

PRELIMINARY PROGRAM

www.imaging.org/archiving

ARCHIVING2018

April 17-20, 2018 • Washington, DC

Sponsored by the Society for Imaging Science and Technology



imaging.org

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 2018 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.



Photo: Christoph Voges.

Short courses offer an intimate setting to gain more in-depth knowledge about technical aspects of digital archiving. View all short courses beginning on page 6.

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 17 for details.

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

Conference Committee

General Chair

Don Williams, Image Science Associates (USA)

Program Chair

Lukas Rosenthaler, University of Basel (Switzerland)

Short Course Chair

Jeanine Nault, Library of Congress (USA)

Technical Program Committee

Michael J. Bennett, University of Connecticut (USA)

Erik Landsberg, Cultural Heritage Digitization Consulting (USA)

Martina Hoffmann, National Library of the Netherlands (the Netherlands)

Raivo Ruusalepp, National Library of Estonia (Estonia)

Christoph Voges, Hochschule für angewandte Wissenschaft und Kunst (HAWK), and consultant (Germany)

Steering Committee

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

Peter Burns, Burns Digital Imaging (USA)

Suzanne E. Grinnan, IS&T (USA)
Lukas Rosenthaler, University of Basel (Switzerland)

David Walls, US Government Publishing Office (USA)

Don Williams, Image Science Associates (USA)



Conference At-a-Glance

All short courses and technical sessions will take place at the National Archives and Records Administration (NARA), 700 Pennsylvania Ave. Please enter at the corner of 7th St. NW and Constitution Avenue where it says "Group Entrance". Please arrive early as you will need to go through security screening to enter the building.

Registration Desk Open

Tuesday, April 17 7:15 – 17:00
Wednesday, April 18 8:00 – 16:00
Thursday, April 19 8:30 – 15:00
Friday, April 20 8:30 – 12:30

Tuesday, April 17

- Short Course Program (see page 6); separate registration fee required. You may register for short courses only; there is no requirement to attend the technical conference.
- Meet and Greet at Iron Horse Tap Room, 507 7th St. NW, 17:30–19:00; located 3 blocks from NARA.

Wednesday, April 18

- Opening Keynote: Montreux Jazz Digital Project: From a Patrimony to an Innovation Platform
- Afternoon Keynote: 30 Years of 3D – Next Steps for Archiving a Disappearing World
- Exhibitor Previews
- Exhibition Opens
- Interactive Papers Available to View
- Technical Papers Program
 - New Digitization Methods
 - Guidelines, Standards
 - Multispectral & 3D I
- Conference Reception

Important Dates

Hotel registration deadline:
March 16, 2018

Early registration deadline:
March 18, 2018

Note: There is NO onsite registration for this event due to NARA rules. Attendees must register for the event ahead of time either online, by fax, or by calling the IS&T office. Same day registration is available by calling IS&T.

Thursday, April 19

- Thursday Keynote: Enhancing Access to Collections, Partnering with the Public and Enriching the Museum and Archives Fields: The Robert F. Smith Fund at the National Museum of African American History and Culture
- Exhibition Open
- Technical Papers Program
 - Interactive Paper (Poster) Previews
 - Interactive Paper (Poster) Session
 - Data Analysis
 - Workflow & Quality
- Behind-the-Scenes Tours; see page 16.

Friday, April 20

- Sound Preservation: Not Fast-Enough-Forward
- Technical Papers Program
 - Databases and Data Modelling for Archiving
 - Multispectral & 3D II

Exhibit at Archiving 2018

Wednesday/Thursday April 18/19

Tabletop exhibit featuring related products and services.
Contact Donna Smith • dsmith@imaging.org; +1-703-642-9090 x107

**CONFIRMED
EXHIBITORS**

ColorBurst Systems, Inc.
PICTURAE Inc.
The Crowley Company

The Venue: National Archives, Washington, DC

The National Archives (NARA)—home to the US Declaration of Independence and US Constitution—hosts Archiving 2018.

Located in the heart of Washington, DC, the NARA borders the National Mall, which is home to the National Gallery of Art and many of the Smithsonian Museums. Numerous cultural heritage institutions, the US Capitol, the White House, national monuments,

restaurants, and Metro transit stations are within easy walking distance.

The 2018 meeting occurs at the end of the Cherry Blossom Festival, when the city's gardens and parks come alive with blooms.

The average temperature in April is 57°F/14°C. Some rain can be expected.



Accommodation and Transportation

Lodging Accommodation

The metro DC area can be very expensive for hotel lodging, especially in the Spring. As such, we were unable to locate a reasonable option for a group near NARA. Please feel free to explore alternative options that fit your needs. For those looking for a reasonably priced hotel, a 30-minute commute from NARA, a special rate of \$159/night, including internet access, has been secured for Archiving 2018 attendees at the Sheraton Silver Spring Hotel in Silver Spring, Maryland. The hotel is located three blocks from the Silver Spring Metro Station. A 20-minute Metro ride (red line) takes attendees to Gallery Place/Chinatown, a short walk from the National Archives. Hotel reservations must be made by **March 16, 2018**.

Sheraton Silver Spring Hotel

www.sheratonsilverspring.com

8777 Georgia Avenue

Silver Spring, Maryland 20910

Rate: \$159 + 7% occupancy and 6% state sales tax per night

Rate honored +3 days prior to and after the conference based on availability. Note: A fee equal to one night + tax will be incurred for checking out prior to your confirmed departure date. Be sure to make any changes before checking in.

To Reserve

via Online: bit.ly/SSSheratonArch2018

via Phone: +1 301 589 0800

Reference: FD13AA

Check in/out 3:00 pm/noon

Airport Information

For planning purposes, attendees may arrive at any of the three Washington, DC airports.

- Reagan National Airport (DCA) is 14 miles from the hotel. It offers the convenience of Metro access to Silver Spring with one train change; taxi rates are ~\$40.
- Baltimore Washington International Airport (BWI) is 32 miles from the hotel by shuttle (~\$30) or taxi (~\$80); there is also a \$7 bus to the Greenbelt Metro, with one Metro train change enroute.
- Dulles International Airport (IAD) is 30 miles from the hotel and hosts the most international flights. Shuttle/Metro combo, SuperShuttle (~\$35), and taxi (~\$80) service are all available from IAD.

Getting to National Archives

Metro (www.wmata.com) National Archives is served by the Gallery Place/Chinatown Station (Red line) and Archives/Navy-Memorial/Penn Quarter Station (Yellow and Green lines).

Parking There is no parking at NARA itself. Street parking is limited both in terms of length of time and availability. Garage parking is recommended.

Technical Program*

Wednesday April 18, 2018

9:00 – 10:00

WELCOME AND OPENING KEYNOTE

Montreux Jazz Digital Project: From a Patrimony to an Innovation Platform, *Alain Dufaux, EPFL Metamedia Center (Switzerland)*
Since 1967, audiovisual recordings of the Montreux Jazz Festival bring together the greatest musicians of the 20th century. The collection was inscribed on the 2013 UNESCO memory of the world register. Over 5,000 hours of 'live' concerts were recorded in state-of-the-art broadcast quality for both video and audio, of which a large part exists as multi-tracks.

The collection was digitized in a collaboration between EPFL and the Claude Nobs Foundation. The Montreux Jazz Digital Project aims to preserve and transform this heritage into a unique archive of "raw material" for researchers to innovate in the field of music technology, signal processing, acoustics, multimedia, design and even architecture. Adding value to the collection, a substantial metadata enrichment program will be devised for schools, musicians, and musicologists. In the recently built Montreux Jazz Café at EPFL, innovative user-interaction tools are placed at the archive's disposal to transform it into a living collection.

10:00 – 12:15

NEW DIGITIZATION METHODS

New Techniques for the Digitization of Art Historical Photographic Archives—the Case of the Cini Foundation in Venice, *Benoit Seguin, Lisandra Costiner, Isabella Di Lenardo, and Frédéric Kaplan, École Polytechnique Fédérale de Lausanne (Switzerland)*

Scanning Solution for Textured Object 3D using Photometric Stereo with Multiple Known Light Sources, *Arnold Cheveau, i2S DigiBook (France)*

Digitizing and Managing 35mm Mounted Slides: The Flip Side, *Benjamin Sullivan and*

Walter Larrimore, Smithsonian Institution, National Museum of African American History and Culture (USA)

Digitizing Braille Music: A Case Study, *Donna Koh and Katherine Rodda, Library of Congress (USA)*

12:15 – 12:30

ONE INTERACTIVE PREVIEW AND EXHIBITOR PROFILES

Digital vs. Analogous Long Term Preservation Microfilm Still Alive? (Interactive Preview), *Michael Luetgen, Zeutschel GmbH (Germany); please note that this author will only be available to discuss his Interactive (Poster) Paper during the Wednesday afternoon coffee break.*

14:00 – 14:50

AFTERNOON KEYNOTE

30 Years of 3D – Next Steps for Archiving a Disappearing World, *Alonzo Addison (USA)*

It has been almost 3 decades since the advent of 3D digital documentation in the heritage domain. From photogrammetry to laser scanning and more, today's high-tech sensors allow us to rapidly record everything from great monuments to museum masterpieces, and precious manuscripts to intangible traditions. Across the globe, institutions, researchers, and even the public are adding terabytes of 3D data to archives and collections by the day. Yet capturing reality in digital form is only one step in a complex process. Sadly the majority of this data will not outlive the heritage it seeks to help conserve. In the rush to digitally preserve the past in 3D, we lack a coordinated plan and strategy. With examples from the advent of terrestrial lidar, to international initiatives in heritage policy, we will explore the pitfalls and potential for archiving a disappearing world.

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

14:50 – 16:05

GUIDELINES, STANDARDS

Digitization with Use of Principles from the World of Industry, *Marc Holtman and Nelleke van Zeeland, City Archives Amsterdam (the Netherlands)*

Developing Guidelines for Digitization of US Federal Government Records, *Michael Horsley, National Archives and Records Administration (USA)*

IBRelight: An Image-based 3D Renderer for Cultural Heritage, *Michael Teitzlaff and Gary Meyer, University of Minnesota, and Alex Kautz, University of Rochester (USA)*

16:40 – 17:30

MULTISPECTRAL & 3D I

Spectral Implications for Camera Characterization Target, *David Wyble, Avian Rochester, LLC (USA)*

Practical UV-VIS-NIR Multispectral Imaging, *Roy Berns, Rochester Institute of Technology (USA)*

18:00 – 20:30

CONFERENCE RECEPTION

Thursday April 19, 2018

9:00 – 10:10

THURSDAY KEYNOTE AND IS&T AWARDS

Enhancing Access to Collections, Partnering with the Public and Enriching the Museum and Archives Fields: The Robert F. Smith Fund at the National Museum of African American History and Culture, *Doretha Williams, National Museum of African American History and Culture (USA)*

This talk discusses the implications and implementation of the Robert F. Smith Fund at the National Museum of African American History and Culture (NMAAHC). The Fund makes historical collections accessible through digitization, public programming and interaction, and support of educational development in the museum and archives fields. Through the community curation project, professional curation program,

interns and fellowships opportunities, and the Explore Your Family History Center, the Smith Fund serves as a major public outreach component for NMAAHC.

10:10 – 10:30

INTERACTIVE PAPER PREVIEWS

FaceMatch: A System for Dynamic Content-based Image Search, *Dharitri Misra and Michael Gill, National Library of Medicine (USA)*

Long Term Preservation of Websites, *Alexander Hershung, startext GmbH (Germany)*

Provenance-Oriented Documentation of Multi-Spectral Data, *Ya-Ning Chen, Tamkang University; M. Shyu, Chinese Culture University; Simon Lin, Institute of Physics, Academia Sinica; and Eric Yen, Centre for Information Technology Innovation, Academia Sinica (Taiwan)*

Bridging Multi-Light & Multi-Spectral Images to Study, Preserve and Disseminate Archival Documents, *Lieve Watteeuw¹, Bruno Vandermeulen², Hendrik Hameeuw², Luc Van Gool¹, and Marc Proesmans¹; ¹KU Leuven and ²University of Leuven (Belgium)*

ECHOES: Empowering Communities with a Heritage Open EcoSystem, *Walther Hasselo and Ariela Netiv, Heritage Leiden (the Netherlands)*

The Challenge of Preservation of Iconographic Archives of Architecture in the Tropics, *Adriana de Oliveira, Federal University of Pernambuco (Brazil), and Izabel Amaral, Laurentian University (Canada)*

Archiving Information Workflows, *Marie Vans, HP Inc., and Steven Simske, Colorado State University (USA)*

Rare Items, Precious Time: Devising an Efficient Workflow to Digitize Nineteenth Century Cased Photographs, *Amy McCrory, Ohio State University Libraries (USA)*

Into the Deep: Adopting ISO Methods for Measuring Depth of Field, *Don Williams, Image Science Associates (USA)*

10:30 – 11:20

INTERACTIVE PAPER (POSTER) SESSION AND COFFEE BREAK

Interact with authors and view papers listed above.

11:20 – 12:35

DATA ANALYSIS

Analogue to Digital Photogrammetry: Padise Abbey, *Andres Uueni, Estonian Academy of Arts and Archaeovision LLC (Estonia)*

OCR: Unleash the Hidden Information, *Anssi Jääskeläinen and Liisa Uosukainen, South-Eastern Finland University of Applied Sciences (Finland)*

Research on Applying Speech Recognition for Audio-Visual Records at the National Archives of Korea, *Jaepyeong Kim, National Archives of Korea (South Korea)*

14:00 – 15:15

WORKFLOW & QUALITY

Dos and Don'ts for Digitisation Workflows, *Steffen Hankiewicz, intranda GmbH (Germany)*

Establishing a Roadmap for Scene-Referred Raw Imaging Workflow, *W. Scott Geffert, The Metropolitan Museum of Art (USA)*

Quality Assurance—Visual Inspection of Digitized Images, *Martina Hoffmann, National Library of the Netherlands (the Netherlands)*

16:00 – 17:30

BEHIND-THE-SCENES TOURS

see page 16 for details

Friday April 20, 2018

9:00 – 10:00

CLOSING KEYNOTE

Sound Preservation: Not Fast-Enough-Forward, *Sam Brylowski, University of California, Santa Barbara (USA)*

Most sound archives in the United States are relatively new, barely more than 50 years old. This talk reviews the history of institutional sound collections, assesses their current state, and considers the future of the field of acquiring, preserving, and providing access to recorded sound. The talk includes the findings of the National Recording Preservation Board's study of the state of recorded sound preservation and the resultant Library of Congress National Recording Preservation Plan, both of which

were co-authored by the speaker. This overview of where we've been and where we're going is strongly colored by the personal views, priorities, and prejudices of the speaker, and his 40-plus years working with audio collections.

10:00 – 14:50

DATABASES AND DATA MODELLING FOR ARCHIVING

Crosswalking or Jaywalking? The Visualization of Linked Scientific and Humanities Data, *Fenella France, Library of Congress (USA)*

A Complex Database for Documentation of Cuneiform Tablet Collection Enabling Cross-Domain Queries, *Jaroslav Valach, Institute of Theoretical and Applied Mechanics, The Czech Academy of Sciences, and Petra Štefcová, National Museum (Czech Republic)*

Preservation Data Modeling for Systems Interoperability: The Single SIP Model in the Bayou City DAMS, *Bethany Scott and Andrew Weidner, University of Houston Libraries (USA)*

Bring All Together—An Approach of a Multimedia Keep-Alive Archive, *André Kilchenmann^{1,2} and Lukas Rosenthaler¹; ¹University of Basel and ²Data and Service Center for the Humanities DaSCH (Switzerland)*

Development for Audio-Visual Archiving System of The National Archives of Korea: A Case Study, *Jiyoung Lee, The National Archives of Korea and Archival Preservation and Restoration Center (South Korea)*

Architecture, Design & Engineering— Archiving Digital Assets: Past, Present and Future, *Katherine Arrington and Kate Murray, Library of Congress, and Aliza Leventhal, Sasaki Associates (USA)*

Setting Out on an Unknown Sea—An Extremely Flexible Metadata Model for the “Engelandvaarders” Collection (A Case Study), *Martijn van der Kaaij, Heron Information Management LLP (the Netherlands)*

14:50 – 17:20

MULTISPECTRAL & 3D II

Digital Reconstruction as a Relevant Tool for Heritage Documenting and Archiving, *Hayet Kadi and Karima Anouche, University of Sciences and Technology of Oran-MB*

(Algeria), and Jean-Pierre Perrin, *Ecole d'Architecture de Nancy* (France)

Multispectral Imaging for Scientific Analysis and Preservation of Cultural Heritage Materials, Meghan Wilson, Fenella France, and Chris Bolser, *Library of Congress* (USA)

From the Inside Out: Practical Application of Multiple 3D Imaging Techniques for Objects Conservation, W. Scott Geffert, *The Metropolitan Museum of Art* (USA)

Integrating Optical Imaging of Mummy Mask Cartonnage, Michael Toth^{1,2}, Cynthia Toth³, William Christens-Barry^{1,4}, Sina Farsiou³, Guorong Li³, Adam Gibson¹, and Melissa Terras^{1,5}; ¹University College London (UK), ²R.B. Toth Associates (USA), ³Duke University (USA),

⁴Equipoise Imaging (USA), and

⁵University of Edinburgh (UK)

High-Resolution Multispectral Imaging and Analysis Systems for the Very-Long-Term Monitoring of Photographs, Paintings, Fabrics, Documents, and Other Works of Artistic and Historic Importance, Ken Boydston, *MegaVision, Inc.*, (USA); Henry Wilhelm, *Wilhelm Imaging Research, Inc.*, (USA); Richard Adams, *Ryerson University* (Canada); and John McElhone, *Canadian Photography Institute of the National Gallery of Canada* (Canada)

17:20 – 17:25

CLOSING REMARKS

Short Course Program: Tuesday, April 17

ArchSCOT: Spectral Imaging—Spectral Data and Technical Aspects

8:00 – 10:00 (2 hours)

Track: Advanced Imaging

Instructors: Fenella France and Meghan Wilson, *Library of Congress*

Digital studies of library and archive collection materials are moving beyond simple RGB image capture to include spectral imaging. These non-invasive imaging systems provide specialists and researchers with a tool that can reveal additional useful and hidden information about an artifact. Basic digitization alone does not reveal everything contained within the original material, cannot detect erased writing and inks hidden by overwriting or faded because of environment, cannot identify important provenance features such as watermarks, or identify colorants to assure they are commensurate with the suggested time period for the document. These features are important for scholars, authentication, “fingerprinting,” and the care of collections. Looking at documents with a range of illumination modes—side-lighting, transmitted, and reflected light—captures these.

This course examines the connections between non-invasive spectral imaging tech-

niques 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 undertaken to explore unknown information hidden within the original source material.

Benefits

This course benefits participants interested in expanding their digitization capabilities through the integration of spectral imaging to understand whether this might be an additional useful tool for their institution and collections. Participants will gain skills to focus on best practice, standardized procedures, and effective digital spectral project planning, including:

- Understand and assess imaging systems and modalities to best meet the needs of specific collection materials.
- Integrate the priorities of scholars, curators, and researchers in digital projects.
- Manage large datasets and metadata.
- Assess benefits of spectral imaging in relation to specific research questions.

Intended Audience: 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, database administrators; program managers and directors; archivists, curators, librarians, and researchers.

Fenella G. France, chief of the preservation research and testing division, 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 Distinguished Presidential Fellow for CLIR.

Meghan Wilson is a preservation 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.

ArchSC02: Scanner & Camera Imaging Performance: Ten Commandments

8:00 – 10:00 (2 hours)

Track: Image and Imaging Fidelity

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 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 will be 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

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.

Take 3 classes and receive a 10% discount. See registration form for details.

Monitors needed for classes. Students can take a class for free in exchange for helping IS&T. contact archiving@imaging.org for details.

providers, collection custodians, and device manufacturers.

Benefits

This course will enable 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.

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 GoldenThread 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 for digital imaging; digital photography, mobile imaging, and cultural heritage.

Revised for 2018!

ArchSC03: An Introduction to Digital Archiving

8:00 – 12:00 (4 hours)

Track: Asset / Life-Cycle Management

Instructor: John Sarnowski, ResCarta Foundation

This is an introductory short 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.

Bring your laptop for this hands-on session. Take the free and open source tools and knowledge with you to create a growing and sustainable archive.

Benefits

This course will enable 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.
- Understand the setup and workings of a webserver.
- Quickly set up an OAI/PMH provider/harvester.
- Understand metadata reuse and how it effects discovery.
- List best practice formats for long term storage and reuse.

Intended Audience: This course 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 is currently a director of the ResCarta Foundation.

ArchSC04: Preservation Strategies for Computational Photography based Imaging: Reflectance Transformation Imaging (RTI) and 3D Photogrammetry

8:00 – 12:00 (4 hours)

Track: Digital Preservation

Instructors: Carla Schroer and Mark Mudge, Cultural Heritage Imaging

This short course provides lectures, demonstrations, discussion, and hands-on practice with software tools for creating and validating context and process metadata for photographic image sequences. The initial software is designed for RTI and photogrammetry, though the approach has broader applicability.

These tools form the basis of the Digital Lab Notebook (DLN). The DLN serves the same function as a written scientist's lab notebook, enabling data inspection and reuse by others.

We begin with an overview of both RTI and photogrammetry, including basics of image capture and examples of each from cultural heritage subjects. Then there is an exploration into CHI's approach to metadata collection and image validation, including the hands-on use of new, open source software tools.

Participants are encouraged to bring their laptops for hands on demonstrations.

Short Courses At-a-Glance

Descriptions for short courses begin on page 6.

Advanced Imaging	Image and Imaging Fidelity	Asset Management / Life-Cycle Management	Digital Preservation
<p>8:00 – 10:00 ArchSC01: Spectral Imaging—Spectral Data and Technical Aspects</p>	<p>8:00 – 10:00 ArchSC02: Scanner & Camera Imaging Performance: Ten Commandments</p>	<p>8:00 – 12:00 <i>Revised for 2018!</i> ArchSC03: An Introduction to Digital Archiving</p>	<p>8:00 – 12:00 ArchSC04: Preservation Strategies for Computational Photography based Imaging: Reflectance Transformation Imaging (RTI) and 3D Photogrammetry</p>
<p>10:15 – 12:15 ArchSC05: Spectral Image Processing</p>	<p>10:15 – 12:15 <i>Revised for 2018!</i> ArchSC06: Quality Assurance Workflows for Digitization Projects</p>		
<p>13:30 – 17:45 <i>NEW for 2018!</i> ArchSC09: Management of Multispectral and Advanced Image Data</p>	<p>13:30 – 15:30 <i>NEW for 2018!</i> ArchSC07: Color Measurement for Archiving</p>	<p>13:30 – 15:30 <i>NEW for 2018!</i> ArchSC08: Metadata and Workflows for DAMS: Building Blocks to Access</p>	<p>13:30 – 17:45 <i>NEW for 2018!</i> ArchSC10: Digital Audiovisual File Formats: Identification, Validation, Specification Verification</p>
	<p>15:45 – 17:45 <i>NEW for 2018!</i> ArchSC11: Introduction to Color Management for Cultural Image Capture</p>	<p>15:45 – 17:45 <i>NEW for 2018!</i> ArchSC12: Unlocking the Power of (Linked) Metadata</p>	

Benefits

This course will enable the attendee to:

- Gain a basic understanding of two computational photographic imaging techniques: Reflectance Transformation Imaging (RTI) and photogrammetry for 3D applications. We will discuss how they are used, what they can reveal, and what is involved in adopting them into a cultural heritage practice.
- Learn about the Digital Lab Notebook (DLN), how archiving and reuse requirements are driving modifications to its development, and how to use it in an RTI or photogrammetry practice.
- Learn about two specific software tools for collecting metadata about and validating image sequences, including plans for additional features and tools.

- Provide an opportunity for hands-on practice with the tools: DLN:Capture Context and DLN:Inspector using provided example data. (*Participants can download the software from the CHI website prior to the course—the free software runs on both Mac and Windows OSs.*)
- Provide feedback on the tools for subsequent versions
- Provide input for additional tools for archiving image sets which are being planned

Intended Audience: Museum, library, historic site, archive, and other professionals with an interest in scientific computational photography and archival practices. There are no prerequisites. Anyone from novice to expert is welcome.

Carla Schroer is a co-founder and director of Cultural Heritage Imaging (CHI), a non-profit corporation that develops and implements imaging technologies for cultural heritage and scientific research. She leads the training programs at CHI, along with working on field capture projects with Reflectance Transformation Imaging and photogrammetry. She also leads CHI's software development activities. She spent 20 years in the commercial software industry, managing and directing a wide range of software development projects.

Mark Mudge is president and co-founder of Cultural Heritage Imaging. He has a BA in philosophy, worked as a professional bronze sculptor, and has worked in 3D imaging for 30 years. He is co-inventor, with Tom Malzbender, of the Highlight Reflectance Transformation Imaging technique. He has published 15 articles and book chapters on scientific imaging and cultural heritage material and long-term preservation. He serves on the International Council of Museums' Documentation Committee's CRMsig (CIDOC/CRM).

ArchSC05: Spectral Image Processing

10:15 – 12:15 (2 hours)

Track: Advanced Imaging

Instructors: Fenella France and Meghan Wilson,
Library of Congress

Spectral imaging of cultural heritage materials captures volumes of data that add layers of information to the normal digitization capture process through a range of processing techniques that expand the capability to reveal hidden and preservation-related information about an artifact. Image processing of spectral data allows the detection of erased writing, annotations, and redactions to reveal author intent, identification of watermarks for provenance, rendering of non-visible elements like fingerprints, and the use of spectral curves to identify colorants, and answering critical research questions for scholars. Additionally, it can be used to track change over time during exhibitions or treatments, assisting in the preservation of collection items. Processing this data expands content knowledge of collections and answers questions about original sources.

This course examines the range of capabilities from processing spectral data and the

cultural, societal, and provenance information contained within original sources that is not apparent without undertaking this type of data archeology. Course activities include hands-on processing examples to explain image data processing.

Course participants are required to bring their own laptop computers. Free software (and datasets) will be provided prior to the course to download onto personal computers.

Prerequisite: It is strongly recommended that participants complete “ArchSC01: Spectral Imaging—Spectral Data and Technical Aspects” prior to taking this course.

Benefits

This course benefits participants interested in expanding their image processing capabilities through understanding and analyzing multiple layers of data and employing the range of spectral processing applications as a tool for their institution and collections 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 identify at-risk collection materials.

Intended Audience: 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; archivists, curators, librarians, and researchers.

Fenella G. France, chief of the preservation research and testing division, 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 Distinguished Presidential Fellow for CLIR.

Meghan Wilson is a preservation 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.

Revised for 2018!

ArchSC06: Quality Assurance Workflows for Digitization Projects

10:15 – 12:15 (2 hours)

Track: Image and Imaging Fidelity

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

This is a practical course on the set up to a successful quick reliable quality assurance workflow for (mass) digitization projects of cultural heritage. There will be a presentation on a successful implemented QA-workflow at the National Library to give a hands-on example on how to do it. Building on the pillars of the mix and match principle the basic ingredients we set up a quality workflow which is: Simple—Flexible—Efficient—Modular—Low cost—Fast. In this training you will get to know which modules are useful and how to build the workflow around them. Practical, real production examples will be discussed.

You are invited to prepare your own questions on the topic for the group to discuss.

Benefits

This course will enable 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.

Intended Audience: Managers, program officers, project leaders, suppliers, and 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 Metamorfoze. She was operational manager quality control of digitized products in the National Archives in the Netherlands. She 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 are QA processes including several fields of expertise from metadata to long term preservation.

NEW for 2018!

ArchSC07: Color Measurement for Archiving

13:30 – 15:30 (2 hours)

Track: Image and Imaging Fidelity

Instructor: David R. Wyble, Avian Rochester, LLC

This short 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 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 will enable 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 the Rochester Institute of Technology, and before that a member of research & technology staff at Xerox Corp. He holds a BS in computer science and a MS and PhD in color science from RIT and Chiba University, respectively.

NEW for 2018!

ArchSC08: Metadata and Workflows for DAMS: Building Blocks to Access

13:30 – 15:30 (2 hours)

Track: Asset / Life-Cycle Management

Instructors: Stephanie Christensen and Isabel Meyer, The Smithsonian Institution

This course serves as an introduction to the framework for using metadata to build and extract information from an enterprise digital asset management system. It examines workflows and methods for acquiring metadata both outside of and within a digital asset management system. It focuses on how metadata serves as a building block towards

building a robust DAMS incorporating various metadata needs and file formats. Aspects of constructing metadata to talk to other collection information systems as it is disseminated for access is reviewed.

Benefits

This course will enable the attendee to:

- Describe a range of metadata issues associated with collections digitization and digital asset management.
- Gain knowledge of how the Smithsonian’s Digital Asset Management System metadata was developed and how it has evolved based on particular needs.
- Gain knowledge on metadata standards and methods based on file format.
- Apply methods to building sustainable, metadata-rich digital assets and digital descriptive records.
- Assess requirements for growing issues of accessibility and compatibility with other information systems.

Intended Audience: Cultural heritage professionals who expect to manage digital assets, projects, or programs involving digitization and access.

Stephanie Christensen is an information technology still image specialist with the Smithsonian Institution’s Enterprise Digital Asset Management System. Prior she served as digital imaging manager at the National Anthropological Archives where she helped build the digitization program. She has worked at the Chicago Albumen Works, and has taught at a variety of higher educational institutions, including the George Washington University museum studies program. She is a member of the Federal Agencies Digitization Guidelines Initiative.

Isabel Meyer is the versatile project manager responsible for the Smithsonian Institution’s Enterprise Digital Asset Management System. She joined the Smithsonian’s Office of the chief information officer in 2003 with more than 20 years of proven leadership and in depth, diverse experience in the information and digital media technology industry. Her progressive work experience includes project and productivity management, system implementation, training, col-

laborative work groups, application development and test teams, digitization, metadata, and digital preservation standards.

NEW for 2018!

ArchSC09: Management of Multispectral and Advanced Image Data

13:30 –17:45 (4 hours)

Track: Advanced Imaging

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

This course introduces archive and cultural heritage professionals to best practices in advanced imaging and digitization program data management. It focuses on managing advanced imaging and digitization projects to create or develop digital data and products and integrate advanced technologies and data. This includes projects for collecting, processing, accessing, archiving, and collaborating with digital data from various systems.

Instruction supports archive and cultural heritage professionals as they manage successive stages of advanced imaging and digitization from initiation through production and operation, especially with changing technologies and data standards. It utilizes case studies of management techniques and processes that are applicable to digitization and data curation programs of varied cost and complexity in a range of institutions.

Benefits

This course provides project leaders, managers, and others working or intending to work with advanced imaging, digitization, and curation projects with:

- A broad introduction to the resources, tools, and capabilities for effective planning, developing, and managing an advanced imaging program to achieve the needed data product.
- Methods to ensure the data products meet the program requirements with effective planning, management, and implementation across all phases of the program.
- Best practices for planning and managing the large amounts of data and metadata

Short Course Fees

If you register:	on or before March 18	after March 18
2-hour		
Member	\$155	\$205
Non-mem	\$180	\$230
Student	\$65	\$115
4-hour		
Member	\$240	\$290
Non-mem	\$265	\$315
Student	\$95	\$145

Take 3 classes and receive 10% off the course registration fees. Use 2018Pick3 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.

created by multispectral and advanced imaging technologies, including:

- A solid management plan and schedule;
- An effective structure for task development;
- Requirements and resources tracking and reporting.
- Guidance and techniques for tracking program data progress.
- Methods, tools, and standards for long-term digital data and metadata preservation, including some high-return, low-effort best practices that can be used in various projects.
- Basic concepts and planning methods used for management and process improvement.

Intended Audience: Cultural heritage, archive, digitization, and curation personnel responsible for success in capturing advanced images and creating data products will benefit from the basic concepts and best practices of this course. It is equally applicable to all project team members, not necessarily only data administrators or managers. There are no prerequisites except a desire to use effective program and data management best prac-

tices. Participants also develop increased understanding that can help them tap multidisciplinary support from the scientific, engineering, and information technology communities.

Michael B. Toth, president of R.B. Toth Associates and University College of London Honorary Research Associate, has led advanced digitization projects to provide data and metadata for global access. With more than 30 years of experience managing advanced imaging programs, integrating systems and planning, Toth has led teams of scientists, scholars, and technical experts help institutions make more data widely available. He has supported projects ranging from the Library of Congress, Duke and Penn Universities, to Abu Dhabi, Uppsala, and the Vatican.

NEW for 2018!

ArchSC10: Digital Audiovisual File Formats: Identification, Validation, Specification Verification

13:30 –17:45 (4 hours)

Track: Digital Preservation

Instructors: Ashley Blewer, consultant, and Julia Kim, Library of Congress

Digital audiovisual files are large, complex, and difficult to manage. This course will cover resources and software for born-digital and digitized audiovisual quality control, and provide an understanding of their role in workflows. It will combine lecture, demonstration, workshops, and group discussion. All attendees will be encouraged to participate regardless of background.

The instructors will introduce the audience to the unique characteristics and challenges in digital audiovisual preservation. Topics will also include file formats and types, standards, validation, and technical specifications. This will also include tools such as FFmpeg, QCTools, MediaInfo, and MediaConch. The final third of the course will focus on larger-scale considerations, with an emphasis on workflow management, prioritization guidelines, file format normalization, storage specifications, management of timeframes, and internal advocacy.

Benefits

This course will enable the attendee to gain skills in the digital audiovisual preservation problem domain, including:

- Identifying file composition: How are video files made?
- Identifying and manipulating file format and codec complexities: How are audiovisual files structured? How can you discriminate among the many possible options? What are downstream workflow implications?
- Distinguishing file validation nuances: How to tell what part of a file is the problem. What are some potential solutions?

Intended Audience: Professionals who work on or are planning to work with audiovisual materials in the context of large-scale digitization and preservation efforts. These include preservation professionals; digital specialists; database administrators; program managers and directors; archivists, curators, librarians, and researchers.

Ashley Blewer is an audiovisual archivist, technologist, and enthusiast. She works as an independent web developer and digital archives consultant. Her previous experience includes New York Public Library, in the private sector as an integrations engineer and at the University of South Carolina (USC) Moving Image Research Collections as a cataloging manager. She holds a MLIS (Archives) and BA (Graphic Design) from USC and is a graduate of the Flatiron School's Web Immersive program. She is an active contributor to MediaConch and QCTools.

Julia Kim is the digital assets specialist at the American Folklife Center at the Library of Congress, where she creates and manages multi-format born-digital and digitized workflows of more than 200 TB of collection content annually. She holds an MA from the New York University Moving Image Archiving and Preservation Program, and is an alumna of the National Digital Stewardship Residency Program and XFR Collective, an audio-visual non-profit. She has a background in time-based media, digital forensics, and complex media.

NEW for 2018!

ArchSC11: Introduction to Color Management for Cultural Image Capture

15:45 – 17:45 (2 hours)

Track: Image and Imaging Fidelity

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

This course provides an introduction to color management for cultural heritage image capture. We start with the elements of human color vision that are behind all practical color imaging systems. A brief discussion of how current imaging technology for cameras and scanners is chosen to facilitate the capture of object colors follows. Specifics of the common image transformations from RGB camera signals to standard human vision colorimetry are then explained. We address color-difference measures based on the CIELAB color space and how ICC color profiles are used.

This presentation is intended to complement another short course, Color Measurement for Archiving, taught by David Wyble.

Benefits

This course will enable the attendee to:

- Comprehend colorimetry, color spaces, and color differences.
- Understand the often confusion terminology of color management.
- Compare and contrast (visual) colorimetry and camera color capture.
- Interpret customer color imaging requirements.
- Describe ICC color profiles and their use.
- Compare levels of FADGI and Metamorphoze CIELAB color tolerance.

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 will be assumed, but not color science.

See instructor bios on pages 7-8.

Register for 3 classes and take 10% off the total course registration fee.

See registration form for details.

Online reg code: 2018PICK3

NEW for 2018!

ArchSC12: Unlocking the Power of (Linked) Metadata

15:45 – 17:45 (2 hours)

Track: Asset / Life-Cycle Management

Instructor: Martijn van der Kaaij, Heron Information Management LLP

So far, the huge potential contained in metadata for cultural heritage has only been unlocked to a limited extent. This course highlights the use of metadata standards in all life stages of a digital resource. It addresses metadata in relation to automated workflows for (large) data sets. Case studies include the 'ingest' processes of a European Archive, the development of APIs (e.g. within IIF), and the automated application of ontologies. Finally, challenges for the near future are addressed: the cultural heritage (meta) data must be taken into the semantic web. The course explores which viable approaches and tools are available for documenting, visualizing, and disseminating the semantic relations between images, objects, places, people, documentation, and narratives.

Benefits

This course will enable the attendee to:

- Identify the role of metadata in the production, storage, and dissemination of cultural heritage data.
- Comprehend the automated application of metadata in workflows and quality control.
- Gain insight in metadata-driven storage, dissemination, and visualization of cultural heritage data and will be able to apply these insights in the workplace.

Intended Audience: Program managers and information specialists who are responsible for or

interested in processing large data sets. IT specialists, digital architects, and others involved in the development of digital repositories. Archivists, librarians, and program managers interested in linked data for cultural heritage.

Martijn van der Kaaij is a founding partner of Heron

Information Management LLP. As part of his master's in history, he studied the application of ICT to the arts and humanities, which developed into an enduring fascination. He has 20 years of experience delivering training on metadata, process management, and work flows. For Heron, he also provides consultancy on these subjects and develops software for quality control in automated workflows.

Behind-the-Scenes Tours

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.

AMERICAN FOLKLIFF CENTER, VETERANS HISTORY CENTER, AND PRESERVATION DIRECTORATE

Library of Congress

This tour walks participants through collaborative work done across departments, focusing on born-digital collection content and its specific challenges. Library specialists present workflows on removable media and showcase hardware and software tools used for migration and analysis of born-digital collections. Participants learn about our collections of complex media such as websites, and our evolving strategies for preservation and access. Participants will also learn about library-specific applications, repository systems, and mechanisms for access. The tour will showcase special collection highlights and include a brief guided tour of the Library's historic buildings.

NATIONAL MUSEUM OF NATURAL HISTORY

Herbarium Digitization Project

Visit one of the Smithsonian's Digitization Program Office's (DPO) longest running mass digitization projects. See what it takes to digitize more than 4 million specimens at a rate of 3,500/day at the Smithsonian National Museum of Natural History's herbarium and digitization space. Ken Rahaim, DPO senior program officer, provides an overview of the 3 main workflows that make up each of the DPO's mass digitization projects, which track an object from its storage shelf, to the digitization space, and finally along its virtual path to the internet for public access to researchers and the curious alike. These workflows have been the foundation to over 3 million museum objects digitized in the last 4 years that range from botany specimens, to buttons, to fine art painting and ceramics, to couches.

NATIONAL GALLERY OF ART (NGA)

Division of Imaging & Visual Services (DIVS)

Attendees tour the NGA painting studio and imaging facilities where they review the workflow for shooting paintings with ultra-resolution using a computer controlled SmartDrive easel. A discussion of the NGA's open access image repository and demonstrates some of its functionality follow. Materials on the SmartDrive Easel I and the NGA Guide to Reproduction will be made available. A brief overview of the next enterprise Digital Asset Management system (eDAM) is included.

Archiving 2018 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, 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 March 18	after March 18	thru March 18	after March 18
__ Conference registration: current IS&T Member	\$540	\$640	\$165	\$215
__ Conf. registration (+ new or renewing membership + JIST)*	\$640	\$740	\$190	\$240
__ Conf. registration (+ new or renewing membership + JEI)*	\$640	\$740	\$190	\$240
__ Conference non-member registration	\$640	\$740	\$190	\$240
__ One-day: <input type="checkbox"/> Wed <input type="checkbox"/> Thurs <input type="checkbox"/> Fri	\$300	\$350	\$100	\$125

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 12/31/18. This offer may be used for renewals.

Become part of the Archiving online community!

Search LinkedIn groups for "is&t archiving group"

Follow IS&T on Twitter: @ImagingOrg

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.

	on or before March 18	after March 18	TOTAL
4-hour Member (per class; select below)	\$240	\$290	\$ _____
4-hour Non-member (per class; select below)	\$265	\$315	\$ _____
4-hour Student (per class; select below)	\$95	\$145	\$ _____
Check all that apply	<input type="checkbox"/> ArchSC03	<input type="checkbox"/> ArchSC04	<input type="checkbox"/> ArchSC09 <input type="checkbox"/> ArchSC10
2-hour Member (per class; select below)	\$155	\$205	\$ _____
2-hour Non-member (per class; select below)	\$180	\$230	\$ _____
2-hour Student (per class; select below)	\$65	\$115	\$ _____
Check all that apply	<input type="checkbox"/> ArchSC01	<input type="checkbox"/> ArchSC02	<input type="checkbox"/> ArchSC05 <input type="checkbox"/> ArchSC06
	<input type="checkbox"/> ArchSC07	<input type="checkbox"/> ArchSC08	<input type="checkbox"/> ArchSC11 <input type="checkbox"/> ArchSC12

OR

**Take ANY three classes and receive 10% off the total price
(use coupon code 2018Pick3 when registering online)**

(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: _____ \$90 \$ _____

conference registration fee from previous page \$ _____

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

GRAND TOTAL \$ _____

Payment Method: AmEx MasterCard VISA Discover Wire Transfer Check

Card#: _____ Exp. Date: _____

Name as it appears on card: _____

Authorization Signature: _____

Return this form with signed credit card authorization 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
 April 1, 2018. After that date, the cancellation fee is 50% of the total plus \$75.**

No refunds will be given after April 23, 2018. All requests for refund must be made in writing.