

PRELIMINARY PROGRAM



www.imaging.org/archiving



ARCHIVING2019

14-17 May 2019 • Lisbon, Portugal

Sponsored by the Society for Imaging Science and Technology

About the Conference

The IS&T Archiving Conference brings together an international community of technical experts, managers, practitioners, and academics from cultural heritage institutions, universities, and commercial enterprises, to explore and discuss the digitization, preservation and access of 2D, 3D, and AV materials.

The conference presents the latest research results on digitization and curation, provides a forum to explore new strategies and policies, and reports on successful projects that can serve as benchmarks in the field. Archiving 2019 is a blend of short courses, keynote talks, a special panel discussion on archiving in Portugal, peer-reviewed oral and interactive (poster) presentations, an exhibit, and social events offering attendees a unique opportunity for gaining and exchanging knowledge and building networks among professionals.

Non-members may choose registration with membership for the same price as non-member registration and then take advantage of member short course fees. See page 16 for details.

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CulturalHeritage

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- American Institute for Conservation Foundation of the American Institute for Conservation (AIC)
- ALCTS Association for Library Collections & Technical Services
- Coalition for Networked Information (CNI)
- Digital Library Federation
- Digital Preservation Coalition (DPC)
- IOP/Printing & Graphics Science Group
- ISCC – Inter-Society Color Council
- Museum Computer Network (MCN)
- The Royal Photographic Society

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Conference At-a-Glance

Short courses take place at the Universidade Lusófona de Humanidades e Tecnologias, CICANT-Building U, Campo Grande 376. Technical sessions take place at Arquivo Nacional da Torre do Tombo, Alameda da Universidade; please use the Auditorium entrance, to the right of the main entrance.

Registration Desk Open

Tuesday 14 May 8:00 – 16:30

Wednesday 15 May 8:00 – 16:15

Thursday 16 May 8:30 – 14:00

Friday 17 May 8:30 – 13:45

Important Dates

Early registration deadline: 15 April 2019

Hotel registration deadlines vary by hotel. See Archiving website for details.

Tuesday 14 May

- Short Course Program (see page 7); separate registration fee required. You may register for short courses only; there is no requirement to attend the technical conference.
- Welcome Reception

Wednesday 15 May

- Welcome Remarks
- Portuguese Projects on Photography Collections Digitization Panel
- Opening Day Keynote: How the Market Changed—And the Lives of Photographs
- Technical Papers Program
 - Preservation/Archiving: Standards and Guidelines
 - Digitization: Large-Scale/Mass Digitization and Workflow Management Systems
- Interactive Papers available to view
- Exhibitor Profiles
- Exhibits Open

Thursday 16 May

- Thursday Keynote: The JPEG2000 Suite of Standards: Capabilities and New Opportunities
- Technical Papers Program
 - Preservation/Archiving: Archival Models and Workflows
 - Access: Formats for Preservation and Access
- Interactive Papers available to view
- Exhibits Open
- Behind-the-Scenes Tours; see page 6.
- Conference Dinner

Friday 17 May

- Closing Keynote: CERN's Digital Memory: When Patrimony Data Meets Scientific Data
- Award presentations
- Technical Papers Program
 - Interactive Paper (Poster) Previews
 - Interactive Paper (Poster) Session
 - Management and Partnerships/ Collaborations: Best Practices, Lessons Learned, and Case Studies
 - Access: Integration of Linked Open [Usable] Data (LOD/LOUD), Open Source Solutions, and APIs
 - Digitization: New Developments in Technologies and Workflows
- Closing Remarks

Exhibit at Archiving 2019

Wednesday/Thursday 15-16 May

Tabletop exhibit featuring related products and services.

Contact Donna Smith

dsmith@imaging.org; +1-703-642-9090 x100

Conference Location and Venues

Location: Lisbon, Portugal

Bordering the Atlantic Ocean and Targus River, Lisbon is one of the oldest cities in the world, with the first citadels dating back to the 2nd century BC and evidence of habitation dating to the 8th century BC. This capital of Portugal has charmed people for years with its rich architectural history, Moor-inspired tiles, and winding, cobblestone streets. The average temperature in May is 65°F/18°C. Some rain can be expected.

Conference Venues

Archiving 2019 takes place in two locations:

- Short courses take place at the Universidade Lusofona in CICANT-Building U, Campo Grande 376.
- Technical sessions take place in the Auditorium of Arquivo Nacional da Torre

do Tombo, Alameda da Universidade.

Use the Auditorium entrance, to the right of the main entrance.

Both are located in the Campo Grande section of the city, within a 10-minute walk of each other.

Getting to the venues

Both Archiving 2019 locations are within walking distance of the following Metro stations; walking times are given from the station to Torre do Tombo:

- Cidade Universitária: 5 minutes; yellow line
- Campo Grande: 10 minutes; green line
- Entre Campos: 15 minutes; yellow line
- Alvalade: 17 minutes; green line

Accommodation and Travel Information

Lodging/Accommodations

Lisbon offers a wide variety of lodging options, from large international chains to small independent hotels, apartment rentals, and shared rooms. IS&T has arranged for a limited number of rooms at four hotels within walking distance of Arquivo Nacional da Torre do Tombo. Feel free to choose one of these or make arrangements of your own.

NOTE: The following information is the same for all hotels:

- Rates include breakfast, wifi, VAT; does not include €2/night Lisbon City Hall tax.
- Dates available are 12-18 May; contact hotel to extend beyond these dates.
- Booking process and cancellation policies differ; see conference website for details.

Radisson Blu Hotel Lisbon: Ave. Marechal Craveiro Lopes 390 (12 minute walk)
Rates single/double: €135/€145
Reservation Deadline: 12 March 2019

NH Campo Grande Hotel: Campo Grande 7 (15 minute walk)

Rates single/double: €119/€119

Reservation Deadline: 12 March 2019

Lisbon Marriott Hotel: Avenida dos Combatentes 45 (20 minute walk)

Rates single/double: €152/€162

Reservation Deadline: 22 March 2019

Holiday Inn Lisbon Continental: Rua Laura Alves 9 (30 minute walk, near Campo Pequeno Metro, yellow line)

Rates single/double: €135/€145

Reservation Deadline: 29 March 2019

Airport Information

Lisbon International Airport (LIS), also known as Lisbon Portela Airport, is located approximately 6 km from the conference locations and hotels. By car/taxi, travel time is 10-15 minutes depending on traffic; by bus, 30 minutes; by red line Metro to Alameda station (green line) or Saldanha station (yellow line) about 15 minutes.

Technical Program Subject to change; see conference website for updates.

Tuesday 14 May 2019

8:45 – 18:30

SHORT COURSE PROGRAM

See page 7 for details.

18:45 – 20:30

WELCOME RECEPTION

Time/location to be confirmed.

Wednesday 15 May 2019

9:00 – 10:30

WELCOME AND OPENING PANEL

Welcome Remarks, *Silvestre Lacerda*, director-general of the Directorate-General for Books, Archives and Libraries, and director of the Torre do Tombo National Archive

Portuguese Projects on Photography Collections Digitization Panel, Join moderator Luis Pavão, director of LUPA, and panelists from important photographic collections throughout Portugal for an interesting discussion on current efforts in Portugal to digitize their rich photographic history.

11:10 – 12:25

PRESERVATION/ARCHIVING: STANDARDS AND GUIDELINES

Preserving the European Union's Digital Publications Heritage: Lessons Learnt on our Journey to Making the Past Accessible for the Future, *Els Breedstraet*, Publications Office of the European Union (Luxembourg)

Oral History Collections in DANS EASY: Archiving AV Materials in Accordance with the FAIR Principles, *Eliane Fankhauser*, DANS (the Netherlands)

Metamorfoze Preservation Imaging Guidelines, Version 2.0, *Hans van Dormolen*, Hans van Dormolen Imaging & Preservation Imaging (HIP) (the Netherlands)

12:25 – 12:40

EXHIBITOR PROFILES

12:40 – 14:00

GROUP LUNCH

14:00 – 14:50

OPENING DAY KEYNOTE

How the Market Changed—And the Lives of Photographs, *Jonas Palm*, Riksarkivet/National Archives (Sweden)

See conference website www.imaging.org/ Archiving for keynote abstract and speaker bio.

14:50 – 17:35

DIGITIZATION: LARGE SCALE/ MASS DIGITIZATION AND WORKFLOW MANAGEMENT SYSTEMS

Total Digital Access to the League of Nations Archives: Digitization, Digitalization, and Analog Concerns, *Colin Wells*, United Nations Office at Geneva (Switzerland)

Managing the Digitisation Chain: Practical Tools for Process Management and Multi-Faceted QA, *Nele Gabriels*, *Dirk Kinnaes*, *Diederik Lanoye*, *Bruno Vandermeulen*, and *Mark Verbrugge*, KU Leuven Libraries (Belgium)

Collaborative Capture: Leveraging Minimal Studio Space for Maximum Output, *Margaret McKee* and *Adam Neese*, The Menil Collection (USA)

Reviving DC's Comic Book Collection Large Scale Graphics Scanning for an Integrated Archive, *Stuart Baker*, Deluxe Archive Solutions & Deluxe Government Solutions (USA)

Methodology and Tools for Calibration, Quality Verification, and Measurement Interpretation in Digital Cinema Projection, *Miloslav Novák*, University of Hradec Kralove, and *Karel Fliegel*, Czech Technical University in Prague (Czech Republic)

Closing Remarks

Evening on Own

Thursday 16 May 2019

9:00 – 10:00

WELCOME REMARKS AND THURSDAY KEYNOTE

The JPEG2000 Suite of Standards: Capabilities and New Opportunities, David Taubman, deputy head School of Electrical Engineering and Telecommunications, UNSW Sydney, and director, Kakadu Software Pty. Ltd., (Australia)
See conference website www.imaging.org/ Archiving for keynote abstract and speaker bio.

10:00 – 12:20

PRESERVATION/ARCHIVING: ARCHIVAL MODELS AND WORKFLOWS

Preserving Irreplaceable National Cultural Heritage in the Arctic World Archive, Morten Thorkildsen, National Museum of Norway; John Fredrik Sjøvik, Sopra Steria; and Bendik Bryde, Pipl (Norway)

A Blueprint for Preserving Virtual World Cultural Heritage Using Preservica & Custom Metadata Schema, Marie Vans, HP Inc., and Patricia Franks, San José State University (USA)

Preservation of Evolving Complex Information Objects, Ivan Subotic and Lukas Rosenthaler, University of Basel (Switzerland)

Tools for Presenting Multimedia Performance Documentation Using 3D Visualisations, Roman Berka¹, Bohus Ziskal², and Zdenek Travnicek¹; ¹Czech Technical University in Prague and ²CESNET (Czech Republic)

12:20 – 13:30

GROUP LUNCH

13:30 – 14:45

ACCESS: FORMATS FOR PRESERVATION AND ACCESS

Standardized Reflection Transformation Imaging (RTI) for Documentation and Research, Peter Fornaro, University of Basel (Switzerland)
ObjectVR Fashion: The Drexel Digital Museum Project, Kathi Martin, Claire King, and Nick Jushchysyn, Drexel University (USA)

Media for a Space-based “Digital Noah’s Archive” (DNA), Richard Solomon¹, Eric Rosenthal², Melitte Buchman³, Jonathan Smith¹, Clark Johnson², William Butterfield³, and Brian Solomon²; ¹University of Pennsylvania, ²Creative Technology, LLC, and ³New York University (USA)

15:30 – 18:00

BEHIND-THE-SCENES TOURS

See page 6 for details.

20:00 – 22:30

CONFERENCE DINNER

Exact time and location to be confirmed.

Friday 17 May 2019

9:00 – 10:05

CLOSING KEYNOTE AND AWARD PRESENTATIONS

CERN’s Digital Memory: When Patrimony Data Meets Scientific Data, Jean-Yves Le Meur, Digital Memory project leader, CERN (Switzerland)

See conference website www.imaging.org/ Archiving for keynote abstract and speaker bio.

10:05 – 10:35

INTERACTIVE PAPER PREVIEWS

Bringing the Humanities and Engineering Together through Multi-disciplinary Senior Design Team Projects, Susan Farnand, Rochester Institute of Technology (USA)

Creating Artificial Ground-truth Data for Document Image Page Segmentation, Oliver Paetzel, intranda GmbH (Germany)

Preprocessing Pipeline for Italian Cultural Heritage Multimedia Datasets, Isabella Gagliardi and Maria Teresa Artese, CNR (Italy)
Content Analysis & Anonymization Made Simple, Anssi Jääskeläinen and Miia Kosonen, South-Eastern Finland University of Applied Sciences (Finland)

Automatic Metadata (Entity) Extraction and Workflow Efficiency: Real Life Solutions, *Martijn van der Kaaij, Heron Information Management LLP (the Netherlands)*

Bibliotheca Philadelphiensis: Collaborative Digitization and Data Management, *Michael Overgard and Anna Levine, University of Pennsylvania Libraries (USA)*

How Accurate Can be the Smartphone Camera for Cultural Heritage Color Reproduction?, *Alexandre Leao, Federal University of Minas Gerais (Brazil), and Stephen Westland, University of Leeds (UK)*

Unvoluntary Pseudos: The Untransposed Stereos in the Digital Archives, *Victor Flores, Universidade Lusófona de Humanidades e Tecnologias (Portugal)*

Development of Open Access Multi-Disciplinary Database of Assyrian Cuneiform Tablets — An Improvement of 3D Models and Data Re-use, *Jaroslav Valach, Academy of Sciences of the Czech Republic, and Petra Štefcová, National Museum (Czech Republic)*

Crowdsourcing: The Today's Valuable Tool, *Ricardo Charters-d'Azevedo, researcher (Portugal)*

The Challenge of Archiving Audio Visual Heritages in Northern Nigeria, *Musa Salih Muhammad, Ahmadu Bello University (Nigeria)*

Functional Applications of Text Analytics Systems, *Steven Simske, Colorado State University, and Marie Vans, HP Inc. (USA)*

Digital Archive Use in Physical Education and Sports Culture, *Yung-Cheng Hsieh and Tzu Han Chen, National Taiwan University of Arts (Taiwan)*

A Current Practical-oriented Manual for Digitizing Photographic Negative Collections and Producing Analogue Safety Copies, *Carolin Pommert (Germany)*

Challenges in the Cloud of Personal Archives, *Hugo Quisbert, ArkivIT (Sweden)*

10:35 – 11:25

INTERACTIVE PAPER (POSTER) SESSION AND COFFEE BREAK

Meet the authors listed above and learn about their papers.

11:25 – 12:40

MANAGEMENT AND PARTNERSHIPS/ COLLABORATIONS: BEST PRACTICES, LESSONS LEARNED, AND CASE STUDIES

Prioritizing Black Digital Narratives from Process to Preservation: The Robert F. Smith Fund at the National Museum of African American History and Culture, *Doretha Williams, Leah Jones, Kamilah Stinnett, Hannah Scruggs, and Bleakley McDowell, National Museum of African American History and Culture (USA)*

Digital (Preservation) Technologies Using Crowdsourced, Community-Based Efforts within Endangered Regions, *Brian Pope and Scott Purdy, Arc/k Project (USA)*

Crowdsourcing the Smithsonian: Developing and Maintaining the Smithsonian Transcription Center and the Volunteer Community, *Caitlin Haynes, Smithsonian Institution, Quotient, Inc. (USA)*

12:40 – 13:45

GROUP LUNCH

13:45 – 15:25

ACCESS: INTEGRATION OF LINKED OPEN [USABLE] DATA (LOD/LOUD), OPEN SOURCE SOLUTIONS, AND APIS

Digitizing, Archiving...and then? Ideas about the Usability of a Digital Archive, *André Kilchenmann, Flavie Laurens, and Lukas Rosenthaler, Data and Service Center for the Humanities DaSCH (Switzerland)*

Linked Open and Annotated Science and Heritage Data, *Fenella France and Andrew Forsberg, Library of Congress (USA)*

Cluster-based Unsupervised Automatic Keyphrases Extraction Algorithms: Experimentations on Cultural Heritage Datasets, *Isabella Gagliardi and Maria Teresa Artese, CNR (Italy)*

Technical Challenges and Approaches to Build an Open Ecosystem of Heterogeneous Heritage Collections, *Ricard de la Vega,*

Natalia Torres, Albert Martínez, and David Fernández, *Consorci de Serveis Universitaris de Catalunya (CSUC) (Spain)*

15:50 – 17:00

DIGITIZATION: NEW DEVELOPMENTS IN TECHNOLOGIES AND WORKFLOWS

High Resolution Film Scanning Reconstruction by Image Stitching and Intensity Correction,
Lei He, Library of Congress (USA)

The Digitalization of Analogue Stereo Photographs and the Creation of the Digital Stereo Archive, *Rodrigo Peixoto and Filipe Luz, Universidade Lusófona de Humanidades e Tecnologias (Portugal)*

ISO Standards for Monitoring Image Quality,
Dietmar Wüller, Image Engineering GmbH & Co. KG (Germany)

17:00 – 17:15

CLOSING REMARKS

Behind-the-Scenes Tours: Thursday 16 May

Each year, the Archiving Conference prepares a set of Behind-the-Scenes Tours at local cultural heritage institutions where participants learn about the digitization, preservation, and access processes, challenges, and successes of colleagues. All tours take place Thursday afternoon. They are reserved on a first-come, first-served basis. Tour registration information and logistic details will be sent immediately following the early registration deadline to anyone registered by that date. Those who register after the early registration deadline will receive the tour registration form at that time.

CONFIRMED TOURS

Final listing will be posted week of March 18.

CALOUSTE GULBENKIAN FOUNDATION

Art Library and Archives

The Calouste Gulbenkian Foundation was created in 1956 by the last will and testament of Calouste Sarkis Gulbenkian, a philanthropist of Armenian origin who lived in Lisbon between 1942 and the year of his death, 1955. The Foundation has a museum that houses the Founder's private collection, alongside a collection of modern and contemporary art; an orchestra and choir; an art library and archive; a scientific research

institute; and a garden, in a central area of the city of Lisbon, where educational activities also take place. The Art Library and Archives contains more than 190,000 titles of monographs, general works, and reference materials; architectural and artists archives; more than 200 photographs; the most significant Portuguese collection of artist books; and the Foundation Archive. Participants head to a conference room for a brief presentation and discussion with digital media and preservation staff about the digital strategic dissemination of information. The tour also showcases special collections highlights and includes a brief visit to the storage facilities. After the tour, you are welcome to explore the Foundation and the garden on your own.

LUPA, LUIS PAVÃO LDA

Conservation and Digitization Departments

LUPA has been working with public and private photographic collections since 2002. During the tour, participants see preservation procedures (cleaning, housing, and organizing); restoration treatments; and the digitization systems, including workflow and quality control. Samples of historic prints and recreation of historic photographic printing processes is also shown.

Short Course Program: Tuesday 14 May

2-hour Classes 8:45 – 10:45

NEW for 2019!

SC1A: Introduction to Color Measurement for Archiving

Time: 8:45 – 10:45 (2 hours)

Track: Capture: Getting good color/data

Level: Introductory

Instructor: David R. Wyble

Benefits: This course enables the attendee to:

- Understand the terminology of calibration and applications for color measurements.
- Understand the best practices for color measurements.
- Interpret measurement results, and the implications of the various parameters in CIELAB calculations.
- Understand some of the processes of managing an array of instruments across an organization.

Course Description

This class is your best practices guide for color measurement. To help us all speak the same color language, we start by defining the terms describing the instruments and quantities used in color measurement. Besides instrumentation, you also need to know about what you actually measure: samples and sample preparation. After you take that measurement, you get data, and probably lots of it. You've probably heard of RGB data, but that is not going to be as useful as you might think. We learn about color spaces that can relate the instrument data to how people see colors—which is the ultimate goal of color measurement. The data need to be incorporated into a program that operates within your other work processes. And like other work processes, you will want to track the performance of your instruments: How do they compare with each other? Are they consistent over time? We would call this managing a measurement program. When

we are done you should understand how to take a measurement (there will be real instruments on hand), how to interpret color data (we will take measurements and look at the results), and how to track and compare instruments over time.

This course is intended to prepare attendees for two additional short courses: SC2A: Advanced Concepts in Color Measurement and SC4A: Introduction to Color Management for Cultural Image Capture, although it is not a required prerequisite for either.

Intended Audience: Anyone responsible for making or interpreting color measurements, or managing those that do. A technical background is not required, although an understanding of basic scientific principles is very helpful.

David R. Wyble is president and founder of Avian Rochester, LLC. Since 2011, Avian Rochester has been delivering color standards; traditional and custom measurements; and consulting services to the color industry. Prior to founding Avian Rochester, Wyble was a color scientist within the Munsell Color Science Laboratory at the Rochester Institute of Technology, and before that a member of research and technology staff at Xerox Corp. He holds a BS in computer science and an MS and PhD in color science from RIT and Chiba University, respectively.

Special Notes for Short Courses

Please register for courses early to insure that they run. Short courses only registration is possible; conference registration is not required to take classes.

Take 3 classes and receive a 10% discount.

Monitors needed for classes; take a class for free in exchange for helping IS&T and instructors. Contact archiving@imaging.org for details.

NEW for 2019!**SC1C: JHOVE 101: Open Source File Format Validation****Time:** 8:45 – 10:45 (2 hours)**Track:** Workflow: Tracking images/data**Level:** Introductory**Instructors:** Carl Wilson, Martin Wrigley, and Rebecca McGuinness**Benefits:** This course enables the attendee to:

- Gain an understanding of the levels of file format validation and why this is important in preservation and archiving.
- Learn how to install and configure JHOVE.
- Get hands-on experience using JHOVE and learning how to interpret the results.
- Understand JHOVE's capabilities and limitations.
- Find out how to report bugs, request features, and contribute to improving JHOVE using GitHub.

Course Description

This course provides participants with an understanding of how to: use JHOVE, a file format validation tool; how to interpret the results; and how to contribute to improving open source tools.

The course also provides an introduction to file format validation and explains the different levels of validation: well-formedness, validity, and consistency. Participants learn which formats JHOVE modules cover, with a particular focus on the PDF module. We examine the capabilities and limitations of JHOVE's functionality.

After discussing the installation and configuration of JHOVE, we use the JHOVE test corpus to run the software and investigate the results. Participants are encouraged to bring a sample test set of their own data to use in the course. Additional features of JHOVE and course activities include understanding error messages and looking at the current JHOVE development roadmap and plans for the future.

Intended Audience: Anyone new to JHOVE inter-

ested in getting some hands-on experience using the software and current JHOVE users who want to know more about interpreting validation results.

As technical lead for Open Preservation Foundation (OPF), Carl Wilson advances all of OPF's technical activities. He is an experienced software engineer with a focus on software quality through testing, and an open source enthusiast, both as a user and developer.

OPF Executive Director Martin Wrigley is responsible for working with OPF members and the Board to develop the future strategy and enhance OPF's portfolio of open source digital preservation tools.

OPF Community Manager Rebecca McGuinness manages OPF's outreach, training, and knowledge sharing program. She led the training work package for the EU SCAPE project.

SC1D: Introduction to IIIF**Time:** 8:45 – 10:45 (2 hours)**Track:** Access: Sharing images/data**Level:** Introductory**Instructors:** Peter Fornaro and Alexander Käslin**Benefits:** This course enables the attendee to:

- Gain knowledge of IIIF protocols and capabilities, as well as the needs of the server and functionality of the API.
- Understand the requirements of the master file.
- Learn how an IIIF request is made.
- List the features IIIF offers, and what it cannot yet do.

Course Description

Interoperability is the next level of giving access to data. The most famous initiative to make data interoperable is IIIF, the international image interoperability framework. IIIF standardizes the access to image resources and allows for standardized searches. Images can be adjusted in size, cropped, and/or rotated on the fly, while being accessed. Such a flexible request to images simplifies the data structures needed and allows flexible image presentation. Due to the fact that only the image master must be stored,

Short Courses At-a-Glance by Track

Descriptions for short courses begin on page 7.

Capture: Getting good color/data		Processing: Working with images/data	Workflow: Tracking images/data	Access: Sharing images/data
8:45 – 10:45 (2 hrs) NEW for 2019! SC1A: Introduction to Color Measurement for Archiving		8:45 – 13:00 (4 hrs) NEW for 2019! SC1B: Introduction to Digital Image Processing	8:45 – 10:45 (2 hrs) NEW for 2019! SC1C: JHOVE 101: Open Source File Format Validation	8:45 – 10:45 (2 hrs) NEW for 2019! SC1D: Introduction to IIIF
11:00 – 13:00 (2 hrs) SC2A: Advanced Concepts in Color Measurement	11:00 – 13:00 (2 hrs) SC2B: Spectral Imaging and Technical Aspects		11:00 – 13:00 (2 hrs) SC2C: Quality Assurance Workflows for Digitization Projects	Register for 3 classes save 10%. See registration form for details. Online reg code: 2019PICK3
14:15 – 16:15 (2 hrs) UPDATED for 2019! SC3A: Scanner & Camera Imaging Performance . . .	14:15 – 17:15 (3 hrs) EXPANDED for 2019! SC3B: Spectral Image Processing	14:15 – 18:30 (4 hrs) NEW for 2019! SC4B: Data Compression Formats for Digital Archiving	14:15 – 18:30 (4 hrs) NEW for 2019! SC3C: End-to-End Digitization Workflow: Goobi-to-Go for Newbies	
16:30 – 18:30 (2 hrs) SC4A: Introduction to Color Management for Cultural Image Capture				The ECHOES workshop is free, but requires registration and a fee if you are a “no show”. Space is limited. See registration form for details. 17:30 – 18:30 (1 hr) FREE Workshop W4D: ECHOES Workshop

the process of archiving is much simpler and data volume reduced. This practical course details the concept of IIIF; the requirements of the master file and IIIF server; the functionality of the API; and IIIF’s current features.

Intended Audience: Anyone who wants to learn how to work with IIIF.

Peter Fornaro is in the management team of the Digital Humanities Lab of the University of Basel. Fornaro has a degree in electrical engineering and photography

as well as a PhD in physics. He is doing research and teaching in the field of digital archiving, imaging, cultural heritage preservation, and computational photography.

After obtaining an MSc in chemistry from the University of Basel and working at ETH Zürich as a research assistant in organic chemistry, Alexander Käslin started his own company offering tutoring in chemistry, physics, and mathematics. Since 2018, he has worked as a product manager at Truvis AG, which develops innovative software solutions for digital imaging.

4-hour Class 8:45 – 13:00

SC1B: Introduction to Digital Image Processing

Time: 8:45 – 13:00 (4 hours)

Track: Processing: Working with images/data

Level: Introductory

Instructor: Christoph Voges

Benefits: This course provides the attendee with insight into image processing algorithms including:

- Image filtering
- Frequency analysis
- Edge detection
- Feature extraction

Course Description

Digital image processing is a key discipline in digital archiving and related areas. Many professionals in this field are using digital image processing techniques contained in software applications (such as Adobe Photoshop or GIMP) when working with digital images. Normally, these techniques are just being used and details (except some parameters which have to be specified) are “hidden” in the software. In the hands-on part of the course, attendees apply these image processing methods to real digital images.

Intended Audience: Professionals working in digital archiving and related areas who have to work with and/or understand digital image processing.

Christoph Voges works at Hochschule für angewandte Wissenschaften (HAWK) in Göttingen, Germany, and as a consultant. He is an experienced lecturer and has held academic courses at various institutions. Voges studied electrical engineering at Technische Universität Braunschweig (Germany) / University of Southampton (UK) and his doctoral thesis was on “Long-term Archiving of Digital Data on Film.” His specific research interests and areas of expertise are information technology as well as signal and image processing, including digital long-term data storage and digital archiving as applications. Voges received the DGPh Robert-Luther-Award (2014), an IS&T Service Award

(2015), and the Archiving Conference Obsolete Media Award for Best Interactive Paper (2008 and 2010). Voges served as Archiving Conference Program Chair (2013) and General Chair (2014).

2-hour Classes 11:00 – 13:00

SC2A: Advanced Concepts in Color Measurement

Time: 11:00 – 13:00 (2 hours)

Track: Capture: Getting good color/data

Level: Intermediate/Advanced

Instructor: David R. Wyble

Benefits: This course enables the attendee to:

- Understand the functions of spectrophotometer components.
- Define the standardization (calibration) process of spectrophotometers and understand the implications of standardization upon the measurement process.
- Interpret measurement requirements and select appropriate measurement parameters and geometries for various applications.
- Understand the point of “hand-off” from spectral measurements to colorimetric calculations.
- Understand the methods for evaluating and correcting spectrophotometers.

Course Description

This course starts at the end of the introductory course (SC1A) and moves into more advanced topics. The internal details of color measurement instruments are covered: what are the various subsystems, how they relate, and why you should care. The focus is on good spectral reflectance measurements, leading to the calculation of accurate colorimetric data from that spectral data. You also need to know how to standardize (you may say “calibrate”) an instrument, and what that really means. Next we discuss the general types of instruments available: CIE geometries for reflectance and transmittance. Once you have data, how can you know if it is good? And how does it compare with the

other instruments in your organization? Precision and accuracy are the terms we use for these comparisons and analyses. With this course, you should fully understand the procedures and concepts that lead to proper spectral measurements which in turn lead to the best colorimetric coordinates.

Intended Audience: Anyone responsible for making or interpreting color measurements, or managing those that do. A technical background is not required, although an understanding of basic scientific principles will be very helpful. It will be assumed that attendees have the background provided in the SC1A introductory course.

See instructor bio under SC1A: Introduction to Color Measurement for Archiving, page 7.

SC2B: Spectral Imaging and Technical Aspects

Time: 11:00 – 13:00 (2 hours)

Track: Capture: Getting good color/data AND Processing: Working with images/data

Level: Introductory

Instructors: Fenella G. France and Meghan Wilson

Benefits: This course enables the attendee to:

- Understand how spectral imaging could improve your institutional digitization.
- Understand and assess imaging systems and illumination modalities (reflected, side-lighting, transmitted) to best meet the needs of specific collection materials.
- Integrate the priorities of scholars, curators, and researchers into digital projects.
- Manage large datasets and metadata.
- Assess the benefits of spectral imaging in relation to specific research questions.

Course Description

This course examines the connections between non-invasive spectral imaging techniques and the cultural, societal, and provenance information contained within original sources that is not captured in base digitization. Students are introduced to the range of types of spectral imaging that can be under-

taken to explore unknown information hidden within the original source material.

Digital studies of cultural heritage collection materials are moving beyond simple RGB image capture to include multispectral imaging. These non-invasive imaging systems provide specialists and researchers with a tool that can reveal hidden information and additional useful data that enables a deeper understanding of collections. The incorporation of a multispectral imaging workflow allows recovery of erased or obscured writing, exposure of important provenance features such as watermarks, the identification of inks and colorants, and provides a means for in-depth analysis of creation techniques and material characteristics. These features are important for scholars, authentication, “fingerprinting”, and the care of collections.

Intended Audience: This course supports a wide range of professionals who work on or are planning to work on collaborative, multidisciplinary projects that would benefit from spectral imaging. These include preservation professionals and scholars; scientists and engineers; digital specialists; program managers and directors; database administrators; and archivists, curators, librarians, and researchers.

Fenella G. France, chief of the Preservation Research and Testing Division of the Library of Congress, develops non-destructive imaging techniques for collections. Her focus is spectral imaging and processing techniques to increase links between scientific and scholarly data. She received her PhD from Otago University, New Zealand, and has worked internationally on many heritage projects. She serves on a range of professional committees, collaborating with colleagues from academic, cultural, forensic, and federal institutions. She is currently a distinguished presidential fellow for CLIR.

Meghan Wilson is a preservation science specialist in the Preservation Research and Testing Division at the Library of Congress with a degree from the Maryland Institute College of Art. She has worked extensively on multiple spectral imaging programs around the world and specializes in operation, training, quality control, and data management of this imaging technology.

SC2C: Quality Assurance Workflows for Digitization Projects

Time: 11:00 – 13:00 (2 hours)

Track: Workflow: Tracking images/data

Level: Introductory

Instructor: Martina Hoffman

Benefits: This course enables the attendee to:

- Understand the need for a suitable QA for digitization of cultural heritage.
- Identify key questions to start a successful QA workflow.
- Define the basic ingredients for QA.
- Understand the principles of a modular QA-workflow.
- Implement the mix and match principle according to the given basic ingredients.

Course Description

This practical course uses the successful quality assurance (QA) workflow process implemented at the National Library of the Netherlands to explain how to set up reliable QA workflow for (mass) digitization projects at cultural heritage institutions. Using real-world examples, we explore the mix and match principle of Simple – Flexible – Efficient – Modular – Low cost – Fast. You learn which modules are useful and how to build a workflow around them. Students are invited to prepare questions on the topic for the group to discuss.

Intended Audience: Managers, program officers, project leaders, suppliers, and QA managers responsible for (mass) digitization programs. A basic knowledge of digitization projects will be assumed.

Martina Hoffmann is currently senior production manager for digitization at the National Library in the Netherlands for the archival section of Metamorfoze. Previously, she was operational manager for quality control of digitized products there. She has co-designed several quality assurance workflows for different mass digitization projects in the Netherlands. Her areas of expertise include image quality QA processes, metadata, and long-term preservation.

2-hour Class 14:15 – 16:15

UPDATED for 2019

SC3A: Scanner & Camera Imaging Performance: Ten Commandments

Time: 14:15 – 16:15 (2 hours)

Track: Capture: Getting good color/data

Level: Introductory

Instructors: Peter Burns and Don Williams

Benefits: This course enables the attendee to:

- Interpret and comply with customer imaging requirements.
- Establish accountability for imaging performance problems.
- Compare various levels of FADGI and Metamorfoze guidelines.
- Critically evaluate manufacturers' claims of resolution, color errors, and noise.

Course Description

This is a no-nonsense course on simple and achievable tools/techniques to build a solid digital imaging foundation for the capture of high-quality digital images. We have updated this course from a previous Top Ten Tips publication. These include realistic color management, predictable behavior of branded capture devices, and new methodologies for rapid capture imaging. Specific and practical examples of the use of ISO standards and institutional guidelines are described. More specifically, we address how to meet FADGI and Metamorfoze guideline requirements. The elements of this course can be applied by digital image service providers, collection custodians, and device manufacturers.

Intended Audience: Managers, engineers, and technicians responsible for evaluating and monitoring scanner and camera performance, and emerging guidelines. This includes manufacturers, service providers, and content custodians. A working knowledge of digital scanner and camera operation and their common technologies will be assumed.

Don Williams is founder of Image Science Associates,

a digital imaging consulting and software group. Their work focuses on quantitative performance metrics for digital capture of digital imaging devices, and imaging fidelity issues for the cultural heritage community. He has worked for a number of large cultural heritage institutes in practical implementation of image quality controls and is the prime architect for the Golden-Thread image quality evaluation tools. He has taught short courses for many years and contributes to several imaging standards activities.

Peter Burns is a consultant working in digital image evaluation, system monitoring, and image processing. He has experience in several areas of digital imaging, digital photography, mobile imaging, and cultural heritage.

3-hour Class 14:15 – 17:15

EXPANDED for 2019

SC3B: Spectral Image Processing

Time: 14:15 – 17:15 (3 hours)

Track: Processing: Working with images/data

Level: Intermediate

Instructors: Fenella G. France and Meghan Wilson

Prerequisite: SC2B Spectral Imaging and Technical Aspects (see page 11)

Benefits: This course increases participants understanding of image processing and the analysis of multiple layers of data, including:

- Revealing and enhancing non-visible text and information through principal component analysis.
- Mapping spectral responses (Z-profile) to characterize inks, pigments, and colorants on a range of heritage substrates (paper, parchment, ceramics, textiles).
- Applying spectral curve analysis to track change over time and identifying at-risk collection materials.

Course Description

Ultimately this course examines the gains from processing spectral data, in particular the cultural, societal, and provenance information contained within original sources that is not

Short Course Fees

If you register on or before 15 April/after 15 April

2-hour	Member	Non-mem	Student
	\$165/\$215	\$190/\$240	\$65/\$115
3-hour	Member	Non-mem	Student
	\$210/\$260	\$235/\$285	\$80/\$130
4-hour	Member	Non-mem	Student
	\$250/\$300	\$275/\$325	\$95/\$145

Take 3 classes and receive 10% off the course registration fees. Use 2019Pick3 coupon code during checkout. May not be used with other offers.

Please Note: IS&T reserves the right to cancel classes in the event of insufficient advance registration. Please indicate your interest early.

apparent without spectral data processing.

The course includes hands-on processing of actual spectral imaging datasets. Course participants are required to bring their own laptops. Free software and datasets are provided for download prior to the course.

Intended Audience: This course supports a wide range of professionals who work on or are planning to work on collaborative, multidisciplinary digital projects that require spectral image processing. These include preservation professionals and scholars; scientists and engineers; digital specialists; database administrators; program managers and directors; and archivists, curators, librarians, and researchers.

See instructor bios under SC2B: Spectral Imaging and Technical Aspects, page 11.

4-hour Classes 14:15 – 18:30

NEW for 2019

SC3C: End-to-End Digitization Workflow: Goobi-to-Go for Newbies

Time: 14:15 – 18:30 (4 hours)

Track: Workflow: Tracking images/data

Level: Introductory

Instructors: Steffen Hankiewicz and Jan Vonde

Benefits: This course enables the attendee to:

- Install Goobi and setup workflows to manage digitization projects.

- Understand how Goobi is used in different user roles.
- Enrich digitized objects with detailed metadata and structure information.
- Configure easy validation rules to guarantee a minimum quality of the digitized objects (files and metadata).
- Automatically ingest digitized objects into a Fedora repository.
- Publish digitized objects with metadata and structure data in standardized formats as a digital library including METS files and IIIF Manifests.

Course Description

The subtitle of this course is “How to set up and use your own Goobi instance to digitize and publish your objects via IIIF in less than 30 minutes” which says it all. The course explains how the Goobi software suite (Goobi workflow and Goobi viewer) is used to manage small and even big digitization projects. Attendees learn how to install the Goobi-to-go environment on their own computers and adapt the software to customize workflows, including tasks for automatic jobs, validation, conversion, and metadata enrichment. Attendees also learn how processed digitized objects can be ingested automatically into a Fedora repository and how to publish the results within the Goobi viewer as a digital library system based on automatically generated METS files and IIIF Presentation Manifests.

Participants must bring their own laptops (Windows, Mac, or Linux) for this hands-on session. Please make sure that your computer has Java 8 installed to be able to use Goobi. If needed, meet with instructors prior to the class to prepare your computer.

Intended Audience: Anyone interested in managing digitization projects, no matter their size. No technical skills are required to attend this short course.

Steffen Hankiewicz is a senior software developer, CEO and owner of the German software company intranda

GmbH. He has been developing and implementing software solutions for digitization projects for more than 15 years. The open-source workflow management and publishing suite Goobi as well as several automatic tools for cropping, validation, conversion, and many other software for handling 2D and 3D material are some of the current digitization tools he develops and supports together with his team in 16 countries.

Jan Vonde has worked at intranda GmbH since 2010 and supports a variety of digitization projects in several institutions worldwide. Additionally, he is product manager of the Goobi viewer.

NEW for 2019

SC4B: Data Compression Formats for Digital Archiving

Time: 14:15 – 18:30 (4 hours)

Track: Processing: Working with images/data

Level: Intermediate

Instructor: Christoph Voges

Benefits: This course provides deep insight into data compression methods and enables attendees to understand the fundamental differences, advantages, and limitations of specific compression methods.

Course Description

Today, a large variety of different file formats can be encountered in digital archiving. Many of these formats involve data compression, wherein different types of compression can be used. As an example, JPEG, JPEG2000, and LZW-compressed TIFF are commonly used for storing digital images, whereby each format relies on a different compression method. For digital archiving professionals, detailed knowledge on the compression technique of a specific file format can be very important, e.g., regarding the loss that some techniques may introduce.

Intended Audience: Professionals working in digital archiving and related areas who have to work with compressed file formats.

See instructor bio under SC1B: Introduction to Digital Image Processing, page 10.

2-hour Class 16:30 – 18:30

SC4A: Introduction to Color Management for Cultural Image Capture

Time: 16:30 – 18:30 (2 hours)

Track: Capture: Getting good color/data

Level: Introductory

Instructors: Don Williams and Peter Burns

Benefits: This course enables the attendee to:

- Interpret and comply with customer imaging requirements.
- Establish accountability for imaging performance problems.
- Compare various levels of FADGI and Metamorfoze guidelines.
- Critically evaluate manufacturers' claims of resolution, color errors, and noise.

Course Description

This course provides an introduction to color management for cultural heritage image capture. We start with the elements of color vision that are behind all practical color imaging systems, then discuss how current imaging technologies for cameras and scanners are chosen to facilitate the capture of standard color images. Specifics of common image transformation from camera detector RGB signals to standard CIE colorimetry are explained. Color-difference measures based on CIELAB color space, and how ICC color profiles are used are explained. Specifically, the CIELAB-based color-difference method used in several institutional standards and guidelines (e.g., FADGI and Metamorfoze) is discussed using several examples. *This presentation is intended to complement SC1A: Introduction to Color Measurement for Archiving, see page 7.*

Intended Audience: Managers, engineers, and technicians responsible for evaluating and monitoring scanner and camera performance, and emerging guidelines. This includes manufacturers, service providers, and content custodians. Some knowledge of digital scanner and camera operation technologies is assumed, but color science is not.

See instructor bios under SC3A: Scanner & Camera Imaging Performance: Ten Commandments, page 12-13.

1-hour Free Workshop 17:30 – 18:30

NEW W4D: Workshop Echoes

Join us for the free one-hour ECHOES workshop. Space limited/registration required.

Time: 17:30 – 18:30 (1 hour)

Track: Access: Sharing images/data

Level: Introductory

Instructors: Walther Hasselo and Olav Kwakman

You've finished digitizing your collection, worked hard adding the appropriate metadata, and published it on your website. But is there more you can do to stimulate the use of the collection? ECHOES may be a way for you to open up your data and share it with the world by turning it into linked open data. ECHOES provides a set of free, open source software tools to help you transform metadata to linked open data, enrich the data, and search and display it in new and innovative ways via WordPress plugins. During this interactive workshop we demonstrate some of the possibilities.

Walther Hasselo is an Oracle DBA and certified Prince2 project manager. He is co-author of the guidelines for Open Data policies in Cultural Heritage. He has given numerous presentations on new ways of publishing cultural heritage information at various international conferences. He works at Heritage Leiden as project manager e-Heritage, in which capacity he is also project manager of the ECHOES project.

Olav Kwakman is an IT manager at the cultural heritage institute Tresoar in Leeuwarden, the Netherlands, where he currently works on the RedBot project combining Linked Open Data technology (ECHOES) with a network organization model. His work looks at innovative new ways to present digital heritage material within an expert network of collaborating cultural heritage institutes. Kwakman has a degree in computer science and business administration.

Archiving2019 Conference Registration

You may also register online at www.imaging.org/archiving

Prefix _____ Given name _____ Family name _____
 Title/Position _____
 Company _____
 Street Address _____
 City _____ State/Province _____
 Country _____ Postal Code _____
 Telephone _____ Fax _____ Email _____

Conference registration includes admission to all technical sessions (W-F), coffee breaks and lunch (W-F), Welcome Reception (Tu), Conference Dinner (Th), Behind-the-Scenes Tours (Th), and conference proceedings. One day registrations come with access to anything happening on that day. Separate registration fees are required for short courses. Student registration includes membership.

1. Conference Technical Registration

Please check ALL that apply. I am a: ☐ speaker ☐ session chair ☐ committee member
☐ IS&T member ☐ only taking short courses ☐ short course instructor

To better serve you, IS&T is offering conference registration options that include membership (new or renewal) with your choice of an online subscription to the *Journal of Imaging Science and Technology* (JIST) or *Journal of Electronic Imaging* (JEI) for the same price as the non-member fee. Students get membership with an online subscription to JIST with their registration.

	REGULAR		STUDENT	
	thru 15 April	after 15 April	thru 15 April	after 15 April
__ Conference registration: current IS&T Member	\$590	\$690	\$225	\$275
__ Conf. registration (+ new or renewing membership + JIST)*	\$690	\$790		
__ Conf. registration (+ new or renewing membership + JEI)*	\$690	\$790		
__ Conference non-member registration	\$690	\$790		
__ One-day: <input type="checkbox"/> Wed <input type="checkbox"/> Thurs <input type="checkbox"/> Fri	\$330	\$380	\$150	\$200

amount due \$ _____

2. Mandatory Question About Conference Dinner on Thursday

Please note: The Conference Dinner on Thursday evening is included with your registration fee, but we need an accurate count for the venue. Please indicate whether or not you intend to join the dinner, as well as provide dietary needs. If you say you will attend, but change your mind, you must cancel by May 1. If you cancel after that date or don't show up for the event, you will incur a \$50 "no-show fee" unless we find a replacement. By indicating you will attend the Conference Dinner, you agree to these rules.

I will attend the Conference Dinner on Thursday evening: yes ☐ no ☐

If yes, do you require a vegetarian meal: yes ☐ no ☐

Do you have other dietary restrictions (please list): _____

* Membership benefits include access to the IS&T Digital Library, an online subscription to the *Journal of Imaging Science and Technology* (JIST) or *Journal of Electronic Imaging* (JEI), conference fee discounts, and access to the member directory, among other things. Membership takes effect within two weeks of registration and expires 12/31/19. This offer may be used for renewals.

3. Free Workshop Registration

Please note: The ECHOES workshop is free, but space is limited. It will be assigned on a first-come/first-served basis. A waiting list will be established if needed. If you sign up for the workshop and change your mind, you must cancel by April 30. Anyone cancelling after that date or not showing up for the class will incur a \$50 "no-show fee". By signing up for the workshop, you agree to these rules.

I want to register for the ECHOES Workshop ☐

3. Short Course Registration (be sure to multiply number of classes by per course fee and place on total line)

Please note: Course notes for most classes are provided electronically prior to the conference for viewing on your computer/laptop or printing. Instructors without e-notes will provide hardcopies in class.

	on or before 15 April	after 15 April	TOTAL
4-hour Member (per class; select below)	\$250	\$300	\$ _____
4-hour Non-member (per class; select below)	\$275	\$325	\$ _____
4-hour Student (per class; select below)	\$95	\$145	\$ _____
Check all that apply <input type="checkbox"/> SC1B <input type="checkbox"/> SC4B <input type="checkbox"/> SC3C			
3-hour class SC3B Member	\$210	\$260	\$ _____
3-hour class SC3B Non-member	\$235	\$285	\$ _____
3-hour class SC3B Student	\$80	\$130	\$ _____
2-hour Member (per class; select below)	\$165	\$215	\$ _____
2-hour Non-member (per class; select below)	\$190	\$240	\$ _____
2-hour Student (per class; select below)	\$65	\$115	\$ _____
Check all that apply <input type="checkbox"/> SC1A <input type="checkbox"/> SC2A <input type="checkbox"/> SC3A <input type="checkbox"/> SC4A			
<input type="checkbox"/> SC2B <input type="checkbox"/> SC1C <input type="checkbox"/> SC2C <input type="checkbox"/> SC1D			

OR

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(use coupon code 2019Pick3 when registering online; cannot be used with other offers)**

(enter three, fill in member or non-member fee next to each, add, and multiply by .90 to get your price, representing 10% savings; add additional lines if needed)

SC_____ \$ _____ + SC_____ \$ _____ + SC_____ \$ _____ = \$ _____ x .90 = \$ _____

4. Additional Products

___ **Additional** copy of conference proceedings Note: One copy comes with your conference registration!

\$110 \$ _____

___ Additional ticket for your guest for the Welcome and Conference Receptions

Name/Affiliation of Guest for badge: _____ \$125 \$ _____

conference registration fee from previous page \$ _____

Wire transfer fee (\$25 if applicable) \$ _____

GRAND TOTAL \$ _____

Payment Method: ☐ AmEx ☐ MasterCard ☐ VISA ☐ Discover ☐ Wire Transfer* ☐ Check

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Return this form to IS&T, 7003 Kilworth Lane, Springfield, VA 22151 or fax to 703/642-9094.

*Contact registration@imaging.org for wire transfer information.

Please note: \$25 must be added to the total for wire transfer payments to cover bank costs.

**Please note: To cover bank charges and processing fees, there is a cancellation fee of \$75 until
15 April 2019. After that date, the cancellation fee is 50% of the total plus \$75.**

No refunds will be given after 14 May 2019. All requests for refund must be made in writing.

Archiving2019



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