

ARCHIVING2017

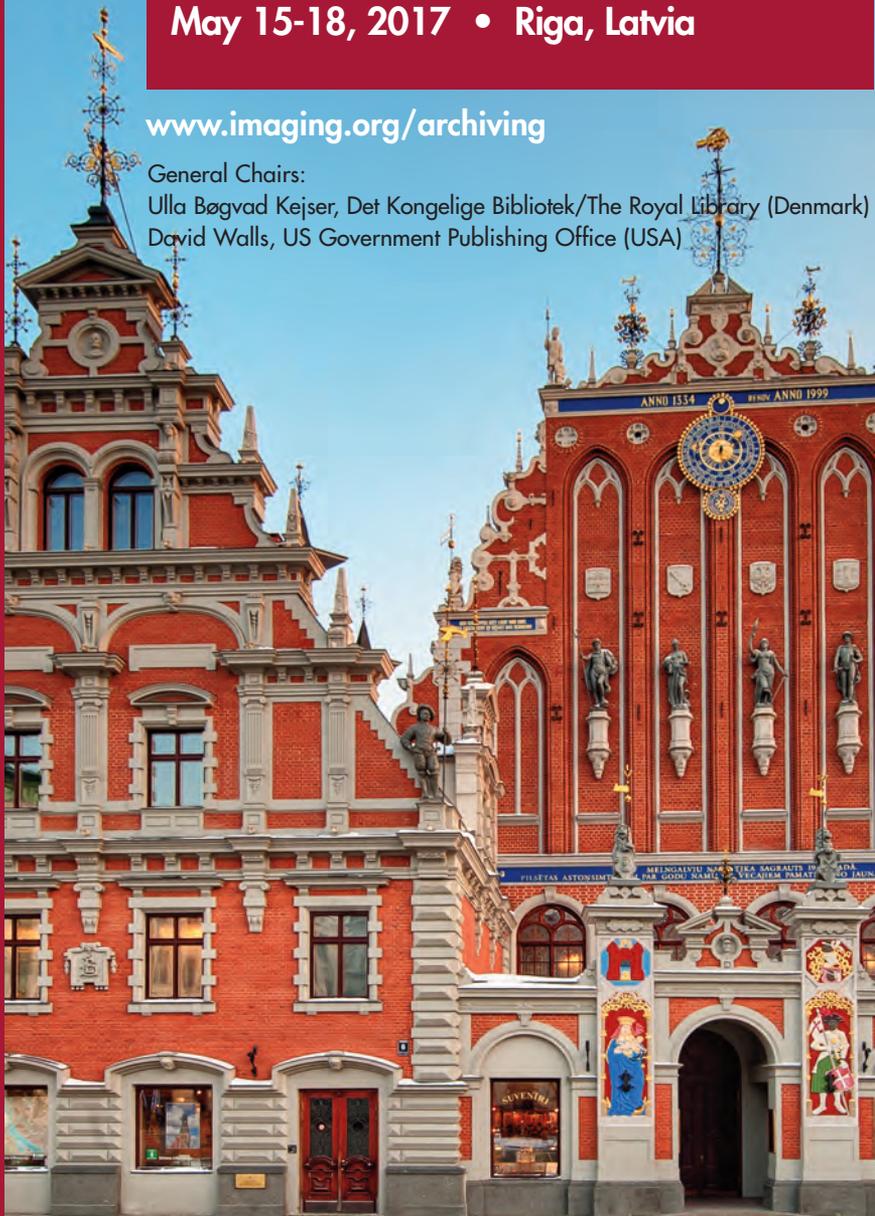
May 15-18, 2017 • Riga, Latvia

www.imaging.org/archiving

General Chairs:

Ulla Bøgvad Kejser, Det Kongelige Bibliotek/The Royal Library (Denmark)

David Walls, US Government Publishing Office (USA)



Sponsored by the Society for Imaging Science and Technology
in partnership with the National Library of Latvia and the
Latvian Museum of Photography



About the Conference

The IS&T Archiving Conference brings together an international community of imaging experts and technicians as well as curators, managers, and researchers from libraries, archives, museums, records management repositories, information technology institutions, and commercial enterprises to explore and discuss the field of digitization of cultural heritage and archiving. 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 2017 is a blend of short courses, keynote talks, 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.

Conference Partners



Cooperating Societies

- 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 at CLIR
- Digital Preservation Coalition (DPC)
- IOP/Printing & Graphics Science Group
- ISCC – Inter-Society Color Council
- Museum Computer Network (MCN)
- The Royal Photographic Society

NEW FOR 2017

Conference registration includes a group lunch each day in the restaurant at the National Library of Latvia.

Conference Committee

General Co-chairs

Ulla Bøgvad Keiser,*
Det Kongelige Bibliotek/The
Royal Library (Denmark)
David Walls,* US Government
Publishing Office (USA)

Program Chair

Don Williams,* Image Science
Associates (USA)

Short Course Chair

**Kathrine Hougaard Edsen
Johansen**,* Copenhagen City
Archives (Denmark)

Technical Program Committee

Michael J. Bennett, University
of Connecticut (USA)
Peter Burns,* Burns Digital
Imaging (USA)
Erik Landsberg, Cultural
Heritage Digitization
Consulting (USA)
Phil Michel, Library of
Congress (USA)
Christoph Voges, Hochschule
für angewandte Wissenschaft
und Kunst (HAWK), and
consultant (Germany)

Steering Committee

Those at left with an asterix (*)
after their name +
Suzanne E. Grinnan, IS&T
(USA)
Kari Smith, MIT Libraries,
Institute Archives and Special
Collection (USA)



Conference At-a-Glance

All short courses will take place at the Avalon Hotel and Conferences, 13. Janvāra iela 19, Rīga. Technical sessions will take place at the National Library of Latvia (LNB), Makusalas iela 3 (use main entrance on Uzvaras bulvaris).

Important Dates

Hotel registration deadline:

April 14, 2017

Early conference registration deadline:

April 16, 2017

Registration Desk Open

Monday, May 15

7:45 – 16:30 at Hotel Avalon

17:45 – 18:15 at Latvian Museum of Photography

Tuesday, May 16 8:00 – 16:00 at LNB

Wed., May 17 8:30 – 14:00 at LNB

Thursday, May 18 8:30 – 14:00 at LNB

Monday, May 15

- 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 at Latvian Museum of Photography, Mārstaļu 8, at 17:45; located 3 blocks from Avalon Hotel.

Tuesday, May 16

- Opening Panel: State-of-the-Art of Archiving in the Baltics
- Exhibition Opens
- Exhibitor Previews
- Group Lunch
- Technical Papers Program
 - Asset and Collection Management I
 - Advanced Imaging I
 - Access, Dissemination, and Use I
- Dinner on own with colleagues

Wednesday, May 17

- Wednesday Keynote: Collecting and Preserving the Born-Digital Heritage—New Aspects of an Old Challenge, *Raivo Ruusalepp, director of development, National Library of Estonia*
- Group Lunch
- Exhibition Closes
- Technical Papers Program
 - Interactive Paper (Poster) Previews
 - Interactive Paper (Poster) Session
 - Imaging Performance and Standards I
 - Asset and Collection Management II
- Behind-the-Scenes Tours; see page 6.
 - National Library of Latvia
- Conference Reception, location forthcoming

Thursday, May 18

- Thursday Keynote: Resonating Spaces: 3D imaging of the Berlin Philharmonie, *Chris Edwards, head of digital services, Getty Research Institute (USA)*
- Group Lunch
- Technical Papers Program
 - Advanced Imaging II
 - Access, Dissemination, and Use II
 - Imaging Performance and Standards II

Exhibit at Archiving 2017

Tuesday May 16 and Wednesday May 17

Tabletop exhibit featuring digital archiving related products and services.

For details, contact Donna Smith •

dsmith@imaging.org; +1-703-642-9090 x107

The Venue: Riga, Latvia

Founded in 1201, Riga's historical Old Town is a UNESCO World Heritage Site noted for its Art Nouveau ("Jugendstil") and 19th century wooden architecture. It is considered by many to have the finest examples of Art Nouveau architecture in the world, most grouped in one neighborhood of the city. At the same time it also boasts Gothic cathedrals, Neo-classic buildings, and compelling modern structures, such as the National Library of Latvia and the Vansu Bridge. As the capital of Latvia, Riga hosts nearly one-third of the country's population and is the largest city in the Baltics.

Its location on the Gulf of Riga at the mouth of the Daugava River and its proximity to beautiful beaches like Jurmala, add to its charm. There are plenty of cafes, restaurants, winding cobble streets, picturesque squares, museums, and monuments to explore in the city, ranging from the Latvian Museum of Photography and the Riga Film Museum to the Museum of the Occupation of Latvia and the Latvian Ethnographic Open Air Museum.

From above: View from Hotel Avalon onto the roofs of Old Town; window, Riga Art Nouveau Museum; boats marking the history of Riga are found along the banks of the city canal, which runs through the park that separates Old Town from Riga Center.

The Historic Centre of Riga is a living illustration of European history. Through centuries, Riga has been the centre of many historic events and a meeting point for European nations, and it has managed to preserve evidence of European influence on its historical development, borders between the West and the East, and intersection of trading and cultural routes. "

—whc.unesco.org/en/list/852



Conference Venues

Archiving 2017 technical sessions take place at the National Library of Latvia. Short courses and lodging are at Avalon Hotel & Conferences (see page 19 for lodging and transportation details). Visit www.latvia.travel/en/city/riga-8 for more information on what to see and do in Riga.



Technical Program*

Tuesday May 16, 2017

9:00 – 10:25

WELCOME AND OPENING PANEL

Welcome Remarks, *Andris Vilks, director, National Library of Latvia*

State-of-the-Art of Archiving in the Baltics, Join moderator Uldis Zarins, director of development at the National Library of Latvia, formerly manager of The European Library, and panelists Rimvydas Laužikas, professor at Vilnius University, Raivo Ruusalepp, director of development at the National Library of Estonia, and Arturs Zogla, head of digital library at National Library of Latvia for a discussion about archiving in Estonia, Latvia, and Lithuania.

11:05 – 12:20

ASSET AND COLLECTION MANAGEMENT I

My Precious Information—How to Preserve It?, *Anssi Jääskeläinen, Miia Kosonen, and Liisa Uosukainen, Mikkeli University of Applied Sciences (Finland)*

TIFF in Archives: A Survey about Existing Files in Memory Institutions, *Peter Fornaro, Lukas Rosenthaler, and Erwin Zbinden, University of Basel, and Martin Kaiser, KOST-CECO (Switzerland)*

Archiving Websites Containing Streaming Media, *Howard Besser, New York University (USA)*

12:20 – 12:40

EXHIBITOR PROFILES

12:40 – 14:00

GROUP LUNCH

Restaurant Kliversala within the LNB

14:00 – 15:15

ADVANCED IMAGING I

From Closed Testaments to Books: Virtual X-Ray Reading as Alternate Digitization Technology for Fragile Documents, *Fauzia Albertin¹, Marilisa Romito¹, Eva Peccenini^{2,3,4}, Matteo Bettuzzi^{2,3,4}, Rosa Brancaccio^{2,3,4}, Maria Pia Morigi^{2,3,4}, Monica Del Rio⁵, Dorit Raines⁶, Giorgio Margaritondo¹, and Demetri Psaltis¹; ¹École Polytechnique Fédérale de Lausanne (EPFL) (Switzerland), ²E. Fermi[®] Center, ³University of Bologna, ⁴Italian National Institute for Nuclear Physics (INFN), ⁵Venetian State Archive, and ⁶University of Ca' Foscari (Italy)*

Precise 3D Documentation—Between the Need of a High Resolution and the Limit of Visualization Possibilities, *Eryk Bunsch, Museum of King Jan III's Palace at Wilanow, and Robert Sitnik, Warsaw University of Technology (Poland)*

Image based Relighting Using Environment Maps, *Michael Tetzlaff and Gary Meyer, University of Minnesota (USA)*

15:55 – 17:10

ACCESS, DISSEMINATION, AND USE I

Simple Image Presentation Framework (SIPI)—An IIIF-based Image-Server, *Lukas Rosenthaler, Peter Fornaro, and Andrea Bianco, University of Basel (Switzerland)*

Content-based Interoperability: Beyond the Merely Technical Specifications of Interfaces, *Tobias Schweizer, Lukas Rosenthaler, and Peter Fornaro, University of Basel (Switzerland)*

Advances in Integrated Research Infrastructures for Science and Humanities Linked Data, *Fenella France, Library of Congress (USA)*

*Program subject to change; see final program for exact times and paper order.

Wednesday May 17, 2017

9:00 – 10:10

WEDNESDAY KEYNOTE

Collecting and Preserving the Born-Digital Heritage—New Aspects of an Old Challenge, *Raivo Ruusalepp, National Library of Estonia (Estonia)*

10:10 – 10:30

INTERACTIVE PAPER PREVIEWS

A Bottom-up Approach to Carry out Pre-Studies for the Implementation of Electronic Archives—A Case Study from a Swedish Municipality, *Hugo Quisbert, ArkivIT (Sweden)*
Using 3D Digitization in the Preservation of Industrial and Agricultural Heritage, *Tine Verroken, Bert Lemmens, and Renee Mestdagh (Belgium)*

Open Source Software to Manage Digitalization Projects—The Kitodo Example, *Frank Ulrich Weber¹ and Michael Luetgen^{1,2}; ¹Zeuschel GmbH and ²Kitodo—Key to digital objects e.V. (Germany)*

Digital Color Restoration from Slide Images which use the Color Target Kodak Q-13, *Alexandre Leão, UFMG—Federal University of Minas Gerais (Brazil)*

Set of Methodologies for Archive Film Digitization and Restoration with Examples of Their Application in ORWO Region, *Karel Fliegel, Stanislav Vitek, and Petr Páta, Czech Technical University in Prague; and Miloslav Novák, Jiri Myslik, Josef Pecak, and Marek Jicha, Film and TV School of Academy of Performing Arts in Prague (Czech Republic)*

Implementing a Video Framework based on IIIF: A Customized Approach from Long-Term Preservation Video Formats to Conversion on Demand, *Julien Raemy^{1,2}, Peter Fornaro¹, and Lukas Rosenthaler¹; ¹University of Basel and ²Ecole Polytechnique Fédérale de Lausanne (EPFL) (Switzerland)*

Developing ARCLib—An Open Source Solution for a Bit-level and Logical Long-term Preservation, *Andrea Miranda, Charles University (Czech Republic)*

10:30 – 11:20

INTERACTIVE PAPER (POSTER) SESSION AND COFFEE

11:20 – 12:35

IMAGING PERFORMANCE AND STANDARDS I

Automatization in (Mass) Digitization QA-workflows, *Martina Hoffmann, National Library of the Netherlands (the Netherlands)*

Extensions to OpenDICE: Batch Image Processing and Large Size Target Support, *Lei He, Library of Congress (USA)*

Evaluating Perceived Capture Quality for the Digitization of Cultural Heritage Objects, *Susan Farnand, Rochester Institute of Technology (USA)*

12:35 – 13:45

GROUP LUNCH

Restaurant Kliversala (LNB)

13:45 – 15:00

ASSET AND COLLECTION MANAGEMENT II

Work Ethics for the Digitizer. Opportunities and Best Practices for Production of Digital Archives: The Working Experience of the Photographic Archive of Pompeii, *Patrizio Gianferro, University degli Studi di Roma La Sapienza, and Rosa Myriam De Lillo, Luigi Sturzo Institute (Italy)*

A New Tool for Context Metadata Collection and Management for Computational Photography Projects, *Carla Schroer and Mark Mudge, Cultural Heritage Imaging (USA), and Erich Leisch and Martin Doer, Institute for Computer Science, FORTH (Greece)*

Identifying Top Performing TF *IDF Classifiers Using the CNN Corpus, *Marie Vans and Steven Simske, HP Inc. (USA)*

15:30 – 17:30

BEHIND-THE-SCENES TOURS

see page 6 for details

19:00 – 21:30

CONFERENCE RECEPTION

Thursday May 18, 2017

9:00 – 10:00

THURSDAY KEYNOTE

Resonating Spaces: 3D Imaging of the Berlin Philharmonie, Chris Edwards, Getty Research Institute (USA)

10:00 – 12:45

ADVANCED IMAGING II

Reflectance Transformation Imaging in Daguerreotype Investigation, Hembo Pagi and Andres Uueni, Archaeovision and Kadi Sikka Estonian Photographic Heritage Society (Estonia)

Advances in Spectral Imaging Curve Analysis for Humanities Studies and Heritage Science, Fenella France, Library of Congress (USA)

Next Generation Camera Calibration Target for Archiving, David Wyble, Avian Rochester, LLC (USA)

The Documentation and Investigation of Surface Deposits on a Tutankamun's Pottery Jar Using Advanced Imaging Techniques, Mahmoud Hassan, Grand Egyptian Museum (Egypt)

The Combination of 3D and Multispectral Imaging for Scientific Visualization—Tool for Conservation and Heritage Specialists, Andres Uueni and Hilka Htiop, Estonian Academy of Arts (Estonia)

12:45 – 14:00

GROUP LUNCH

Restaurant Kliversala within the LNB

14:00 – 15:15

ACCESS, DISSEMINATION, AND USE II

Unlocking the Archive: The US Defense Department's Analysis & Implementation of its Authority to Publicly Release Audiovisual Records, Julia Hickey, Defense Media Activity (USA)

Using a Large Set of Weak Classifiers for Text Analytics, Steven Simske and Marie Vans, HP Inc. (USA)

The Evolution of the US National Archives Catalog: From Access to Engagement, Michael Horsley, National Archives and Records Administration (USA)

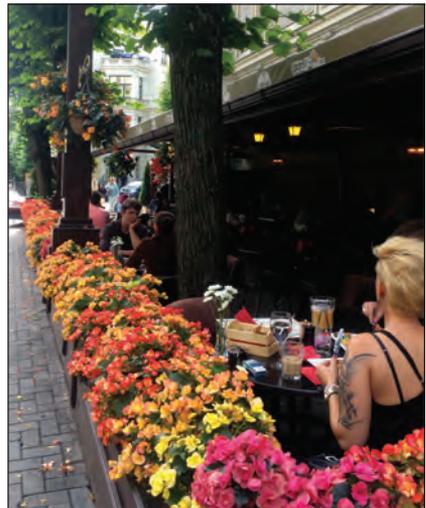
15:45 – 17:15

IMAGING PERFORMANCE AND STANDARDS II

JPEG2000 as a Preservation Format for Digitization: Lessons Learned from a Library, Laurent Duploux, Bibliothèque Nationale de France (France)

Automation of Data Integrity Checks in QA for Mass Digitization—A Case Study, Martijn van der Kaaij, Heron Information Management LLP (UK)

A Decade of Experience with Digital Imaging Performance Guidelines: The Good, the Bad and the Missing?, Don Williams, Image Science Associates, and Peter Burns, Burns Digital Imaging (USA)



Charming restaurants and cafes are found throughout Riga's Old Town.

Behind-the-Scenes Tours

All tours will take place Wednesday 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. Please note that all tours will be within walking or public transport distance; attendees are responsible for getting themselves to the tour site.

Additional tours will be added as confirmed.

NATIONAL LIBRARY OF LATVIA **Digitization Center and Collection of** **Audio-visual Resources**

This tour is dedicated to digitization, preservation, restoration and audio-visual collections.

The Digitization Center of the National Library of Latvia (LNB) carries out digitization of physical collections in accordance with the LNB content guidelines and on readers' demands. The LNB is constantly digitizing newspapers, posters, maps, sound recordings and manuscripts. At the Digitization Center is



available a large-format scanner which enables scanning of materials up to A0 format, book scanning robot and roll scanner, as well as other scanning devices for small format materials. Digitization Center also ensures post-processing of digitized files, such as OCR and segmentation. The major part of digitization results can be accessed at www.periodika.lv and www.zudusilatvija.lv.

The main function of the Restoration Center is to promote longevity of the LNB collections by using various conservation methods. The Restoration Center carries out restoration and conservation of collections (disinfection, stabilizing and object adaptation for the safe storage), creates binding and makes preventive measures for successful conservation of collections.

The Collection of Audio-visual Resources of the LNB holds one of the largest collections of published sound recordings in Latvia, covering the period from the beginning of 20th century until present. It includes sound recordings (records, audio cassettes, CDs), video recordings (VHS, DVD, Blu-ray), multimedia discs (CD- and DVD-ROM), as well as variety of language learning sets. Open access collection includes books on the history of sound recording, recording techniques and playback, digital audio, discographies, general reference books in cinema, movie guides, as well as magazines and periodicals.



Above: The Riga skyline encompasses many eras. Left: The National Library of Latvia.

Short Course Program: Monday, May 15

ArchSC01: Computational Photography Techniques for Cultural Heritage Documentation and Archiving: Reflectance Transformation Imaging (RTI) and Photogrammetry

8:00 – 12:00 (4 hours)

Instructor: Carla Schroer, Cultural Heritage Imaging

Through lectures, demonstrations, and discussion, this course provides a condensed overview of computational photography and its application to cultural heritage. Computational photography extracts and synthesizes information from image sequences to create a new image containing information not found in any single image in the sequence. The course offers an intensive introduction to the technologies, software, photographic equipment, and methods for reflectance transformation imaging (RTI), and 3D photogrammetry—techniques being applied to a variety of art objects.

RTI creates scientific digital representations of an imaging subject's shape and color. These digital representations are generated from image sequences where the light illuminating the photo's subject is moved to a new location for each photograph. The lighting information is mathematically synthesized into an RTI image. The subject's shape and color is examined in RTI by interactively re-lighting the subject from any direction and applying mathematical enhancements within an RTI software-viewing environment.

RTI is used on a wide range of subjects, including documenting low-relief surfaces like paintings and engravings. The course shows examples including inscriptions, rock art, manuscripts, and paintings. It also provides an overview of free RTI software, including newly released and planned updates. In addition, a demonstration of the RTI photographic capture sequence, using standard digital photographic equipment is performed and new research techniques using these data sets are presented.

Special Notes for Short Courses

We encourage you to register for courses in advance to insure that they run. Note that you may register for short courses only; conference registration is not required to take classes.

All short courses will take place at the Avalon Hotel and Conferences, 13. Janvara iela 19, Riga.

The first half of the course features new tools for the near-automatic recording and archiving of RTI contextual and process metadata. The creation of Digital Lab Notebook (DLN), which serves the same function as a written scientist's lab notebook, is discussed. We explore the necessity for transparent evaluation of scientific digital representations. The goal is to establish the conditions under which a "real world" artifact can be digitally represented as a "digital surrogate", which can reliably serve as a digital stand-in that can be used for subsequent scientific or scholarly examinations. New software tools to aide in saving the appropriate material for a digital lab notebook are presented.

3D Photogrammetry—the practice of deriving 3D measurements from photographs—can be used for documenting 3D subjects, monitoring changes to these subjects over time, and a wide range of other uses. Photogrammetry creates accurate and measurable 3D models in a wide range of scales. Recent technological advances in digital cameras, computer processors, and computational techniques, such as sub-pixel image matching, make photogrammetry a portable and powerful technique. It yields extremely dense and accurate 3D surface data. It can be generated using a sequence of photos and captured with standard digital photography equipment, in a relatively short period of time.

The second half of the course explores how photographic sequences of a subject can be captured according to principles that

maximize the available information from a series of viewpoints to yield the best results. We also see how these software platform-independent rule-based data sets can be transformed into 3D representations and confidently reused by others now and in the future.

Benefits

This course enables the attendee to:

- Have a clear understanding of two computational photography imaging techniques, how they are used, what they can reveal, and what is involved in adopting them in cultural heritage practice.
- Appreciate the open source RTI software tools, with freely available User Guides, a free user forum, and other supporting materials.
- Understand software independent photogrammetry image capture.
- Learn about the Digital Lab Notebook (DLN), how archiving and reuse requirements are driving modifications to its development, and how to use it in the context of RTI.

Intended Audience: There are no prerequisites. Anyone from novice to expert is welcome.

Carla Schroer is a co-founder and director of Cultural Heritage Imaging (CHI; culturalheritageimaging.org), a non-profit corporation that develops and implements new imaging technologies for cultural, historic and artistic heritage, and scientific research. Schroer has been active in the cultural heritage computational photography research community since 2002. Schroer leads the training programs at CHI, along with working on field capture projects with Reflectance Transformation Imaging, 3D photogrammetry, and related computational photography techniques. She also leads the software development and testing activities at CHI. She spent 20 years in the commercial software industry, managing and directing a wide range of software development projects including object oriented development tools, desktop publishing software, and Sun Microsystems' Java technology.

ArchSCO2: Scanner & Camera Imaging Performance: Ten Commandments

8:00 – 12:00 (4 hours)

Instructors: Don Williams, Image Science Associates, and Peter Burns, Burns Digital Imaging

This is a no-nonsense course on simple and achievable tools/techniques to build a solid digital imaging foundation for the capture of resilient and versatile digital images. We updated this course from a previously published Top Ten Tips publication several years ago. 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 in museum or library environments will be described. The elements of this course can be applied by digital image service providers, collection custodians, and device manufacturers.

Benefits

This course enables the attendee to:

- Interpret and comply with customer imaging requirements.
- Establish accountability for imaging performance problems.
- Understand standards to characterize scanner and camera performance.
- Critically evaluate manufacturers' claims of resolution, color errors, and noise.

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

Short Courses At-a-Glance

Descriptions for short courses begin on page 7.

Advanced Imaging	Imaging and Best Practices	Asset Management	File Formats and Validation
<p>8:00 – 12:00 ArchSC01: Computational Photography Techniques for Cultural Heritage Documentation and Archiving: Reflectance Transformation Imaging (RTI) and Photogrammetry</p>	<p>8:00 – 12:00 ArchSC02: Scanner & Camera Imaging Performance: Ten Commandments</p>	<p>8:00 – 12:00 ArchSC03: Program Management for Cultural Heritage Professionals: An Introductory Workshop for Management of Digitization and Curation</p>	<p>8:00 – 12:00 NEW for 2017 ArchSC04: File Formats for Preservation</p>
<p>13:30 – 15:30 Revised for 2017 ArchSC05: Spectral Imaging—Digital Spectral Capture</p>	<p>13:30 – 15:30 NEW for 2017 ArchSC06: Fundamentals of Color Measurement</p>	<p>13:30 – 15:30 ArchSC07: Digital Collection Development</p>	<p>13:30 – 15:30 NEW for 2017 ArchSC08: PDF/A Challenges and Validation Tools</p>
<p>15:45 – 17:45 NEW for 2017 ArchSC09: Spectral Imaging—Digital Spectral Image Processing</p>	<p>15:45 – 17:45 NEW for 2017 ArchSC10: Quality Assurance Workflows for Digitization Projects</p>	<p>15:45 – 17:45 NEW for 2017 ArchSC11: Introducing the Open Source Software Suite Kitodo . . .</p>	<p>15:45 – 17:45 NEW for 2017 ArchSC12: TIFF for Archival Recommendations</p>

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.

ArchSC03: Program Management for Cultural Heritage Professionals: An Introductory Workshop for Management of Digitization and Curation

8:00 – 12:00 (4 hours)

Instructor: Michael B. Toth, R.B. Toth Associates

This course introduces cultural heritage professionals to best practices in program management. It focuses on methodologies for managing digital projects that create or develop data, integrate new technologies and

data, and/or support digital archiving and access. This includes digitization and curation projects for collecting, processing, accessing, archiving, and collaborating with digital data.

Instruction supports cultural heritage professionals as they manage successive stages of digitization and curation projects from initiation through production and operation, especially with changing technologies and tighter budget environments. The workshop utilizes examples and case studies of program management techniques and processes that are applicable to digitization and data curation programs of varied cost and complexity in a range of institutions around the globe.

This course provides project leaders, managers, and others working or intending to work with cultural heritage digitization and curation projects with an introduction to the resources, tools, and capabilities for effective program planning, development, and management.

Benefits

This course enables the attendee to:

- Appreciate program management best practices that are appropriate for cultural heritage program planning, management, and implementation.
- Gain guidance and techniques for managing projects and tracking progress, including developing:
 - a solid program management and data management plan.
 - an effective structure for task development.
 - an effective program master schedule.
- Learn about requirements and resources tracking and reporting.
- Learn about the business case for using established program planning and management techniques and best practices, and its return on investment.
- Understand cost-effective methods for determining and implementing optimal technologies that meet cultural heritage standards for long-term digital data preservation.

Intended Audience: Cultural heritage, digitization, and curation personnel responsible for project success will benefit from the basic concepts and best practices of project management. This course is equally applicable to all project team members. There are no prerequisites except a desire to use effective program management and best practices. Participants also develop increased understanding that can help them tap multidisciplinary support from the scientific, engineering, and information technology communities. This includes becoming familiar with the vocabularies and standards necessary to address the requirements of broad governmental and external oversight and reporting.

Michael B. Toth is president of R.B. Toth Associates and honorary research associate at University College London. With more than 30 years of experience in program management, systems integration, and strategic planning, Toth has led teams of scientists, scholars,

and technical experts as they help museums, libraries, archives, and other institutions make more data widely available for all. He has provided program and technical management support for numerous cultural heritage projects ranging from the Vatican Library, St. Catherine's Monastery in the Sinai to the Walters Art Museum. He has led advanced digitization and curation projects to provide data and information for global access. He and his teams support institutions across the United States, Europe and the Middle East. Toth studied science at Wake Forest University, where he received his degree in history.

NEW for 2017

ArchSC04: File Formats for Preservation

8:00 – 12:00 (4 hours)

Instructors: Benjamin Yousefi, National Archives of Sweden, and Bert Lemmens, PACKED

The course is built around the ongoing work done by Riksarkivet (the Swedish National Archives) under the research and development program ArkivE 2.0—fundamental principles for selection of format. The result of ArkivE is intended to lay the foundation for government agency regulation and/or information such as guides, tutorials, and handbooks.

The aim of the course is to give a theoretical overview of and practical exercise in the challenges with:

- Regulating what formats are suitable to store data for long term preservation of information.
- Applying formats suitable for long term preservation in a specific case.

This course sets the stage for the two following courses: ArchSC08: PDF/A Challenges and Validation Tools and ArchSC12: TIFF for Archival Recommendations by familiarizing the participants with the PREFORMA Conformance Checkers and their importance for long time preservation.

As the event is a workshop, the course interchanges between presentation and practical activity with the purpose of encouraging engagement. For that reason the participants should:

- Bring a laptop.

- Have PREFORMA Conformance Checkers installed (information about and links to each Conformance Checker can be found at <http://preforma-project.eu/open-source-portal.html>).
- Have some files that could be used for examination.

Benefits

This course enables the attendee to:

- Understand what is meant by “format.”
- Identify the different types of formats.
- Learn how to identify and analyse a file.
- Understand which formats are suitable for long time preservation.
- Learn about PDF/A vs TIFF vs XML
- Learn about FFV1 vs all other codecs

Intended Audience: Archivists, librarians, curators and other people working at memory institutions and in other institutions that need to store and preserve digital files, digital preservationists, IT researchers, open source software developers, people working in standardization organizations, and policy makers.

Benjamin Yousefi holds a master of laws from Stockholm University and has worked as a research assistant at The Swedish Law and Informatics Research Institute at Stockholm University. Since 2013 he has worked at the National Archives as a senior level administrative officer in the field of development and e-government. He has held courses on PDF/A for the National Archives of Sweden and was invited to PREFORMA as a domain expert on PDF/A.

Bert Lemmens is a senior researcher at PACKED. He is involved in the CEST (maintaining the cultural heritage standards toolbox), PREFORMA (pre-commercial procurement of three conformance checkers for long-term preservation formats), and MEDEA (design a graph for recording metal detection finds) projects. Lemmens has worked for the ArchiAfrika foundation as a researcher, NAI—Netherlands Architecture Institute as a collection registrar, and Amsab (Institute for Social History, Ghent) as a researcher in the European project HOPE, and for MovE (cultural heritage aggregator of the province of East-Flanders). He holds masters in art history and conservation.

Short Course Fees

If you register:	on or before April 16	after April 16
2-hour		
Member	\$145	\$195
Non-mem	\$170	\$220
Student	\$60	\$110
4-hour		
Member	\$220	\$270
Non-mem	\$245	\$295
Student	\$85	\$135

Take 3 classes and receive 10% off the course registration fees. Use PICK3arch coupon code during checkout.

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

Revised for 2017

ArchSC05: Spectral Imaging—Digital Spectral Capture

13:30 – 15:30 (2 hours)

Instructor: Fenella G. France, Library of Congress

Preservation and digital humanities studies are quickly moving beyond simple RGB image capture to include a range of capabilities, including multispectral and hyperspectral imaging. Utilizing non-invasive integrated digital imaging systems provides the preservation specialist, scientist, conservator, curator, and researcher with tools that can reveal useful, hidden, and preservation information about an artifact. The unaided eye of ten cannot detect features that are erased, hidden by overwriting, obscured by treatments, or faded because of environmental factors. Normal viewing cannot identify important provenance components such as watermarks or characterizing colorants to assure they are commensurate with the suggested time period for the document or object. These features on photographs, manuscripts, maps, and other heritage objects are important for scholars, authentication, fingerprinting, and the care of collections.

Knowledge of unique identifiers are becoming increasingly important in the current worldwide conflict environment, where visible ownership marks can be removed, but unseen unique spectral responses can help confirm institutional rights.

Looking at documents at various magnification levels and with a range of illumination modes (raking or side-lighting, transmitted light, reflected light, and the integration of fluorescence and different spectral wavelengths) can capture these elusive features. Imaging with light emitting diodes (LED) illumination throughout the visible and non-visible, in 23 spectral bands as well as raking and transmitted light for preservation studies, provides a system with safe conservation lighting that is integrated with the camera to minimize light on the object.

In addition to expanding knowledge about the range of information available through spectral imaging, the class discusses image processing software programs and the possibilities for processing spectral imaging datasets through multivariate image analysis (MIA) and other common processing techniques such as principal component analysis (PCA) and pseudocolor processing.

This course addresses and includes examples of the range of spectral information that can be captured; implementing and assessing spectral imaging technologies; and standardized spectral image system processes for capturing, processing and storing spectral image data and metadata, in support of scholars and heritage institutions. Generalized instruction is combined with a case study approach drawing from a range of examples representing a wide geographic and temporal scope. The approach highlights different stages of projects and the varying needs of researchers and users, from historic fragile manuscripts to Mayan flasks.

The course also examines the interaction and links between non-invasive analytical scientific techniques and the cultural, societal, and provenance information contained within original sources.

Non-members may choose registration with membership for the same price as a non-member registration and then take advantage of member short course fees. See page 20 for details.

Benefits

This course enables the attendee to gain skills to focus on best practice, standardized procedures, and effective digital spectral project planning, including:

- Assessing imaging modalities and processing to best meet the needs of specific research.
- Integrating the priorities of scholars, scientists, and researchers in project design.
- Managing and integrating data and metadata.
- Balancing schedule and cost, as well as quality, conservation, and efficiency.
- Assessing impact in relation to access for end users.

Intended Audience: This course will support a wide range of professionals who work on or are planning to work on collaborative, multi-disciplinary projects that requires spectral imaging. These include preservation professionals and scholars; scientists and engineers; digital specialists; database administrators; program managers and directors; archivists, curators, librarians, and researchers.

Fenella France is chief of the Preservation Research and Testing Division at the Library of Congress researching non-destructive imaging techniques and prevention of environmental degradation to collections. She received her PhD from Otago University, New Zealand. After lecturing at Otago, she was the research scientist for the Star-Spangled Banner project at the Smithsonian Institution. An international specialist on polymer aging and environmental deterioration, she focuses on links between mechanical and chemical properties from environment and treatment. France has worked on nu-

merous projects including Pre-Columbian mummies and textiles, the Ellis Island Immigration Museum, and standards for cultural heritage. With more than three decades of experience, she serves on a range of professional committees for cultural heritage preservation and maintains close links and collaborations with colleagues from academic, cultural, forensic, and federal institutions. She is currently the Distinguished Presidential Fellow for the Council on Library and Information Resources (CLIR).

NEW for 2017

ArchSC06: Fundamentals of Color Measurement

13:30 – 15:30 (2 hours)

Instructor: David R. Wyble, Avian Rochester, LLC

This course begins by defining the basic terms describing the instruments and quantities used in color measurement. The instrumentation, spectrophotometers, and spectroradiometers, are introduced by describing the applications for each type of device. The devices include those making traditional spot measurement as well as those designed to capture an entire image of color data (imaging colorimeters). To understand how accuracy is maintained, instrument calibration is described. Since most modern devices measure spectral data, the connection between measured spectral data and CIELAB colorimetry is also described, along with various color difference metrics. While seemingly simple, the transformation from spectra to CIELAB comes with many implications that are explained. The overall goal is to understand the concepts, procedures, implications, and assumptions of proper color measurements.

Benefits

This course enables the attendee to:

- Understand the details and procedures leading to proper color measurements.
- Understand the use, calibration, and applications for spot spectrophotometers and imaging-colorimeters.
- Understand the point of “hand-off” from spectral measurements to colorimetric calculations.

- Interpret measurement results, and the implications of the various parameters in CIELAB calculations.

Intended Audience: Anyone responsible for making or interpreting color measurements. A technical background is not required, although an understanding of basic scientific principles will be 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 Rochester Institute of Technology (RIT), and before that a member of research & technology staff at Xerox Corp. He holds a BS in computer science and MS and PhD in color science from RIT and Chiba University, respectively.



Charming sculptures are integrated into the elaborate gardens and walkways of the Kronvalda Parks that traverses the city and divides Old Town from Riga Center.

ArchSC07: Digital Collection Development

13:30 – 15:30 (2 hours)

Instructor: John Sarnowski, ResCarta Foundation

This is an introductory course on the use of open/free software to create, validate, index, search, display, and maintain a digital archive of various materials including photographs, oral histories, newspapers, and books.

Learn how to take simple digital files and create a knowledge base of standardized archival digital objects, complete with Library of Congress metadata. Learn how to build a collection and host it. Make your full text searchable oral histories to FADGI guidelines. Capture audio files with Audacity™, use digital cameras and scanners to create full-text searchable, harvestable archives with Tomcat™, ResCarta™, and jOAI.

Take the free and open source tools and knowledge with you to create a growing and sustainable archive.

Benefits

This course enables the attendee to:

- Understand the types of equipment, software and time required to convert analog objects to digital.
- Identify the various types of metadata and how they can be created.
- Understand the difference between a digital file and a digital object.
- Understand the use of OCR/AAT software and its limitations
- List best practice formats for long term storage and reuse.

Intended Audience: This workshop is intended to be relevant to a wide audience, but will be particularly relevant to those cultural heritage professionals tasked with converting analog materials to digital.

John Sarnowski has more than 25 years experience in building digital collections. He was responsible for creating millions of digital objects for learned societies, libraries, and major corporations as the director of Imaging Products at Northern Micrographics.

Projects included "The Making of America", JSTOR, and Historic Pittsburgh. He currently is a director of the ResCarta Foundation.

NEW for 2017**ArchSC08: PDF/A Challenges and Validation Tools**

13:30 – 15:30 (2 hours)

Instructors: Carl Wilson, Open Preservation Foundation, and Boris Doubrov, Dual Lab

PDF/A is an ISO-standardised version of the Portable Document Format (PDF). The standard addresses issues concerning the long term preservation of electronic documents. This is implemented by restricting document features that are problematic when archiving documents such as encryption, metadata, and external fonts.

The course comprises presentations and practical demonstrations that provide an introduction to the PDF/A format, its applications, and how institutions can use veraPDF software in their PDF/A workflows.

The course begins with an introduction to the PDF format, the PDF/A standards, and PDF/A validation. This is followed by an investigation of some of the common issues encountered when validating PDF/A documents. These are explored through demonstrations using the veraPDF software to process PDF documents. The class demonstrates how the veraPDF toolkit can be used to validate PDF/A documents and report the results and look at the results of the validation process and help participants to understand the preservation risks associated with some particular issues. The course also covers problems that might be encountered in using PDF/A and associated legal aspects.

Participants should bring their laptops for the demos/exercise.

Benefits

This course enables the attendee to:

- Understand what PDF/A is and is not.
- Appreciate different PDF/A versions (1, 2 and 3) and conformance levels (a, b, and u).
- Learn the choices presented by the variety

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course registration fee.
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of PDF/A flavours helping them to make the right decisions.

- Learn common areas of concern: fonts, colors, metadata, images, etc.
- Understand some practical aspects of PDF/A compliance and the associated preservation risks and the open source veraPDF tool set and its uses.

Intended Audience: Archivists, librarians, curators and other people working at memory institutions and in other institutions that need to store and preserve digital files, digital preservationists, IT researchers, open source software developers, people working in standardization organizations, and policy makers.

Carl Wilson is the technical lead for the Open Preservation Foundation. Prior to that he worked for The British Library's Digital Preservation Team on internal and external projects, including a spell as technical coordinator for the SCAPE project. He spent three years as technical lead on the planets project, developing the interoperability framework and service interface definitions. He also helped organize and run the Planets Service Developer's Workshops. Wilson particularly enjoys hackathon style events, and is a regular attendee at OPF events, as well as those which were organised as part of the SPRUCE and AQUA projects.

Boris Doubrov is CEO of Dual Lab, the company subcontracted by veraPDF consortium for developing the industry supported PDF/A validation tool as a part of the PREFORMA project. He holds a PhD in computer science from Belarussian State University (1997) and another PhD in mathematics from the Catholic University of Leuven (2004). Doubrov has been working for more than 15 years in PDF technologies as a software developer, project manager, and business owner. He is an active participant of the ISO activity on PDF 2.0 and future PDF/A standards.

NEW for 2017

ArchSC09: Spectral Imaging—Digital Spectral Image Processing

15:45 – 17:45 (2 hours)

Instructor: Fenella G. France, Library of Congress

For background on this course and the advantages of spectral imaging of cultural heritage objects, please read the course description for ArchSC05: Spectral Imaging—Digital Spectral Capture (see page 11). This course builds on ArchSC05, but can also be taken independently.

This short discusses, demonstrates, and teaches image processing techniques using at least two software programs and the possibilities for processing spectral imaging datasets through multivariate image analysis (MIA) and other common processing techniques such as principal component analysis (PCA) and pseudocolor processing. Open source free software (ImageJ) is the main software utilized to assure transferability of skills at no future cost. The course addresses a selection of standardized spectral image processing techniques that support preservation professionals, scholars, researchers, and heritage institutions. Generalized instruction focuses on a range of datasets from actual historic materials that represent a wide geographic and temporal scope. The processing taught during the course include recovery of obscured text, including watermarks obscured by thick printing inks, pseudocolor spectral mapping to show differences between inks or colorants that look visibly similar, and spectral curve analysis techniques to definitively characterize colorants, and changes due to treatments, or the impact if various environmental parameters characterization of colorants, and tracking changes over time.

The course addressing the needs of those working on spectral imaging projects and those wanting to understand whether the ability to process this data might be an additional useful tool for their institution and collections. Participants gain skills to apply image

processing techniques to a range of spectral capture examples.

Benefits

This course enables the attendee to:

- Appreciate revealing and enhancing non-visible information.
- Apply image processing techniques to a range of spectral capture examples.
- Learn mapping spectral responses to identify different and at-risk fugitive media.
- Understand characterizing inks, pigments, and colorants on a range of heritage substrates (paper, parchment, ceramics, and textiles).
- Learn how to detect and track changes over time.
- Assess the needs of collection users and how to deliver value-added information.

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

See bio under ArchSC05: Spectral Imaging—Digital Spectral Capture, page 12.

NEW for 2017

ArchSC10: Quality Assurance Workflows for Digitization Projects

15:45 – 17:45 (2 hours)

Instructor: Martina Hoffmann, National Library of the Netherlands (KB)

This is a basic course on how to set up a successful, quick, reliable, quality assurance (QA) workflow for (mass) digitization projects for cultural heritage. As digitization projects and programs require a huge amount of resources (both human and machine) and substantial investments, the need for a suitable quality control workflow emerges. There are many software packages and suppliers around, and they all look very promising, so how do we make sure that we select those that are actually going to meet our demands? How can we make sure that we utilize what is already out there regarding experiences and best practices? And, last but by no means least: how can QA help the quality of your digitization?

In this course you learn what the key ingredients are for a QA-workflow and how to incorporate those ingredients—not just tools, but also the accompanying mind set—in your organization at all the necessary levels.

Together we answer the questions posed above and then we take a good look at a successfully implemented QA-workflow at the

National Library of the Netherlands. This shows us method, process, and results. The basic requirements for a quality workflow—simplicity, flexibility, efficiency, modularity, low cost, and high speed—are addressed, as well



A visit to the Riga's central market, the Riga Central Market, is a feast for all the senses. Be sure to try the bread from the Uzbek bakery.

as a look at the “mix and match” principle that guided the development of our example.

Finally, the modular approach that is key to setting up a workflow that can meet almost any demands in any program will be addressed in some detail.

It is possible to put things into practice straight away: you may bring your own digitization program/project to the course and design a workflow for it. You are also strongly encouraged to present your own existing QA-workflow to the course and/or prepare questions on the topic for the group to discuss.

Benefits

This course enables the attendee to:

- Understand the principles of a modular QA-workflow.
- Explain the principles and necessity of a QA-workflow to higher management and suppliers in order to get (possible) investment.
- Implement the mix and match principle according to the given basic ingredients.

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

Martina Hoffmann is senior production manager of digitization at the National Library in the Netherlands for the archival section of Metamarfoze. She was also operational manager quality control of digitized products at the National Archives in the Netherlands. She has co-designed several quality assurance workflows for different mass digitization projects in the Netherlands. Starting with only image quality QA processes, her main focus now is QA processes including several fields of expertise from metadata to long term preservation.

NEW for 2017

ArchSC11: Introducing the Open Source Software Suite Kitodo: More than just a Workflow Tracking Tool

15:45 – 17:45 (2 hours)

Instructor: Frank Ulrich Weber, Zeuschel GmbH

This course focuses on the use of the open source software suite Kitodo. The software is managed by the association “Kitodo.Key to digital objects e.V.” and a founded release management. The two layers of the system, Kitodo.Production and Kitodo.Presentation, allow the users a flexible setup.

Kitodo.Production enables an easy creation of workflows for digitalization projects. The workflows can be tracked easily and the progress is always documented. The powerful metadata editor allows adding any imaginable structure and metadata element. Statistic evaluations are always available.

Kitodo.Presentation is an independent software tool to manage digital collections and present them to the interested user via a modern web browser. That is possible because Kitodo.Production generates standardized METS/MODS files in addition to the digitized objects. An index enables fast searches even within a huge asset of digital objects and the OAI-PM2 interface allows other systems to access and retrieve the metadata of the digital objects in different formats. The TYPO3 content management system in the back offers functionalities even for the unskilled user.

Benefits

This course enables the attendee to:

- Understand what steps are required for an efficient digitalization workflow.
- Setup a digitalization workflow.
- Appreciate working on a digitalization workflow.
- Learn how to create structure and metadata elements.
- Monitor a digitalization workflow.
- Use statistic evaluations.
- Find the right information within a huge index.

Intended Audience: This course is targeted to those responsible for digitization and digital collection management from libraries, archives, museums, and service providers of any size.

Frank Ulrich Weber is head product manager of the company Zeutschel GmbH. He has more than ten years of experience developing and implementing workflows and digitalization solutions for libraries, archives, museums, and service providers.

NEW for 2017

ArchSC12: TIFF for Archival Recommendations

15:45 – 17:45 (2 hours)

Instructor: Peter Fornaro, University of Basel

The versatility of the TIFF format has made it very attractive for memory institutions for long term archival of their digital images. However, since the TIFF format offers such a great flexibility, it is not guaranteed that in the future a standard TIFF reader will be able to read some TIFF images. However, the limitations of the baseline TIFF are too severe for many applications in digital archiving. It is important that, besides crucial technical metadata such as ICC colour profiles (in case of colour images) important descriptive metadata is stored within the image file. Having descriptive metadata available (such as content description, iconography, copyright, and ownership information etc.) is crucial for every archive. Having this information in the same file as the image data guarantees that this information will always be associated with the image.

This course gives to the audience a general overview of the TIFF image format and its different specifications, a review of the typical errors that archivists make, and finally a list of recommendations to guarantee digital preservation of TIFF files. With the aim of achieving a participative course to ensure a useful takeaway for the attendees, a didactic presentation performed by the instructor, a set of prepared examples to be discussed among the audience, and hands-on exercises

to assess the contents assimilation of the block are included in the course.

The course shows which are the most commonly used tags and values for these tags and which private tags are mostly used in the already existing TIFF digital assets of the memory institutions. This is the result of an extensive analysis of around 2 million files of different memory institutions. We will see a feature histogram that is giving a good overview of the data out there. Besides, we will present a list of typical problems encountered in the TIFF files, some of them are not compliant to the TIFF specifications but others, although conformant to the ISOs, are not suitable for digital preservation.

Participants should bring their laptops for the demos/exercises.

Benefits

This course enables the attendee to:

- Understand the basic problem of file migration.
- Choose from a proper file format for archiving.
- Be able to value file types of digitization workflows.
- Learn how to check if existing files need to be transcoded (migrated).
- To judge reports of checker software.

Intended Audience: This course is aimed at a technical introduction into the field of file migration within digital collections of libraries, archives, museums, and services.

Peter Fornaro is part of the management team of the Digital Humanities Lab at the University of Basel. He studied electrical engineering, physics, photography, and business administration. His research covers modern camera technology, innovative scanning methods like reflection transformation imaging (RTI), colour science, and digital preservation. In his lectures he teaches media technology, colour science, and photography. He is also responsible for scanning projects and financial and business matters.

Accommodation and Transportation

Lodging Accommodation

A special hotel rate of €70/night, including internet access, buffet breakfast, VAT, and complimentary coffee/tea, laptop-size safe, iron and ironing board, has been secured for Archiving 2017 attendees at Avalon Hotel and Conferences in Riga. The hotel is located at the edge of Old Town and across the river from the National Library (15-20 minute walk). The bus to/from the airport stops directly in front of the hotel. Hotel reservations must be made by **April 14, 2017**.

Avalon Hotel & Conferences

www.hotelavalon.eu/
13 Janvara iela. 19
Riga, Latvia, LV-1050

Rate: €70, inclusive

Rate honored +3 days prior to and after the conference based on availability.

Check in / out: 15:00 / noon

Cancellation Policy: No deposit taken. Cancel 30 days prior to arrival for full refund; after that, first night's room charged.

To Reserve Lodging

via Online: www.hotelavalon.eu/
Promo Code: ARCH2017
via phone: +371 67 16 9999
(Reference: ARCH2017)

Transportation Information*

Served by Riga International Airport (RIX), numerous flights arrive/depart daily from major European cities such as Amsterdam, Cologne, Copenhagen, Frankfurt, London, Oslo, Prague, Stockholm, Vienna, and Zurich. More information can be found at www.riga-airport.com/.

Getting to the hotel

Airport/Old Town via Bus (www.wmata.com)
Bus No. 22 provides direct service between the airport and Old Town. The stop for the bus is located in front of the Avalon Hotel. From there is also a short walk to the LNB.

Weather The average temperature in May is 51°F/12°C. Minimal rain can be expected.

* Details and direct links can be found at www.imaging.org/archiving.



Facade, Art Nouveau district

Archiving 2017 Conference Registration

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

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Conference registration includes admission to all technical sessions, lunches, coffee breaks, Welcome and Conference Receptions, and conference proceedings. Separate registration fees are required for short courses.

1. Conference Technical Registration

- 1. 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.

	REGULAR		STUDENT	
	thru April 16	after April 16	thru April 16	after April 16
__ Conference registration: current IS&T Member	\$525	\$625	\$160	\$210
__ Conf. registration (+ new or renewing membership + JIST)*	\$625	\$725	\$185	\$235
__ Conf. registration (+ new or renewing membership + JEI)*	\$625	\$725	\$185	\$235
__ Conference non-member registration	\$625	\$725	\$185	\$235
__ One-day: <input type="checkbox"/> Tues <input type="checkbox"/> Wed <input type="checkbox"/> Thurs	\$300	\$350	\$160	\$210

amount due \$ _____

* 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)*, *The Reporter* newsletter, conference fee discounts, and access to the member directory, among other things. Membership takes effect within two weeks of registration and expires 2/31/17. This offer may be used for renewals.

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2. 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 printing or viewing on your computer. Instructors without e-notes will provide hardcopies in class. Lunch is not provided on Monday.

	on or before April 16	after April 16	TOTAL
4-hour Member (per class; select below)	\$220	\$270	\$ _____
4-hour Non-member (per class; select below)	\$245	\$295	\$ _____
4-hour Student (per class; select below)	\$85	\$135	\$ _____
Check all that apply	<input type="checkbox"/> Arch SC01 <input type="checkbox"/> Arch SC02 <input type="checkbox"/> Arch SC03 <input type="checkbox"/> Arch SC04		
2-hour Member (per class; select below)	\$145	\$195	\$ _____
2-hour Non-member (per class; select below)	\$170	\$220	\$ _____
2-hour Student (per class; select below)	\$60	\$110	\$ _____
Check all that apply	<input type="checkbox"/> Arch SC05 <input type="checkbox"/> Arch SC06 <input type="checkbox"/> Arch SC07 <input type="checkbox"/> Arch SC08 <input type="checkbox"/> Arch SC09 <input type="checkbox"/> Arch SC10 <input type="checkbox"/> Arch SC11 <input type="checkbox"/> Arch SC12		

OR

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(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; students may not take advantage of this offer)

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

3. Additional Products

___ Additional copy of conference proceedings Note: One copy comes with conference registration.
\$100 \$ _____

___ Additional ticket for your guest for the Welcome and Conference Receptions
 Name/Affiliation of Guest for badge: _____ \$75 \$ _____

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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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
 May 12, 2017. After that date, the cancellation fee is 50% of the total plus \$75.**

No refunds will be given after May 22, 2017. All requests for refund must be made in writing.

Archiving 2017



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