assets, and the implementation of the strategic plan "Creating a Digital Smithsonian." A particular focus of the Digitization Program Office is to scale up throughput of digitization at the Smithsonian, as well as the implementation of cutting-edge gigapixel and 3D capture technologies. Günter is a past board member of the Museum Computer Network (MCN) (2003–2009) and the Association of American Museum's (AAM) Media & Technology Committee (2004–2007). He has taught as adjunct faculty in the School of Information Studies at Syracuse University, New York (2004–2008), and the School of Library and Information Science at Catholic University of America, Washington DC (2010). He has an MA in English Literature from Georgetown University. Smithsonian X 2D: Moving cost-efficient rapid digitization pipelines from prototype to production.

Smithsonian X 2D: Moving cost-efficient rapid digitization pipelines from prototype to production

With 139 million objects and specimens housed in 41 facilities, the scale and diversity of Smithsonian collections presents a unique digitization challenge. The Smithsonian's Digitization Program Office tackles this challenge through a series of pilot projects which aim to establish high-quality, high-throughput digitization methodologies for different collection types, and familiarize staff at our 19 museums with the discipline require for rapid capture. Run as open house to inspire the entire Smithsonian community, these prototypes have focused on flat materials such as glass-plate negatives, photographic materials, historic paper-currency, and now are shifting towards rapid photography of three-dimensional collection objects such as pottery and insects. Moving from pilot to production projects, the Digitization Program Office is implementing the first conveyor-belt digitization system, capturing 260,000 pieces of historic paper currency in four months. In addition, a digitization project to capture the entire collection of the Cooper Hewitt Smithsonian National Design Museum is currently underway.

1.06

Nick Poole
Chief Executive, Collections Trust, London
Wednesday April 15, 13.45 – 14.15, Auditorium

Nick Poole is the Chief Executive of the Collections Trust, the UK-based professional association for people working in collections management. Prior to this role, Nick was a senior policy adviser to the Museums, Archives and Libraries Council, where he delivered programmes relating to participation, cultural services and new technology. Nick is the former UK representative to the European Member States Expert Group on Digitisation and Chairs the Europeana Network, a cross-industry network of more than 1000 creative, cultural and technology partners. He is responsible for a portfolio of digitisation and content programmes worth more than EUR20m. Nick studied languages and historical linguistics at Cambridge University, History and Philosophy of Science at Birkbeck College, London and Fine Art and Illustration at Central College, London.

The digitisation machine – building photography into practice

Europe's museums, galleries, archives and libraries contain many millions of specimen and artefacts, miles of shelving and countless books, maps and other heritage materials. Collectively, it is the defining challenge of our generation to shift this analogue material into digital format so that it can continue to be discovered, used and enjoyed by future generations. The experience of the past 10 years of large-scale programmes has been that it cannot scale to use private or taxpayer investment simply to try and 'digitise everything'. Instead, our cultural heritage organisations must internalise this format-shifting and ongoing management of digital assets into their core, daily work. This presents a variety of technical, organisational, financial and strategic challenges. Organisation that were constructed in a previous century to deliver a specific kind of cultural experience now find themselves challenged to serve an ever-expanding range of audiences across a variety of different platforms. 'Digitisation' is not simply a process of conversion from one format to another. It involves selection, learning, planning and coordination. It shines new light on the collection itself, as well as opening up new opportunities to engage the wider public. The process of embedding sustainable long-term approaches to digitisation is therefore as much a question of culture change as it is selecting scanners and metadata formats.

In this presentation, Collections Trust CEO Nick Poole will reflect on 20 years of supporting large-scale digitisation programmes in museums, archives and libraries. Drawing on the experience of the international SPECTRUM Collections Management standard as well as the popular new SPECTRUM Digital Asset Management, Nick will look at the ways in which heritage institutions are embedding photography and scanning at different points on the cycle of collections acquisition, management, care and use. He will address questions relating to quality standards in digitisation as well as the Collections Trust's current research into different models for income generation from digital assets. Finally, he will address the ways in which different heritage organisations are approaching the question of rights and licensing to support their organisational mission and meet different audience expectations. This presentation is part of the Collections Trust's Going Digital programme – a 2 year 'back to basics' initiative to support museums in making more effective use of IT in their daily work.

For more information, visit: www.collectionstrust.org.uk/going-digital

1.07

Marianne Peereboom

Project Manager IT, Van Gogh Museum, Amsterdam

Wednesday April 15, 14.15 – 14.45, Auditorium

Marianne Peereboom is project manager at the Van Gogh Museum. From 2006 to 2010 her mission was to develop standards based digital imaging in the Van Gogh Museum. With her team she established an in-house photo studio that has been fully operational since 2009 and is compliant with the Metamorfoze Standards and ICC color management.

Digital Asset Management for Everybody: Think Big and Act Small

Van Gogh Museum has recently implemented a Digital Asset Management System. This system is linked to the Collection Information System (Adlib), from which it derives a subset of metadata of all museum and library objects. Those metadata are automatically inherited by all assets connected to an object. The VGM uses the DAM System for all collection-related information, not only the high quality ("preferred") images from the photo studio but also historical images, technical photography such as X-ray, raking light, UV or microscopic images, educational, marketing and commercial materials, etc. This means that the system needs to be configured to deal with a lot of different formats and types of content and that quality assurance is an important and ongoing concern.

Therefore, the migration phase is 'micro-managed' in consecutive phases, each focusing in detail on a particular type of assets and combining development of procedures with training and support of the staff members responsible for this type of assets. Contrary to a lot of software implementations, where the project typically ends after the system has gone 'live' and is handed over to the organization, the Van Gogh Museum's DAM will go live as soon as the photo studio assets have been ingested, but the project will continue with a closely monitored and guided migration phase, to ensure the quality of the system, develop procedures and ensure that staff have the necessary skills to use the system in accordance with the established standards and procedures.

This presentation will focus not on the technical but on the organizational implications of the introduction of Digital Management System and give some practical advise on how to use your system to its full potential and how to help and motivate your staff to embrace it as the central repository for all your collection-related media.

1.08

Stephanie Schnörr
Coordinator Collection Digitization
Naturalis Biodiversity Center, Leiden

Wednesday April 15, 14.45 – 15.15, Auditorium

Stephanie studied Animal Biology and Medicine at Leiden University and continued in biomedical sciences as a researcher in digitization techniques of animal anxiety behaviour. After working as a researcher Stephanie continued working as a Project Manager Collection Digitization at Naturalis Biodiversity Center, being responsible for the digitization of 30 million natural history specimens on metadata level. Currently Stephanie is Coordinator Collection Digitization at Naturalis Biodiversity Center and as such she is responsible for the development and implementation of collection digitization processes and projects at Naturalis Biodiversity Center with the aim of making the Naturalis natural history collection digitally available for collection managers, scientists and other interested parties worldwide.

The natural history production line

Naturalis Biodiversity Center is the national museum for natural history and also the leading institute in the Netherlands for academic research and education on biodiversity and taxonomy. It currently has a collection of thirty seven million natural history objects. Between 2010 and 2015, Naturalis is realizing one of the largest projects for natural history collection digitization to date. At least 37 million objects will be digitized, including 7 million objects on a high level detail. The project is being funded by the Dutch Economic Structure Enhancing Fund (FES). In order to realize this, Naturalis has built a program organization which made a new approach for digitization of natural history collections possible: industrialization. We implemented processes to prioritize the collections, standardized processes for data entry and scanning and minimalized handling the objects. For each collection type we implemented a production line, the so called 'digistreets'. Right now, we have 7 operational digistreets including one for our herbarium sheets. For the digitization of these 4.000.000 herbarium sheets we contracted Picturae, a Dutch service provider within the cultural heritage world. Picturae has created digitization conveyor belts to digitize these at a production of 35.000 sheets per day with two shifts, working double time. The entire procedure is highly innovative and impressive to watch. The results of all Naturalis digitization efforts will be published online through portals from Naturalis and through international scientific and cultural portals.

For more information, visit: https://science.naturalis.nl/en/collection/digitization/

1.09

Barbara Bridgers-Johnson

General Manager for Imaging, The Photograph Studio
The Metropolitan Museum of Art, New York

Wednesday April 15, 15.15 – 15.45, Auditorium

Barbara Bridgers-Johnson is the General Manager for Imaging at The Metropolitan Museum of Art. In charge of the Museum's in-house photography program since 1986, Barbara manages twenty photographers and imaging specialists alongside a group of administrative staff whose skills, expertise and responsibilities range from system integration, the implementation of international imaging standards, and emerging capture techniques such as 360˚ photography, high-resolution tiling solutions for oversized works, RTI imaging, time-lapse and photogrammetry. The Photograph Studio's images appear in the pages of the Museum's beautiful and award-winning exhibition catalogues, and are increasingly featured on the Met's website in internationally recognized online features like The Timeline of Art History, 82nd and 5th, Met Collects and One Met. Many Worlds. The Studio is currently engaged in the development of a long-term strategy for an institutional imaging program that will consolidate the efforts of departments and individuals throughout the museum. This program will extend the protocols and best practices centralized in the Studio to all local imaging initiatives in order to expand the Museum's online collection of images for the broadest audience possible. As the Metropolitan extends its physical campus beyond 82nd Street and 5th Avenue and the Cloisters to its new location in the Breuer building—we are working collectively to create a virtual fourth campus online. Images of the works of art will increasingly inform and refine that effort.

Beyond the Still Image: 360° Photography and Alternative Capture Techniques Find Their Place in a Traditional Imaging Program

In recent years, The Metropolitan Museum's Photograph Studio has developed a number of different imaging solutions to broaden the Museum's ability to provide content to as wide an audience as possible. Imagine a single accessioned work of art and visualize a portfolio of images attached to that object. The accessioned object's portfolio contains beautiful studio photography, pre-, in-process, and post conservation photography, the hundreds of still images comprising a 360˚ automated spin, the 360˚ spin itself, high-resolution tiles in addition to an overall stitched view, RTIs, xRays, gallery views, time-lapse photography, video, digitized historical color or black and white images, and three-dimensional computational renderings and scans. A recent joint project between the Department of European Sculpture and Decorative Arts, Objects Conservation, the Photograph Studio and a private donor provided the ideal situation to explore this concept of the image portfolio in all its variations. It involved the creation of master studio images, 360˚ spin photography, conservation photography and RTI imaging. Together, Barbara and Scott Geffert, will give a presentation of this project to illustrate both the "portfolio concept" of image assets while also demonstrating the many new capture techniques at work in the Metropolitan.

1.10

Tony Harris

Digital Media & Photography Officer at Government Art Collection (GAC) and Chair of Association for Historical and Fine Art Photography (AHFAP), London

Wednesday April 15, 16.30 – 16.45, Auditorium

Works of art from the GAC are displayed in UK Government buildings in nearly every capital city, making it the most dispersed collection of British art in the world. The role of the Collection is to promote British art while contributing to cultural diplomacy. Dating from 1898, the Collection has expanded over the years and now contains nearly 14,000 works of art from the 16th century to the present day by mainly British artists in a broad range of media. Tony's role at the GAC includes object and event photography, website management and collection management system administration. Tony graduated with a Postgraduate Certificate in Digital Colour Imaging from the London College of Communication in 2008. As AHFAP Chair he heads a professional association of over 200 cultural heritage photographers and image-makers in the UK.

The AHFAP story – building UK cultural heritage imaging knowledge nodes.

In April 1985, exactly 30 years ago this month, a group of photographers based in national museums in London, met with the aim to share knowledge and information and formed AHFAP. The association held its first conference in 1986 at the Natural History Museum, London and since that time, its membership has grown to over 250 with members throughout the UK and now Ireland. After 30 years and as many conferences, including its first international conference in 2011, this is a story of how collaboration can and does benefit our profession. We are now in an age of continually evolving technologies and methodologies, such as scientific, hyper-spectral and 3d imaging; the need for national or regional associations like AHFAP to help disseminate knowledge seems more pressing than ever before. We are starting to build links with cultural heritage specialists within university departments in the UK with the aim of encouraging the development of learning, CPD and training resources for our sector.

For more information, visit: www.gac.culture.gov.uk
www.ahfap.org.uk
www.tonyharris.eu

1.11

Adam Lowe
Director, Factum Arte, Madrid
Wednesday April 15, 16.45 – 17.30, Auditorium

Adam Lowe founded the Factum Foundation for Digital Technology in Conservation in 2007. In April 2014 he constructed an exact facsimile of the Tomb of Tutankhamun that was installed on a site next to Howard Carter's House at the entrance to the Valley of the Kings. It has been heralded as the start of a new age of responsible cultural tourism and is part of a wider transfer of skills and technologies to enable local teams to document other Theban Necropolis tombs. Lowe has collaborated with the academic Jerry Brotton for many years on the history and production of cartographic experiments in two and three dimensions. Their work uses the metaphor and practice of 'mapping' to transform our understanding of the surface of objects, from the paintings of Veronese, Leonardo and Caravaggio to the globe itself.

De-materialising and Re-materialising - tone and form in harmony.

Documentation is essential to monitor the speed at which our heritage is decaying. 3D scanning and multi-spectral photography can play a central role in the construction of multi-layered digital archives that bring together accurate records of the surface, the colour and what lies under the surface. When this is mixed with conservation records, monitoring analysis and expert opinion our ability to understand and care for the object increases - the past exists in the present and conditions the future. Factum Arte and the Factum Foundation are concerned with recording the excat surface of paintings and objects- the quality of the data is close enough for the object to be re-materialised and studied in both virtual and physical form. When the digital is no longer tied to the virtual its physical presence will change how we think about and care for the material evidence of the past - from vast tombs to the subtle changes on the surface of a painting - from projects with contemporary artists to an anachronic engagement with history. Plaster casts were an important means of understanding and communication in the second half of the C19th - today its laser scanning and 3D printing. New technologies often influence how we understand and care for the past and as photographic and 3D technologies merge new insights are emerging and conditioning the ways in which works of art are documented, monitored, studied and exhibited.

For more information, visit: www.factum-arte.com/

1.12

Cecile van der Harten
Head Image Department RIjksmuseum

Wednesday April 15, Opening and Closure, Auditiorium

Thursday April 16, Opening and Introduction principles, Auditorium

Cecile van der Harten has been the manager of the Image department at the Rijksmuseum since 2006. She supervises five photo studios and the Rijksmuseum's entire photography archive that supplies images to internal and external clients. The Image department is responsible for the systematic digitization of the Rijksmuseum collection comprised of one million objects. A high-quality standards-based workflow and a Digital Asset Management (DAM) system has been implemented to accomplish this ambition.

Lectures - Day 2

2.01

Roy S. Berns

Professor, Center for Imaging Science, Rochester Institute of Technology, Rochester, New York

Thursday April 16, 09.05 – 09.45, Auditorium

Dr. Roy S. Berns is the Richard S. Hunter Professor in Color Science, Appearance, and Technology within the Program of Color Science at Rochester Institute of Technology, USA where he developed both M.S. and Ph.D. degree programs in Color Science He received B.S. and M.S. degrees in Textiles from the University of California at Davis and a Ph.D. degree in Chemistry from Rensselaer Polytechnic Institute (RPI). Berns has received scientific achievement awards from the Inter-Society Color Council, the Society of Imaging Science and Technology, the Colour Group of Great Britain, and the International Association of Colour. He is the author of the third edition of "Billmeyer and Saltzman's Principles of Color Technology," as well as an author of over 200 publications. He has been active in the CIE deriving CIE94 and contributing to CIEDE2000, now an ISO standard for color tolerancing. Berns' main research focus is using color and imaging sciences for the visual arts, particularly paintings, including: 3-D imaging and computer-graphics rendering; spectral-based imaging, archiving, and reproduction; pigment mapping; and digital reconstructions of faded and darkened artwork. This research is collaborative with the Museum of Modern Art, New York; the van Gogh Museum, Amsterdam; The Getty Museum, Los Angeles; and the Art Institute of Chicago.

Scientific Imaging of Cultural Heritage: Minimizing visual editing and relighting

There are two color-reproduction goals. The first is subjective where the goal is to produce an image that is pleasing, for example, all conventional photography and by extension, many art books and posters. Such images have served art historians and the public quite well. The second goal is objective where the goal is to record and reproduce the actual colors of the artwork. This can be achieved using digital photography where the camera becomes a scientific device. The advantage of objective color reproduction is its utility for conservation and with additional processing, reprographics. Turning a camera into a scientific instrument requires different imaging practices. This presentation will define scientific imaging, the requisite imaging practices, and why achieving objective color reproduction is so difficult. The second topic is recording the topographic properties of artwork, for example, impasto and the weave of a canvas, known as a surface normal map. This map and diffuse color data can be combined using computer graphics software such as Autodesk's Maya to create a variety of images with different illumination geometries. This minimizes the need for relighting and reshooting. Our technique uses the sequential images from four strobe lights placed about the artwork. The four images can be used for both objective color and computer graphics imaging.

For more information, visit: www.art-si.org/

2.02

Scott Geffert

Senior Imaging Systems Manager, The Photograph Studio, The Metropolitan Museum of Art, New York

Thursday April 16, 09.45 – 10.15, Auditorium

Scott Geffert joined the staff of The Metropolitan Museum of Art in 2012 as Senior Imaging Systems Manager after having acted as the Museum's primary digital imaging consultant for over 18 years. Scott's interests and involvement in imaging have evolved over the past 30 years from supporting imaging users worldwide to taking an active role in helping steer the industry via advocacy of international standards and involvement in the IS&T, ISO and CIE organizations. These efforts have led directly to improvements in cameras, software and best practices for imaging specialists and programs within museums and other cultural institutions. Long term experience in color management, especially within the cultural heritage community, has led to innovative patented work in the field of multi-spectral LED lighting technology, enabling precision tunable illumination for viewing and digitizing artworks.

Museum Wide Imaging Strategies

With the rapid proliferation of smartphones and tablets, the demand for high quality content has grown exponentially in the cultural heritage community. In an effort to create open access of internal image archives to the public, museums worldwide have struggled with image quality issues. Collection record images, conservation images, and publication images of the same objects are often visually incompatible. Maintaining the delicate balance between the quality and quantity of visual content made publicly available has become a critical topic for every institution. As practitioners, we are often enamored by the lure of exotic new imaging technologies, but maintaining visual continuity and quality across all imaging activity is of equal importance. In this presentation, Scott Geffert will discuss ongoing efforts and progress within the Metropolitan Museum of Art to standardize and uplift the quality and consistency of its images across multiple departments and initiatives. Specifically, Scott will illustrate how the Photograph Studio has provided training and technical support to conservation, curatorial, digital media, editorial, education, merchandising and administrative departments.

2.03

Marzia Niccolai

Technical Program Manager, Google Cultural Institute, USA

Thursday April 16, 10.15 – 10.45, Auditorium

Marzia Niccolai is a Technical Program Manager at the Google Cultural Institute, and works on digitization projects such as 3D scanning and Gigapixel capture. In addition, she works to increase the visibility of cultural objects across Google. She's worked at Google for over 8 years, and before the Cultural Institute worked on Google's cloud computing offering, App Engine.

Accessibility of 3D objects

As Google works with Cultural Partners on 3D scanning projects, we consider not just the acquisition of data, but how we can make it accessible and useful to our Cultural partners and users of the web. In this presentation we will discuss how we are thinking about this problem end to end, from acquisition of objects, as well processing, display, and discoverability.

For more information, visit: www.google.com/culturalinstitute/project/art-project

2.04

Pedro Santos
Head of Competence Center Cultural Heritage Digitization at Fraunhofer IGD, Germany

Thursday April 16, 11.30 – 12.00, Auditorium

Pedro Santos has been Head of the Competence Center for Cultural Heritage Digitization since 2012. Before he was Deputy Head of the Department of Industrial Applications, today Department of Interactive Engineering Technologies. In the course of various projects in the field of digital preservation of cultural heritage objects and of the increasing demand for mass-scale 3D digitization in this field, his department develops the world's first approach for fast, economic, and automated 3D digitization of cultural heritage with emphasis on capturing optical material properties. Pedro Santos, who has been researcher at Fraunhofer IGD since 2002, studied computer science at University of Darmstadt and Technical University of Lisbon. At present he is also attaining his PhD on the subject of "fast, economic, and automated 3D digitization of cultural heritage" at Technical University Darmstadt.

During his professional career he was involved in the development of the first immersive CAD modeling systems to be used for the early stages of product development as well as in the design of "see-through head-mounted" displays", mobile applications in augmented reality and optical "marker-based" and "markerless" tracking systems. Pedro Santos is author and co-author of over 50 publications as well as reviewer for the Association for Computing Machinery (ACM), die European Association for Computer Graphics (Eurographics), the IEEE Computer Society and other organizations.

CultLab3D – Automated 3D mass digitization of cultural heritage artefacts

Millions of artefacts in museum depots, thousands of new entries per year await digitization technology that is fast, economic and accurate enough to create faithful 3D digital reproductions of the originals as well as classify, annotate and store them for posterity. The need to better document, access and manage our cultural heritage treasures is constantly growing. In the past attempts have been made to digitize books, photos and other works of art. Automated digitization have been developed and put in place for such "2D" artefacts, yet 3D digitization of busts, sculptures, archaeological findings, natural history artefacts has been a painful, slow and highly manual process, which is only performed on selected objects, but not on a large scale. Fraunhofer IGD Competence Center for Cultural Heritage Digitization is now addressing this challenge by developing what could become a game changer in the field and make 3D digitization fast and economically viable. CultLab3D (www.cultlab3d.de) is the world's first automatic and modular 3D digitization pipeline. It combines state-of-the-art scanning and lighting technologies to capture geometry, texture, and - in addition - optical material properties of artefacts such as their reflection and absorption characteristics to allow for a photo-realistic representation. By automating the 3D digitization process, CultLab3D greatly reduces the time needed for a single object digitization from hours to minutes. CultLab3D was recognized with an award at the 2013 Digital Heritage conference in Marseille, France. First trials with real artefacts have been carried out at Liebieghaus in Frankfurt in July 2014.

2.05

Vincent Rossi

3D Program Officer, Smithsonian Institution, Washington DC

Thursday April 16, 12.00 – 12.30, Auditorium

Vincent Rossi hails from the great state of New Jersey. He has a BFA in sculpture from the University of the Arts in Philadelphia and Graduate level fine art study at Goldsmiths College/ University of London, England. From 2004 to 2011, he worked as a sculptor, modelmaker and project manager for the Smithsonian's Office of Exhibit Central and helped produce and manage many Smithsonian exhibits. From 2011 to present Vince works as a 3D Program Officer for the Smithsonian's Digitization Program Office - building 3D capacity, developing 3D workflows and trying to live life to the fullest.

Smithsonian X 3D: The tale of a 168-year-old institution, laser-scanners, and 3D printers

Smithsonian X 3D brings iconic Smithsonian collection objects and remote research sites to a web-browser near you by applying cutting-edge 3D technology to one-of-a-kind objects and environments. The pilot project investigates the applicability of 3D technology to a cultural heritage setting by focusing on use cases from many of the Smithsonian museums and science centers, such as the 1903 Wright Flyer, Lincoln's Life Masks, a 1500 year old Buddha sculpture, a prehistoric fossilized whale, and a Super Nova. As presented in the Smithsonian's brand new 3D explorer (3D.SI.EDU), the 3D models turns online visitors into active investigators: they can manipulate the lighting scheme to draw out hard-to-read details such as low-relief carvings on the Buddha; investigate cross-sections to reveal the interior of the revolutionary Wright Flyer engine; take measurements to determine the dimensions of a whale vertebrae; and compare different models, such as the two Lincoln Life Masks, through a split-screen. The kind of functionality available in the 3D explorer has previously been the stuff of costly stand-alone software – now it is at the fingertips of anyone with access to a web browser. Full datasets for most of the models can be downloaded, which empowers anyone with a 3D printer to create replicas. The presentation will discuss how the prototype was conceived, how it became the biggest social-media event in the history of the Smithsonian, and how we hope to take the project from pilot to production

2.06

Bernard Frischer
Professor, Department of Informatics, School of Informatics, Indiana University, Indiana

Thursday April 16, 13.30 – 14.15, Auditorium

Bernard Frischer is a leading virtual archaeologist and the author of seven printed books, three e-books, and dozens of articles on virtual heritage, Classics, and the survival of the Classical world. He is the founding editor of *Digital Applications to Archaeology and Cultural Heritage*, the world's first peer-reviewed, online journal where scientists can publish interactive 3D models. Frischer received his B.A. in Classics from Wesleyan University (CT) in 1971 and his Ph.D. in Classics from the University of Heidelberg in 1975. He taught Classics at UCLA from 1976 to 2004. From 2004 to 2013 he was Professor of Art History and Classics at the University of Virginia. Since August 2013, he has been Professor of Archaeoinformatics in the School of Informatics at Indiana University, where he is also Director of the Virtual World Heritage Laboratory. The lab's mission is to apply 3D digital tools to simulating cultural heritage artifacts and sites as heuristic instruments of discovery. The lab's major projects currently include creation of a virtual world of Hadrian's Villa, the World Heritage Site near Tivoli, Italy; and using digital technology to scan and restore ancient sculpture.

From 1996 to 2003 Frischer directed the excavations of Horace's Villa sponsored by the American Academy in Rome, and in the same period he was founding director of the UCLA Cultural Virtual Reality Laboratory. The lab was one of the first in the world to use 3D computer modeling to reconstruct cultural heritage sites. Frischer has overseen many significant modeling projects, including "Rome Reborn", the virtual recreation of the entire city of ancient Rome within the Aurelian Walls. The project has received extensive media coverage. A video about the project made by the Khan Academy is now the most popular humanities program on Khan's site, with over 500,000 views since it was published a year ago.

In 2005 Bernard Frischer was given the Pioneer Award of the International Society on Virtual Systems and Multimedia. In 2009, he was the recipient of the Tartessus Lifetime Achievement Prize from the Spanish Society of Virtual Archaeology. In 2010-11 he held the Senior Prize Fellowship at the Zukunftskolleg at the University of Konstanz.

Videos:

The Hadrian's Villa Project:
https://youtu.be/zGdjf9wzHOI?list=PLkfu7gl3xMWoZoqvGTLDoEG_woLwif8Z5

The Virtual Meridian of Augustus Project:
https://youtu.be/GUXZ0d0sxpo

Demo Reel of the Virtual World Heritage Laboratory, Indiana University:
https://vimeo.com/105041300

3D Modeling of Monuments Using Photographs: Recent Projects of the Virtual World Heritage Laboratory, Indiana University

2.07

Sarah Saunders
Director, Electric Lane, London

Thursday April 16, 14.15 – 14.45, Auditorium

Sarah Saunders runs image and data management consultancy Electric Lane. She advises organisations and businesses on image DAM solutions and workflows and has worked extensively in the heritage sector. She works with clients to integrate the entire workflow and is experienced in project planning, DAM procurement, data handling and mapping, keywording and taxonomy, digital imaging and DAM implementation.

She is a member of the IPTC Photometadata Working Group and authored the IPTC/CEPIC Metadata Handbook. She has worked on European Union projects ARROW Plus and RDI (Rights Data Interchange), and has been actively involved in bringing heritage fields to the IPTC schema. She is currently working on a project to create a wider schema (SCREM) for embedding data in heritage images.

2D or 3D - stick the label to the image. How to create and use standards for embedded metadata

The IPTC schema for metadata associated with images has a long history and is widely used in the media industry. In 2014 additional fields were added to the IPTC schema help describe heritage objects. Another project. SCREM, aims to standardise a wider set of commonly used heritage fields for use within the imaging sector.

This presentation will discuss the advantages of standardising data and delivery formats for visual media and look at the challenges for 3D imaging. We have learnt in our work with IPTC that standards need support from industry managers and software suppliers. How can we best communicate the business benefits of metadata standards and help 3D imaging to early stage adoption??

For more information, visit: www.electriclane.co.uk

2.08

Alonzo Addison

Co-Chair, Digital Heritage Federation, Berkely, California, USA

Thursday April 16, 14.45 – 15.30, Auditorium

With senior leadership roles spanning the United Nations to Silicon Valley and the University of California, Lon Addison brings over 25 years of experience in strategic planning, research and management of information technology in heritage, culture & the arts, design & engineering, and more. An advisor to tech ventures, non-profits, and governments, he has guided R&D in new media/VR as Director of UC Berkeley's Center for Design Visualization, served as VP of 3D laser scanning pioneer Cyra Technologies, and reformed online knowledge and communications as Director in External Relations and Information at the UN's Educational, Scientific and Cultural arm. As Co-Chair of the REAL summit (www.real2015.com), he recently convened over 50 global leaders in 3D technology to explore the future of reality computing with Autodesk.

For over a decade as Special Advisor for World Heritage at UNESCO he built heritage tech alliances, and has led field conservation and documentation projects at sites from Angkor (Cambodia) to Bagan (Myanmar), Peru to Egypt, and Belize to Bhutan. He serves as President of the Int'l VSMM Society, VP of the ICOMOS Int'l Scientific Committee for Interpretation & Presentation, and on the boards of multiple NGOs and non-profits. He has authored 50+ books/papers including "Disappearing World" (HarperCollins, 2007–2009) in 9 languages. With degrees in engineering, architecture and computing from Princeton and Berkeley, he has lectured at universities from Oxford to Tokyo and Dresden to Cairo, and currently serves as Adjunct Professor in Design at OCAD University and Guest Professor in the Lemaire Centre for Conservation at KU Leuven.

Capture, Compute, Curate – the opportunities and challenges of digital heritage

In the early 1990's 3D scanning, processing, and visualization were in their infancy, while digital heritage was just being born. In the ensuing decades sensor technology, compute power, and technical expertise have evolved. Now some 20+ years on, 3D capture, computation, and creation in heritage are not only possible, but being widely piloted across institutions and projects. Yet capturing reality in digital form is only one step in a complex process. Digital curation relies on smart processing and management. Sadly our digital data has a realistic lifespan a fraction of that of the heritage it represents. With illustrated examples of the potential and pitfalls of 3D, we will explore the future and challenges of digital in the museum.

Workshops

W.01

Pedro Santos

Head of Competence Center Cultural Heritage Digitization, Fraunhofer IGD, Germany

Workshop location: Teekenschool, Workshop area

Pedro Santos has been Head of the Competence Center for Cultural Heritage Digitization since 2012. Before he was Deputy Head of the Department of Industrial Applications, today Department of Interactive Engineering Technologies. In the course of various projects in the field of digital preservation of cultural heritage objects and of the increasing demand for mass-scale 3D digitization in this field, his department develops the world's first approach for fast, economic, and automated 3D digitization of cultural heritage with emphasis on capturing optical material properties. Pedro Santos, who has been researcher at Fraunhofer IGD since 2002, studied computer science at University of Darmstadt and Technical University of Lisbon. At present he is also attaining his PhD on the subject of "fast, economic, and automated 3D digitization of cultural heritage" at Technical University Darmstadt.

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W.02

Adam Lowe
Director, Factum Arte, Madrid
Workshop location: Teekenschool, MultimediaLab II

Adam Lowe founded the Factum Foundation for Digital Technology in Conservation in 2007. In April 2014 he constructed an exact facsimile of the Tomb of Tutankhamun that was installed on a site next to Howard Carter's House at the entrance to the Valley of the Kings. It has been heralded as the start of a new age of responsible cultural tourism and is part of a wider transfer of skills and technologies to enable local teams to document other Theban Necropolis tombs. Lowe has collaborated with the academic Jerry Brotton for many years on the history and production of cartographic experiments in two and three dimensions. Their work uses the metaphor and practice of 'mapping' to transform our understanding of the surface of objects, from the paintings of Veronese, Leonardo and Caravaggio to the globe itself.

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For more information, visit: www.factum-arte.com/

W.03

Daniel Pletinckx

Cultural Technology expert, Visual Dimension, Belgium

Workshop location: Teekenschool, MultimediaLab I

Daniel Pletinckx was trained as a civil engineer, with specialisation in information technology. He gained extensive experience in system design, quality assurance, digital image processing and synthesis, 3D and virtual reality through a career of 15 years in private industry. Currently, Daniel Pletinckx is director of Visual Dimension bvba, a SME dealing with ICT based innovation in cultural heritage and tourism. Visual Dimension specialises in new, efficient ways to digitise and digitally restore museum objects, monuments and sites, and in virtual reconstruction of historical buildings and landscapes. The company is active in several European projects, including the European Network of Excellence V-MusT.net that focuses on virtual and digital museums, and 3D-ICONS where it is responsible for delivering 3D content about World Heritage monuments and sites to Europeana.

Strategy for optimal documentation of museum objects

The documentation of museum objects has multiple goals and in many cases, a good visualisation of the object from all sides is sufficient while a 3D model is required only in a small number of cases. We propose a workflow that provides an excellent visualisation of the object, both offline and online, that requires only limited resources, while providing the opportunity to make a full 3D model at any time when the need occurs. This workflow solely requires photography and can be automated to a high degree.

Workshop prepared with support of Moobels - 3D solutions

moobels

W.04

Urs Recher
Photographer/Consultant, Broncolor, Switzerland
Workshop location: Main building, Studio depot EG

Urs Recher is an advertising photographer and photography consultant from Switzerland. It was in his hometown Basel, where he finished high school before he started his studies in mathematics and physics in Zürich. Soon, he spent more time in the photo lab of the university than in the auditoriums and in 1989 he finally left the numbers behind and started, back in Basel, an apprenticeship in photography. 4 years later, he received the Certificate in Photography of the School of Arts in Basel. Urs then spent 6 years an independent photographer in Chile, the Netherlands and Switzerland before he started in 1998 to work full time as in-house photographer at Bron Elektronik, the producer of broncolor lighting systems. Since then he and his team is responsible for all advertising photography, for product tests and for teaching studio lighting techniques worldwide. About 3 month a year Urs travels the world talking about light and shooting live high end pictures of all sort of products and models.

Tips and tricks when shooting glass

I will work with many special features that a Scoro power pack offers. We will play with short flash durations, vary the color of or flashes and play with double exposures and delays.

For more information, visit: www.ursrecher.ch

W.05

Hans van Dormolen and Don Williams

Imaging & Preservation Imaging (HIP) / Image Science Associates (ISA)

Workshop location: Atelier building, meeting room B

Hans van Dormolen is the founder of Hans van Dormolen Imaging & Preservation Imaging (HIP). He is working as an imaging consultant in the cultural heritage community. He is also working at the KB, the National Library of the Netherlands. He is the author of the Metamorfoze Preservation Imaging Guidelines and author and co-author of several other Metamorfoze guidelines. Hans is a member of ISO TC42 JWG26, CIE TC8-09 Archival Color and IS&T. He received an IS&T Service Award for his work in objective capture practices for cultural heritage imaging in 2014.

Don Williams is the founder of Image Science Associates (ISA). They concentrate on imaging performance metrology, imaging quality control targets, software and practices, as well as imaging standard's protocols and their practical adoption into digitizing workflows. In collaboration with the Library of Congress and other national libraries he has provided guidance on establishing ISO and science based FADGI practices for image digitizing. His efforts in the field have concentrated on theory-to-practice advocacy, solutions, and education as they relate to imaging metrology, fidelity, and standardization.

The What, Why, and How of Imaging Performance Standards and Guidelines

This workshop will focus on the evolution, rationale, and achievements of the Metamorfoze and FADGI still imaging guidelines since their inception in 2005.

This workshop will allow the attendees to understand

- The differences between standards and guidelines for imaging performance
- Why the guidelines are written the way they are
- The differences/similarities between Metamorfoze and FADGI imaging guideline efforts
- Software and expert resources to implement these guidelines
- How the guidelines have contributed to improved image literacy
- Lessons learned while implementing these guidelines
- Potential future improvements and additions

Hans van Dormolen and Don Williams intend this workshop to be a conversation with the attendees and not a lecture.

W.06

Roy S. Berns

Professor, Center for Imaging Science
Rochester Institute of Technology, Rochester, New York

Workshop location: Main building, Tower 6 – studio Image dept

Dr. Roy S. Berns is the Richard S. Hunter Professor in Color Science, Appearance, and Technology within the Program of Color Science at Rochester Institute of Technology, USA where he developed both M.S. and Ph.D. degree programs in Color Science He received B.S. and M.S. degrees in Textiles from the University of California at Davis and a Ph.D. degree in Chemistry from Rensselaer Polytechnic Institute (RPI). Berns has received scientific achievement awards from the Inter-Society Color Council, the Society of Imaging Science and Technology, the Colour Group of Great Britain, and the International Association of Colour. He is the author of the third edition of "Billmeyer and Saltzman's Principles of Color Technology," as well as an author of over 200 publications. He has been active in the CIE deriving CIE94 and contributing to CIEDE2000, now an ISO standard for color tolerancing. Berns' main research focus is using color and imaging sciences for the visual arts, particularly paintings, including: 3-D imaging and computer-graphics rendering; spectral-based imaging, archiving, and reproduction; pigment mapping; and digital reconstructions of faded and darkened artwork. This research is collaborative with the Museum of Modern Art, New York; the van Gogh Museum, Amsterdam; The Getty Museum, Los Angeles; and the Art Institute of Chicago.

Imaging Paintings for a Virtual Museum

Computer graphics software such as Maya with the mental ray plugin is used frequently for movies and animations, for example, Harry Potter and Hugo. It can also be used to create a virtual museum. The required inputs are the painting's dimensions, material properties, and diffuse color and surface normal mappings. Several years ago, we developed a cross-polarization four-light technique to obtain the mappings. The technique has been improved eliminating cross-polarization. The imaging setup requires a camera, four lights, a cue ball, white foamcore, and a color calibration target. This workshop will demonstrate how to obtain these mappings and input them to Maya to create a virtual museum.

For more information, visit: www.art-si.org/

W.07

Hugh Gilbert
Photographer, Photography for Artists, UK
Workshop location: The Bureau, Meeting Room BG

Hugh runs a Fine Art photography studio in SW London, specialising in reproduction photography, and an archiving service for artists.

An early adopter of digital imaging, Hugh has used the technology to explore possibilities not available to traditional film. Hugh discovered the flexibility digital technology offered to panorama makers, and embarked on a project to record the studios of working artists. This work resulted in a solo show at the Royal Academy of Arts in London, and inclusion in mixed exhibitions in London and his home county, West Sussex.

Working biography includes

Tutor, Royal College of Art 1988-93; Solo shows at Royal Academy of Arts London; Chelsea Arts Club; Arden & Anstruther; TBWA and numerous mixed exhibitions and collections

Hugh's technical expertise arises a variety of industrial collaborations including

Dr Clauss Gmbh; Dedo Weigert Film Gmbh; Hasselblad; Spheron-VR AG; Various National Galleries and Museums and the Association of Historical and Fine Art Photographers

360˚ Panoramic Photography

The 360˚ photograph is unique in its ability to show a whole environment in a two dimensional image. In our Cultural Heritage industry, the Virtual Reality (VR) image is wonderfully able to capture a global view, and used well, can provide a moving 'on screen' undistorted illusion of being present at the heart of the environment. Images can be built up this way to provide an intimate guide to the museum, gallery, artists studio, ad infinitum… imagination is the only limit.

Commercially 360˚ images are used as VR guides, environment recording, cockpit instrument training and crime scene recording. In the games industry VR imagery is essential to the construction of the gaming environment.

This workshop will focus on demonstrating a workflow from start to finish, the making of the 360˚ photograph and its conversion from stitched images to the Virtual Reality environment. A Virtual Reality museum guide will be shown to give context to the workshop.

Workshop attendees will have the opportunity to make their own panoramic images on equipment that will be provided. Digital versions will be forwarded to attendees for later printing out. A pamphlet describing the principles of panoramic imagery, the new uses of VR imagery, including peripheral photography, together with a summary of panorama in history will be given to attendees.

For more information, visit: www.hughgilbert.com

W.08

Richard Davis
Head of Collections Photography, Victoria and Albert Museum, London

Workshop location: Main building, Tower 7 - Studio

Richard Davis has been working as a photographer at the Victoria and Albert Museum in London since 1983 and is currently Head of Collections Photography at the museum. He has photographed decorative and fine art objects from all areas of the museum's wide and varied collections during this time. Richard has developed as specialism in photographing historical and modern costume, contributing to the V&A's successful publication programme with titles including Black in Fashion, the Fashion in Detail series, The Wedding dress - 300 years in Bridal Fashion, Hollywood Costume and David Bowie Is.

The Art of Museum Costume Photography

"My aim will be to share my experience in lighting and photographing historic and modern costume to produce images with an artistic flair that are also sympathetic to the costume".

W.09 A

Joseph Coscia, Jr.
Chief Photographer, The Photograph Studio
The Metropolitan Museum of Art, New York

Workshop location: Atelier Building, Studio -1. Only April 15th

Joseph Coscia, Jr. has been Chief Photographer at the Metropolitan Museum of Art since 2007, and a staff photographer since 1991. He oversees the daily workflow of images produced by eleven staff photographers, who share the common goal of establishing the highest standards in lighting as well as image capture for the Museum's seventeen diverse curatorial departments.

His most recent publication is French Art Deco (2014). Other notable publications include Light On Stone, Greek and Roman Sculpture in The Metropolitan Museum of Art (2003), European Sculpture, 1400–1900 in the Metropolitan Museum of Art (2010), Anglomania (2006) and European Furniture in The Metropolitan Museum of Art, Highlights of The Collection (2008), among many others.

Reflections on Silver: Crafting Impeccable Images of Difficult Subjects

Museum photography programs have adapted to the demands of traditional and digital publications, yet regardless of the publication medium, the lasting impact of well-crafted still images continues to be the driving force behind any successful editorial effort. Technology can never provide a substitute for a beautifully lit object. In this workshop Joseph Coscia will explore approaches to lighting silver objects and document his real time captures of the Metropolitan Museum's acquisition of the Salgo Silver collection. As we all know, silver objects are particularly challenging for even the most advanced photographers. In addition to his insights and techniques for lighting silver objects, Joe will share his candid thoughts on stylistic trends in museum photography.

W.09 B

Frans Pegt and Staeske Rebers
Staff photographers, Image Department, Rijksmuseum

Workshop location: Atelier Building, Studio -1. Only April 16th

Frans Pegt studied at the Fotovakschool (School of Photography) in Apeldoorn. After graduation he continued his education at the Willem De Kooning Academy of Art in Rotterdam, where he majored in visual communication and fine arts. At the start of his career in 1983 he worked as a professional photo equipment salesman at Capi Lux Vak. He started as an independent advertisement photographer in 1989. As such, in 1996 he was among the first in the Netherlands to make the transition to digital photography. Being responsible for high-quality output, he focused on color management and print work output in a digital workflow. In 2007 Frans started working for the Rijksmuseum where he is a staff photographer responsible for photographing objects and paintings from the museum's collection. He and the team works on the implementation of a standardized workflow for photographing objects. He considers it a welcome challenge to photograph fine art objects using standardized guidelines, and he strives for the highest quality possible. He is fascinated by the use of photography as an instrument in a creative process and by making an object and it's story shine. Frans developed a workflow for the photography of sick glass in collaboration with the glass conservation department. He is also currently involved in the photography of costumes from the Rijksmuseum collection. This work—in close collaboration with conservators and curators—will be published in a collection book. His photographs have been published in successful publications such as Paris 1650–1900: Decorative Arts in the Rijksmuseum, R. Baarsen, 2012, Yale University Press, Art Nouveau In Het Rijksmuseum, J.D. van Dam & J.J. Heij, Rijksmuseum, 2010, and Kakiemon Porcelain, M. Fitski, 2011, Leiden University Press, Leiden; Rijksmuseum, Amsterdam. He worked closely with the responsible authors and curators for these publications.

Staeske Rebers has been working as a photographer for the Rijksmuseum since 2006. She photographs a wide range of the Rijksmuseum's collection including works on paper, jewelry, sculptures, furniture, and conservation photography. Currently she is involved in the photography of the musical instruments according to MIMO guidelines, and the kimonos in the Rijksmuseum collection. Before she started working at the Image Department of the Rijksmuseum (2006) she was an autonomous photographer for documentary reports ranging from landscape architecture to special events and fashion. She has a background in the History of Art (University of Amsterdam) and holds a degree in Photography (Rietveld Academie 2002).

Challenges in silver photography

The perfect photo of silver doesn't exist. The old saying goes: silver is the best way of photographing your studio. It is a truth we all unfortunately know and have experienced! The Rijksmuseum has been trying to come up with a new approach to the photography of silver. The team worked together with the responsible curator and together they came up with a solution that still is not written in stone. One of our solutions is to trade our background paper for Plexiglas plates. In this workshop we will investigate the effect of different lightings on silver objects that have various shapes.

W.10

Henni van Beek
Staff photographer Printroom Online, Rijksmuseum
Workshop location: Main building, Tower 6 - Studio PK Online

Henni van Beek has been working as a photographer for PK online since 2007. PK online is a project that aims to digitize all prints and drawings in the collection of the Rijksmuseum and to publish them on the internet. This means that he is conducting the Metamorfoze project with the 19th century sketch books for which a custom-made book cradle was developed. At the same time he is closely involved in the implementation of the preservation imaging guidelines for digitization for all photography in the Rijksmuseum. For the National Archive in The Hague he contributed to the Metamorfoze ABC as advisor of digitization. In recent years this has developed into courses and workshops on digitalization and the evaluation of scans, which he teaches to new employees of the National Archive. He is also active in his own photographic studio that has been admitted as a preferred studio for the Metamorfoze project. In the past Henni taught courses on the technical aspects of photography at the Gerrit Rietveld Academy, Amsterdam.

Catching the sketch. Designing and working with a custom made bookcradle. New solutions for the digitizing of bound chalk drawings. Working with Metamorfoze guidelines on a daily basis

In 2012 the Rijksmuseum faced the challenge of digitizing over 650 sketch- and drawing books from the 19th century for a project funded mainly by the Netherlands' national program for the preservation of paper heritage. The main difficulty with digitizing this material was that half of the sketchbooks where made with chalk or charcoal. Chalk drawings are extremely vulnerable and the fact that they were kept in a book construction made digitizing even more complicated. Book constructions tend to close rather than to stay open flat. Using glass or a vacuum device, as is used in some specialist book cradles for rare book digitization, was not an option with our material. One of the funding criteria was also that the digitization had to conform to the Metamorfoze guidelines. Due to the lack of availability of a suitable system on the market, Rijksmuseum photographer Henni van Beek, together with our conservation department and an external partner (Bronnenberg Metaalbewerking), developed and built a suitable book cradle. It mainly consists of a variable and changeable resting surface for the book and two variable options to hold the object flat. Collaboration between the different disciplines made this project unique and successful.

W.11

Carola van Wijk
Staff photographer, Image Department, Rijksmuseum

Workshop location: Atelier building, meeting room A

Carola van Wijk has been working as a staff photographer at the Rijksmuseum since 2007. She is responsible for the photography of objects and paintings in the Rijksmuseum collection and for the museum's conservation photography. With fellow photographer Henni van Beek, she is responsible for the implementation of the Metamorfoze guidelines. Together they wrote a practical manual for the team to establish a shared standardized workflow. On many occasions, individual photographers, national and international heritage institutions have asked her to share her experiences with Metamorfoze. Her photographs have been published in successful publications such as Paris 1650-1900: Decorative Arts in the Rijksmuseum, R. Baarsen, 2012, Yale University Press, and Art Nouveau In Het Rijksmuseum, J.D. van Dam & J.J. Heij, Rijksmuseum, 2010. She worked closely with the responsible authors and curators for these publications.

Currently she is involved in the photography of glass objects and costumes of the Rijksmuseum collection. This work–in close collaboration with conservators and curators–will be published in collection books. Carola van Wijk studied at the Royal Academy of Art and Design, Den Bosch and is part of the artist duo MariaMaria (mariamaria.nl).

Sharing and consistency

Standardized photography with agreed upon guidelines is extremely important for a consistent technical and scientific review of objects. Based on her experiences, Carola will share how the decisions were made in the photography of glass objects. The established workflow was achieved after an extensive testing process which involved the curator and the conservator, so to that both parties would be satisfied with the result.

W.12

Rik Klein Gotink
Staff photographer, Image Department, Rijksmuseum
Workshop location: Main building, Tower 6 - Office

Rik Klein Gotink studied at the ArtEZ Institute of the Arts in Enschede. Prior to that he studied Applied physics for two years at the University of Twente. This combination of art and physics has proven to be very beneficial to his career in the increasingly more technical world of digital photography. He used his skills as a semi-physicist to develop several tools to improve the photographic workflow.

He has been working as an artist and a fine art photographer since 1987. Around 1992 he decided to concentrate his work exclusively on cultural heritage and architecture photography. His customers include museums, art institutions, and artists. He has been working part-time in a team of seven photographers at the Rijksmuseum since 2005. As a freelance photographer (since 1992), he has been involved in the Bosch Research and Conservation Project (boschproject.org) since 2010, a collaboration of the Noordbrabants Museum in Den Bosch, the Radboud University in Nijmegen, and Queens University in Kingston, Canada.

All the paintings of Jeroen Bosch, and some of his works on paper, are being researched by three art historians, a conservator, and a photographer. The photography is done at extreme resolution in visible light, infrared (IR) light, and IR reflectography.

Make your own!

My passion is working with precious art objects. I find the increasing technical advancements in the use of heritage photography to be a welcome challenge. Over the years I have developed practical tools to be used in routine workflows or for more specialized subjects.

In the Rijksmuseum I added a small light to the camera on a repro stand which projects the viewfinders field. This enables you to position the work on paper, without having to look through the camera. It is actually not new, it is a reapplication of an old Leitz technique.

For the Bosch project I designed a carry-on gantry for the camera that allows to do tiling in the photography of a painting easily and effectively. I will demonstrate these tools and others in this workshop. You do not need big budgets to arrive at practical solutions!

W.13

Rob Erdmann

Senior Scientist, Rijksmuseum, Amsterdam

Workshop location: Atelier building, meeting room C

Prior to earning his Ph.D. from the University of Arizona in 2006, Prof. Erdmann started a science and engineering software company and worked extensively on solidification and multiscale transport modeling at Sandia National Laboratories. He subsequently joined the faculty at the University of Arizona in the Program in Applied Mathematics and the Department of Materials Science and Engineering as Assistant Professor and then Associate Professor on multiscale modeling and image processing. In 2014, he moved to Amsterdam to become Senior Scientist at the Rijksmuseum and Professor at the University of Amsterdam.

Hands-on with several new multimodal interactive web technologies for image exploration

Recently, as part of ongoing work with the Bosch Research and Conservation Project and the Rijksmuseum, we have developed a variety of new algorithms and software for interactive web-based visualization of huge multi-modal images and spectral data. Among these is the so-called "curtain viewer" highlighted at http://boschproject.org and http://boschproject.org/friends/Rijksmuseum/Goltzius/. The workshop will provide a detailed hands-on tutorial and technical overview of these technologies, including a comprehensive look at the myriad visualization strategies they make possible. Examples include the following: stitching, registration, and smooth synchronized exploration of visible photography, infrared photography, infrared reflectography and x-radiography of old-master oil paintings; in-browser visualization of moving illumination for interactive exploration of impasto in works by Bosch and Van Gogh; smooth dynamic "rolling registration" of stacks of images with point-wise correspondences; techniques for zoom- and pan-synchronized exploration of large collections of high-resolution multi-viewpoint sculpture photography; and many others.

W.14

Martin Jürgens
Conservator of Photographic Materials, Rijksmuseum
Atelier Building, Paper Conservation atelier

Prior to his work at the Department of Conservation and Restoration of the Rijksmuseum in 2010, Martin Jürgens worked as a conservator of photographs in private practice in Hamburg, Germany. He studied photography and design in Germany in the 1990s, then took part in the Certificate Program in Photographic Preservation at the George Eastman House in Rochester, NY. He graduated from the Rochester Institute of Technology with a Master of Science and from Queen's University in Kingston, Canada, with a Master of Art Conservation. His areas of research and publishing, and his teaching worldwide have covered historic and contemporary photography and digital printing. Following a scholarship at the Getty Museum in 2006, the Getty Conservation Institute published his book The Digital Print: Identification and Preservation in 2009.

A new perspective on imaging surfaces: the use of Micro Reflectance Transformation Imaging to examine surface topography

Reflectance Transformation Imaging (RTI) is a well-known technique used to examine and image the surface of a work of art. The technique involves taking multiple photographs of a surface with a digital camera that is fixed in a stationary position, with the angle of lighting changing for each shot. A series of images is generated in which the highlights and shadows vary, depending on the angle of incident light, which ranges from almost axial to steep raking and which traverses 360 degrees around the focal centre of the image. A mathematical model of the surface of the photographed object is generated from the digital images. The resulting RTI file allows the user to view a virtual representation of the surface, in which the lighting angle can be changed interactively. Further options in the software allow the surface's topography and colour to be viewed in an enhanced mode that would not be possible without this technique. The device that will be demonstrated at this workshop was developed by Paul Messier (Boston) and incorporates a microscope, resulting in a Micro-RTI setup that gives us a new tool for examining and visualizing surface textures on a microscopic level. A further development of this technique that will use the calculated normals of the examined surface texture promises to result in an interesting method for 3-D visualization of micro-textures with minimal equipment setup and expense.

Amsterdam Principles

Professional photographers have successfully adapted to the challenges presented by image digitization, even to the extent that a streamlined, standardized data workflow has been developed and integrated into practice. Digital photography has emerged as a powerful process. New applications for science, research, and object conservation appear regularly. Advancements are moving very fast, such that, just as everything seems to be properly integrated into our workflow, new technical advancements regarding things such as restoration, radiography, or 3D printing seem to appear out of nowhere. The lessons the heritage and fine art community has learned in recent years with a shared understanding of what would be best practise must be applied to the challenges presented by any new digital techniques that arise.

The Amsterdam Principles seeks to build a framework for international compatibility on the best practice methods for digitizing our heritage, and provide an exchange of ideas on how we should meet the challenges that lie ahead.

A first draft will be presented and discussed during the conference.

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Notes

Notes

2+3D
PHOTOGRAPHY PRACTICE AND PROPHECIES

RIJKS MUSEUM

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