

# IS&T Archiving Conference

Preliminary Program

April 20-23, 2004

The Hyatt Regency Hotel  
San Antonio, Texas, USA

## General Chairs:

**Franziska Frey, Rochester Institute of Technology**  
**Robert Buckley, Xerox Corporation**



Sponsored by:

**The Society for Imaging  
Science and Technology**

<http://www.imaging.org>

In cooperation with

**TAGA** Technical Association of the Graphic Arts  
**OCCLC** Online Computer Library Center  
**CNI** Coalition for Networked Information  
**DLF** Digital Library Federation  
**RLG** Research Library Group  
**MCN** Museum Computer Network  
**ALA** American Library Association  
**AIC** American Institute for Conservation  
**ECPA** European Commission on Preservation and Access  
**SPIE** The International Society for Optical Engineering  
**ALCTS** Assn. for Library Collections & Technical Services

# Introduction

How will we recover our images and documents a year, a decade, a generation or a century from now? How we will store and preserve documents now so as to enable future access? How can we retrieve, recover and restore materials of personal and cultural significance?

The Archiving Conference 2004 will address the complex and widely varying topics in the field of archiving by bringing together technical experts both from industry and from cultural institutions (libraries, archives and museums) engaged in long-term preservation. The goals are to benchmark the systems in place for preserving digital and hardcopy information and to identify the areas needing further research.

The technical papers program is arranged in a single-track format to promote the interchange of information across specialties in the field. We will start each day with a keynote address. The keynote speakers include Laura E. Campbell, Associate Librarian for Strategic Initiatives at the Library of Congress on "A National Preservation Strategy: Challenges and Opportunities"; Judy Russell, Superintendent of Documents at the U.S. Government Printing Office on "Preservation and Authentication of Government Information: Are we ready for the 21<sup>st</sup> Century?"; Gordon Bell, Senior Researcher at Microsoft Research on "Storing Everything Personal: What are the Implications?"; and Clifford A. Lynch, Executive Director of the Coalition for Networked Information on "Rethinking Stewardship for the Digital Age."

As with most IS&T conferences, the Interactive Poster session is a key feature, providing the opportunity for presenters and attendees to mingle and discuss results presented using a variety of media formats. The authors in the Interactive Poster Session will have the opportunity to introduce their work through one-minute "spotlight" talks at the beginning of the session.

Another important feature of the program is the tutorials. Tutorials are organized into tracks and are offered on Tuesday, the day before the papers program starts, and on Thursday. You may choose to follow a single track all day or personalize your course program to meet your educational or professional needs.

Special events are planned as well. The Conference Reception will be held Wednesday evening. On Thursday evening, we will feature a fascinating talk from Dusan Stulik of the Getty Conservation Institute on "Niepce and the Beginning of Photography". On Friday, there will be a roundtable discussion on the impact of the digital culture on archiving and preservation.

An excellent tutorial program, outstanding keynote speakers, and a paper program with high-level speakers from all around the world are waiting for you in San Antonio. Please plan to join us for the first IS&T Archiving Conference.

Franziska Frey and Robert Buckley  
General Chairs

## Week-at-a-Glance

<b>Tuesday Tutorials</b>	<b>8:00-10:00</b>	<b>10:15-12:15</b>	<b>1:15 to 3:15</b>	<b>3:30 to 5:30</b>
Track I	T1	T1 (continued)	T2	T2 (continued)
Track II	T3	T3 (continued)	T4	T5
Track III	T6	T7	T8	T9

6:00-7:30 IceBreaker

**CONFERENCE SESSIONS** - Keynote Sessions each day at 8:00 am

**Wednesday** - 8:00 am - 5 pm Sessions: Case studies, Hardcopy Perm., Dig.Archiving Components  
6:00 - 7:30 pm Conference Reception

**Thursday** - 8:00 - 11:50 am Session: Digital Preservation Strategies  
12:30 - 2:30 pm Tutorials: T10-Copyright Barriers; T11-Format Preservation  
1:30 - 3:20 pm Session: Photographic Collections  
3:20 - 5:30 pm Interactive Poster Session  
7:30 - 8:45 pm Special Evening Lecture by Dusan Stulik, Getty Conservation Inst.  
Niepce and the Beginning of Photography

**Friday** - 8:00 am - 3:20 pm Sessions: Digital Archiving-Architecture; Imaging  
12:30 - 1:30 pm Roundtable: Preservation and Policy in the Digital Culture

# Conference Committee

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Louis Sharpe, Picture Elements  
Scott A. Stovall, Government Printing Office  
Sabine Süssstrunk, EPFL

# Tutorial Program

T1 - 4 hour tutorial Tuesday, April 20, 2004  
8:00 AM to 12:00 PM

## **Infrastructure in the Context of Digitization and Archiving**

*Instructor: Geri Bunker Ingram, Consultant*

The Information Technology Infrastructure Library defines infrastructure as "...a term used to describe hardware, software, procedures, computer-related documentation, communications and skills required to support IT services."<sup>1</sup> This half-day, interactive workshop explores the infrastructure of digitization and preservation – how strategic plans, high-level workflow issues and the existing computing infrastructure impact digital archiving programs and projects. Topics will span in-house digitization vs. outsourcing, staffing, skill development, metadata, hardware, software standards and choices. Case studies will offer workshop participants the opportunity to work through issues and options using real-life examples. Best practices and standards will be examined and tested against practical scenarios. As participants from the same project or site are encouraged to register as teams, time will be dedicated to applying lessons to the teams' home environments and projects.

### **Benefits:**

This course will enable you to:

- Describe the relationships among, and impact of, institutional policies on preservation programs and projects
- Name some critical advantages and disadvantages of developing in-house digitization services
- Analyze how project size and scope affect infrastructure options and choices
- Predict workflow issues that are likely to impact decision-making within their home organization
- Differentiate among a wide scope of options for archiving varied material formats
- Formulate a decision-tree based on leading practices in preservation
- Justify informed decisions on local project structure, funding and equipment.

### **Intended Audience:**

This is a "big-picture" session, intended to put digitization and preservation initiative needs into perspective within a larger organization. Information/content managers, librarians and archivists charged with initiating archiving programs and projects in an institutional (and/or collaborative) setting will benefit. The target audience consists of supervisory and planning staff whose role will include putting enterprise-wide policies, budgets, architectures, training programs and staffing in place. Please

note that although understanding of technology concepts will be assumed, this non-technical session is intended as an aid to planning and to understanding the broad scope of archival issues.

***Geri Bunker Ingram, MLIS, has facilitated strategic planning for information technology and digital library programs in her roles as manager and administrator at three major universities. She has fifteen years' experience in managing library IT planning, implementation and operations at the University of California (Berkeley and San Diego), and the University of Washington and Texas A&M University. As Associate Director for Resources and Collection Management Services and Digital Initiatives Coordinator, she helped to develop the first Digital Initiatives Program at the University of Washington, 1996-2000. Currently, she is consulting with individual libraries and state-wide museum and library consortia, emphasizing organizational effectiveness through stewardship and continual learning. Her current teaching includes developing curriculum for, and delivering workshops in, strategic planning, managing digital projects and analyzing infrastructure issues.***

T2 - 4 hour tutorial Tuesday, April 20, 2004  
1:15 PM - 5:15 PM

## **Standards and Tools for Characterizing Scanner Imaging Performance: An Imaging Science Approach**

*Instructors: Don Williams and Peter D.  
Burns, Eastman Kodak*

Today's standards for characterizing scanner imaging performance are based on an image science architecture that systematically unifies the image conversion process. We begin by introducing this perspective and then describing its application to scanner imaging performance in an archiving environment. The standards and accompanying tools will help the user to confirm or refute manufacturer's claims of resolution, dynamic range, and noise, and sensitize them to common digital imaging artifacts associated with digital image capture. Many of these performance metrics are included as technical metadata in NISO Z39.87, and act as a golden thread to the physical legacy of source documents. This allows the maintenance of collection's image information over time and subsequent conversion. Our concentration will be on grayscale imaging, but bi-tonal imaging environments and their connection to grayscale imaging will also be covered.

# Tutorial Program

## Benefits:

This course will enable you to:

- Understand image science principles for digital image conversion
- Learn how these principles are unified across imaging systems
- Describe existing scanner standards to characterize scanner capability and performance
- Convert today's vernacular performance terms (e.g., dpi, bit depth, gamma, etc.) to science based performance metrics
- Benchmark or audit manufacturer's scanner performance with the above metrics using publicly available standards, compliant software and targets
- Identify several digital imaging distortion sources from image data.

## Intended Audience:

This course is basic to intermediate level for those managers, engineers, and technicians responsible for evaluating and monitoring scanner performance and understanding how performance metrics connect to other imaging system components such as display, print, and processing.

*Don Williams is an imaging scientist at Kodak's Imaging Science Division where he works on quantitative performance metrics for digital capture devices and systems. He frequently consults and writes for the museum and library community on scanner imaging performance metrics and associated standards. He currently co-leads several ISO/TC42 standardization efforts in this area.*

*Peter Burns is also a member of Eastman Kodak's Research and Development Labs. His published articles and patent activities have been in the areas of detector performance and image noise modeling, image quality evaluation, color-error propagation, and digital image processing. He has taught imaging courses for many years, as an adjunct faculty member at RIT, at Kodak, and at several technical conferences.*

T3 - 4 hour tutorial Tuesday, April 20, 2004  
8:00 AM - 12:00 PM

## **Digital Photographic Print Permanence: Update on an Increasingly Competitive Market, Applicable Accelerated Test Methods and a Review of Current and Future ISO Standards**

*Instructor: Henry Wilhelm, Wilhelm Imaging  
Research, Inc.*

As inkjet, dye-sub, and other types of digital photo printers continue their expansion into mainstream markets, many questions are being asked about

how the permanence of various types of digital prints compares with that of traditional silver halide color prints (which, with the rapid proliferation of the Océ LightJet, Durst Lambda, Fuji Frontier, and other silver halide digital photo printers, comprise an increasingly important component of the total digital print market). This tutorial will give an overview of the many factors affecting color print permanence. Looking at a print will tell you nothing about how long it will last. Attempting to answer the complex question, "How long will it last?" requires a full range of accelerated aging tests. In this course, the similarities and differences between inkjet prints made with dyebased inks, inkjet prints made with pigmented inks, dye-sub prints, and traditional silver-halide color prints in the context of image stability are discussed, and applicable ISO and other test methods are described.

## Benefits:

This course will enable you to:

- Understand the important role of image permanence in the development and successful marketing of new printers, inks, and media
- Differentiate between dye-based and pigmented inks from an image permanence perspective
- Discuss the substantial influence of media and ink receiving layer formulation on the permanence of both dye-based and pigmented inkjet prints – swellable-polymer, microporous, and other types of inkjet media
- Apply accelerated light stability tests and reciprocity failure evaluations
- Explore existing ANSI and ISO image permanence test methods standards - including status of work on forthcoming ISO standards for evaluation of the permanence of digital photographic print materials
- Understand the role of visible light and UV radiation in fading and color balance changes of various types of prints; how much benefit are UV absorbing framing and lamination materials
- Understand the "window test" for display of photographs and graphics in commercial store windows
- Understand dark stability (thermal aging), including yellowing of the substrate, fading, and color shift of image colorants
- Explore potential humidity-fastness issues with dye-based inkjet inks, the substantial influence of media, and applicable test methods
- Understand water-fastness tests with inkjet prints
- Define gas-fading and how it can affect dyebased images on microporous paper as well as other ink/media combinations

# Tutorial Program

- Describe physical degradation – embrittlement, delamination, surface scuffing, and other forms of physical deterioration.

## **Intended Audience:**

Administrators and marketing personnel, along with scientists and engineers involved in printer, ink, and media development and evaluation, will benefit from this course. This is an entry-level course intended to give attendees a good understanding of the subject from the perspective of both the consumer and printing systems suppliers in what has become a highly competitive field.

*Henry Wilhelm is president of Wilhelm Imaging Research, Inc. The company conducts research on the stability and preservation of traditional and digital color photographs and motion pictures, specializing in the image permanence evaluation of inkjet prints and counts among its clients many of the world's leading inkjet printer and media. In 1978 he was a founding member of American National Standards Institute Subcommittee IT9-3 (now ISO Working Group 5/Task Group 3) that is responsible for developing standardized accelerated test methods for the stability of color photographs and digital print materials. Wilhelm Imaging Research is also a consultant to museums, archives, and commercial collections on sub-zero cold storage for the very long-term preservation of still photographs and motion pictures. Mr. Wilhelm has been a consultant to the Museum of Modern Art in New York and other institutions on issues related to the display and preservation of both traditional photographic prints and digital print media. Mr. Wilhelm is a frequent speaker on inkjet printing technologies and print permanence at industry conferences, trade shows, and museum conservation meetings.*

T4 - 2 hour tutorial Tuesday, April 20, 2004  
1:15 PM - 3:15 PM

## **Materials and Media in Ink-Jet Printing and Digital Hardcopy**

*Instructor: Rita Hofmann, ILFORD Imaging Group, Switzerland*

As digital printing meets the image quality demands of high quality printing, it is being used in various imaging applications and replaces traditional imaging media. The class will teach how to recognize different print technologies and how to identify the media and colorants used. The Ink/colorant /media characteristics relating to the permanence of imaging materials will be discussed. Participants will be encouraged to recommend display, storage, and handling rules for digital prints. The course will

also give some guidance on how to best use and preserve digital color image prints in their application.

## **Benefits:**

This course will enable you to:

- Identify various digital printing technologies and media
- Outline the permanence requirements for different imaging applications and be able to select the best digital media for an application
- Understand the major factors in the degradation of digital prints and distinguish the right test methods
- Assess the factors that most influence permanence and predict the media longevity
- Apply display, storage and handle rules for digital prints.

## **Intended audience:**

This course is an introductory/medium level class for those involved in the storage and archiving of color images and documents as well as scientists and engineers involved in printer/ink and media development and evaluation. It will be beneficial to print technicians, print providers and technical marketing people who need to make recommendations for the best technology to use for print display, archival prints or guaranteed print life. The class may benefit artists, photographers and other end-users to select the right print media and the right display and storage conditions for their prints.

*Rita Hofmann has a degree in physical chemistry from the University of Goettingen. After her postdoctoral studies in atmospheric sciences and air pollutants at the Univ. of Colorado, she joined Ciba-Geigy for research of new analytical methods. She joined ILFORD in 1985 to work in digital photography, photographic color science, image evaluation of hardcopy technologies and the development of tests methods for ink-jet media. She is a long-term active member of the ANSI/ISO subcommittee responsible for standardizing image stability test methods for digital photographic prints. She is currently head of R&D for the ILFORD Imaging Group. For several years she has given numerous presentations on image stability in ink-jet images and color science aspects in digital hardcopy.*

T5 - 2 hour tutorial Tuesday, April 20, 2004  
3:30 PM - 5:30 PM

## **Storage Environments for Archival Media**

*Instructor: James Reilly, IPI, RIT*

This tutorial provides an overview of the theory and practice of proper storage for archival media

# Tutorial Program

collections, with an emphasis on balancing the needs of varied materials stored in the same location. Archivists must make storage decisions for both modern information media such as magnetic tape, CDs and DVDs as well as photographic materials in black and white and color, and ink jet prints. Storage conditions for these media are specified in ISO standards, and wherever possible, the ISO conditions should be implemented. This course will present both the ISO conditions and a suggested approach to simplifying storage decisions when collections of multiple media types must be grouped together in the same location. Participants will learn the key preservation concerns with each media type. Each participant will receive the new publication, "The IPI Media Storage Quick Reference," consisting of a 10-page summary of storage considerations for archival media and a "wheel" that allows the key facts and ISO recommendations for each media type to be quickly brought to mind.

## Benefits:

This course should enable you to:

- Define proper storage for each archival media type
- Categorize their environment by average temperature
- Understand the rationale for cold storage for selected media
- Understand the role of surveys in film collection management
- Choose the best compromise conditions for their collection
- Evaluate suitability of existing storage systems
- Understand the technology needed to monitor and evaluate storage conditions.

## Intended Audience:

This tutorial is intended for archivists, conservators, facilities managers, and administrators responsible for collections of photographic, magnetic, or digital media.

**James M. Reilly**, *Director of the Image Permanence Institute and professor in the Rochester Institute of Technology College of Imaging Arts and Sciences, graduated with a B. A. from Franklin and Marshall College in 1968 and an M. A. from the State University of New York at Buffalo in 1972. He continued his education in science at RIT. He is well known for his research on the deterioration of nineteenth-century photographic prints, the effectiveness of storage enclosures for imaging materials, the major causes of image deterioration, and optimizing conditions in storage vaults. He is author of numerous publications, including Care and Identification of 19<sup>th</sup>-Century Photographic Prints,*

*IPI Storage Guide for Acetate Film, and Storage Guide for Color Photographic Materials. He is a consultant to many museums and government agencies and is sought after worldwide as a teacher and seminar speaker. He received a technical achievement award from the Academy of Motion Picture Arts and Sciences in 1998 for his work on diagnostic tools for deterioration of film supports.*

T6 - 2 hour tutorial Tuesday, April 20, 2004  
8:00 AM - 10:00 AM

## Introduction to the Insides of PDF

*Instructor: James King, Adobe Systems*

PDF files are composed from a set of "objects" that can reference each other and can occur within the PDF file in any order. These objects, similar in use to XML's "elements", are used to create the structure of a sequence of pages to be imaged, together with the material that makes that sequence of pages into a true document. The objects are also used to construct a table of contents, on-page annotations, fill-in forms fields, etc.

## Benefits:

This course should enable you to:

- Judge for oneself whether PDF will satisfy your archiving objectives
- Explain to others how PDF files are organized at the highest level
- Demonstrate how PDF file format impacts performance in viewing
- Examine a PDF using a text editor and understand the representation
- Identify an embedded file inside of a PDF and understand the mechanism
- Position PDF accurately as a de facto open standard.

## Intended Audience:

This course would be of benefit to anyone considering saving large volumes of PDF files as an archive, any individual contributing to the activities of the PDF Subset for Archiving (PDF/A), anyone curious as to what, exactly, is inside a PDF file. No particular training or skill is required.

**James King**, *a Principal Scientist at Adobe Systems Incorporated. He is one of the people responsible for the vision, architecture, design, prototyping, and ultimate development of new products and new features for existing Adobe products. Prior to joining Adobe Systems, Dr. King was manager of I/O Systems Laboratory (IOSL) at the IBM Almaden Research Center where he was responsible for guiding research projects dealing with advanced printers, scanners, and displays.*

# Tutorial Program

T7 - 2 hour tutorial Tuesday, April 20, 2004  
10:15 AM - 12:15 PM

## JPEG 2000 for Image Archiving

*Instructor: Robert Buckley, Xerox Corp.*

JPEG 2000 is the follow-on image compression standard from the same committee that developed the original JPEG standard. While JPEG 2000 offers superior image compression, it is the new features it offers that have attracted interest in JPEG 2000 for image management, archiving and web applications. These features include progressive image access and the combination of lossless and lossy compression in a single codestream. Besides a compression algorithm, the JPEG 2000 standard defines several file formats to take advantage of JPEG 2000's capabilities. These formats can represent single images, image sequences or multi-page documents and support the liberal use of metadata.

### Benefits:

Tutorial attendees will be able to:

- Explain how JPEG 2000 works
- Recognize the factors that control the performance and quality of JPEG 2000
- Describe the JPEG 2000 suite of specifications
- Appraise the architecture of the JPEG 2000 file format family
- Assess the amenability and suitability of JPEG 2000 as a format for digital masters, derivatives and image delivery.

### Intended Audience

This tutorial is intended for those in cultural heritage institutions, digital libraries and archives who work with images and who need to understand and assess the implications of JPEG 2000 for image preservation, storage and delivery

*Rob Buckley is a Research Fellow with the Xerox Imaging & Services Technology Center. He is a member of the subcommittee that developed the JPEG 2000 file format family and is the Project Editor for Part 6 of the JPEG 2000 standard, which specifies the JPEG 2000 compound image file format. He is also the Chair of the CIE Technical Committee on the Communication of Color. Besides serving as the General Co-Chair for the 2004 IS&T Archiving Conference, he is the SID General Chair for the 2004 IS&T/SID Color Imaging Conference.*

T8 - 2 hour tutorial Tuesday, April 20, 2004  
1:15 PM - 3:15 PM

## Digital Imaging Architecture for Archiving Applications

*Instructor: Sabine Süsstrunk, EPFL*

Images optimized for archiving, images optimized for viewing, and images optimized for printing usually do not contain the same digital values, and nor should they. Depending on the intended usage of a digital image, its image state (color encoding, resolution, compression, processing and rendering) needs to be adjusted. In this course, we will cover the workflow from image capture to visualization to archiving, and discuss the appropriate image parameters for each step.

### Benefits:

This course should enable you to:

- Understand different image states and their relevancy in image archiving environments
- Identify the correct image capture (scanners and digital cameras) and image processing workflow for your image archiving and visualization needs
- Define color image encodings, resolution, file formats and compression requirements for your image files
- Compare today's image capture and processing technologies and make the correct choice for your application
- Identify image quality parameters for evaluating digital image files
- Have a basic understanding of colorimetry.

### Intended Audience:

This tutorial is intended for imaging managers and technicians involved in the digitization, processing, and maintenance of digital images, and engineers who develop hardware and software applications for the archival community. Basic knowledge of digital imaging is assumed.

*Sabine Süsstrunk is Assistant Professor for Images and Visual Representation at the Swiss Federal Institute of Technology (EPFL) in Lausanne, Switzerland. Prior to that, she was the Principle Imaging Researcher for Corbis Corp., Seattle, WA. She is the Swiss representative to ISO TC42 WG18, and JWG20/22/23, the ISO committees defining digital photography and color imaging standards. She has lectured and published several articles in the area of color imaging for archiving, and has also consulted with several museums, archives, and companies. She is currently on sabbatical, working with the Computational Color Reproduction group at Hewlett Packard Laboratories.*

# Tutorial Program

T9- 2 hour tutorial Tuesday, April 20, 2004  
3:30 PM - 5:30 PM

## Color Management Systems

*Instructor: Mitchell R. Rosen, Rochester  
Institute of Technology*

Color management is an important feature of the modern color reproduction workflow. Printer drivers, operating systems and popular image editing and publishing programs all support color management. Many users are frustrated by the seeming black-box aspect of color management and would like to know more about its mechanics, capabilities and limitations. This course is designed as a behind-the-scenes tour of industry standard color management as defined by the International Color Consortium (ICC).

### Benefits:

This course should enable you to:

- Identify and appreciate the differences between calibration and characterization of an imaging device
- Understand where color management fits into a digital image workflow
- Enumerate the basic functions that color management supports
- Apply appropriate expectations for color management capabilities
- Recognize the fields and tags of ICC profiles and the image processing components of standard Color Management Modules.

### Intended Audience:

This tutorial is intended for practitioners and managers responsible for digital image workflows that include scanners, cameras or computer displays as input and computer displays or printers as output. Attending the tutorial on Digital Imaging Architecture is recommended for appropriate background.

*Mitchell R. Rosen is a Senior Color Scientist with the Munsell Color Science Laboratory and the Visual Perception Laboratory of the Rochester Institute of Technology. He received a B.S. in Computer Science from Tufts Univ., and a Ph.D. in Imaging Science from RIT. He spent a decade in the research labs of Polaroid working on design and support of cameras, scanners, printers and color management systems. At RIT he teaches graduate courses on color systems and performs research in the areas of color management, spectral capture systems, spectral image processing, and spectral rendering systems. He has recently started following an interest in eye tracking. He is color imaging editor of IS&T's Journal of Imaging Science and Technology.*

T10 - 2 hour tutorial Thursday, April 22, 2004  
12:30 PM - 2:30 PM

## Copyright Barriers to Archiving

*Instructor: Laura N. Gasaway, University of  
North Carolina*

Copyright law was designed both to provide economic incentives to authors in order to stimulate the production of new works but also to ensure that their works were made available to the public. Libraries, archives and museums often seek to preserve archival materials using digital means; such preservation requires a reproduction of the work. The right of reproduction is one of the exclusive rights of the copyright holder provided under the Copyright Act. This tutorial examines the law, how it can act as a barrier to legitimate archiving projects and offers suggestions on how to find means for both complying with the law and preserving the materials.

### Benefits:

This course will enable you to:

- Summarize general copyright principles that apply to digital archiving
- Identify copyright barriers to archiving both published and unpublished materials
- Analyze local situations, apply copyright principles and determine whether copyright permission is needed for projects
- Create local guidelines on how to obtain permission and how to manage permissions received.

### Intended Audience:

The intended audience is librarians, archivists and others interested in legal issues about archiving but who have only basic knowledge of copyright law.

*Laura N. Gasaway (Lolly) has been Director of the Law Library and Professor of Law at the University of North Carolina since 1985. She teaches courses in Copyright Law, Intellectual Property Law and Cyberspace Law in the law school and Copyright Law in the School of Information and Library Science. She has written widely on copyright as it affects libraries, colleges and universities. She served as the first virtual scholar in residence at the Center for Intellectual Property, University of Maryland, University Campus, 2001-02. A list of recent articles and books may be found at:  
<http://www.unc.edu/~unclng/gasaway.htm>.*

# Tutorial Program

T11 - 2 hour tutorial Thursday, April 22, 2004  
12:30 PM - 2:30 PM

## Format Preservation: Methods to Acquire, Validate and Migrate Content

Instructor: Stephen Abrams, Harvard University Library

Digital archiving policy and processing decisions largely operate at the level of format (e.g., PDF, TIFF) rather than content (e.g., “journal article”). The purpose of this tutorial is to describe the Global Digital Format Registry (GDFR) and format-specific validation tools and to illustrate via a case study how these tools and services can be used with format standards and specifications to identify, validate, and characterize digital objects and perform preservation activities. Particularly at times of ingest and migration, repositories will rely upon such tools to automate appraisal and transformation activities.

### Benefits:

This course will enable you to:

- Explain the meaning of “format” as it pertains to archiving
- Understand the components of the “functional” and “informational models” of the Open Archival Information System (OAIS) reference model (ISO 14721)
- Contribute to the development of the Global Digital Format Registry (GDFR)

- Use the JHOVE open source program for format validation and metadata extraction
- Use the JHOVE open source tools to create validators for additional formats
- Diagram the life cycle of digital object data management — from authoring to archiving to dissemination — with an understanding of the points at which automated characterization, validation, and transformation activities are needed.

### Intended Audience:

This tutorial is designed for technical specialists charged with developing and administering systems to acquire, validate, manage, and transform digital content. The class will also be beneficial to collection managers or other administrators seeking to understand the framework of digital archiving and how choices of formats and technical metadata greatly influence the probability and affordability of long-term preservation.

*Stephen Abrams is the Digital Library Program Manager at the Harvard University Library, providing technical leadership for strategic planning, design, and coordination of the Library’s digital systems, projects, and assets. He is currently engaged in research and implementation of effective methods for archival preservation of digital objects. Mr. Abrams is the project leader and editor for ISO/TC 171/SC 2/WG 5, the joint working group developing the PDF/A standard.*

## TUTORIAL SCHEDULE

### Tuesday Morning Tutorials

8:00 am to Noon

- T1-Infrastructure in the Context of Digitization And Archiving
- T3-Digital Photographic Print Permanence: Update...

8:00 am to 10:00 am

- T6-Introduction to the Insides of PDF

10:15 am to 12:15 pm

- T7-JPEG 2000 for Image Archiving

### Tuesday Afternoon Tutorials

1:15 to 5:15 pm

- T2-Standards and Tools for Characterizing Scanner Imaging Performance: An Imaging Science Approach

1:15 to 3:15 pm

- T4-Materials and Media in Inkjet Printing and Digital Hardcopy
- T8-Digital Imaging Architecture for Archiving Applications

3:30 to 5:30 pm

- T5-Storage Environments for Archival Media
- T9-Color Management Systems

### Thursday Tutorials 12:30 to 2:30 PM

T10 -Copyright Barriers to Archiving

T11-Format Preservation: Methods to Acquire, Validate and Migrate Content

# Conference Program

## Wednesday April 21, 2004

### Keynote Session

8:00 to 9:00 am

Session Chairs: Robert R. Buckley, Xerox Corp.; Franziska Frey, Rochester Institute of Technology

**A National Preservation Strategy: Challenges and Opportunities**, *Laura Campbell, Library of Congress (USA)*

### Case Studies

9:00 to 11:50 am

Session Chairs: Stephen Chapman, Harvard Libraries and Phil Michel, Library of Congress

**VERS: Building a Digital Record Heritage**, *Howard Quenault, Public Record Office Victoria (Australia)*

**ERM E-Gov Initiative - Transferring Permanent Electronic Records to the National Archives of the United States**, *Susan Sullivan, National Archives and Records Administration (USA)*

**Long Term Archiving of Digitized Photographic Collections: Recommendations of the Swiss Federal Office for Protection of Cultural Property**, *Rudolf Gschwind and Lukas Rosenthaler, Imaging and Media Lab, University of Basel (Switzerland)*

**Creating Access Points to Thematic Web Collections**, *Abigail Grotke, Library of Congress (USA)*

**CITY2000 and the Dual Lives of Today's Image Collections**, *David Austin, University of Illinois at Chicago (USA)*

**Minds of Carolina: Preserving and Presenting Lifetimes of Accomplishment**, *Helen Tibbo and Paul Jones, University of North Carolina at Chapel Hill (USA)*

**Digital Archiving without Preservation is Just Storage: Education is the First Step to Achieving Preservation Goals**, *Suzanne Kriegsman and Lee Mandell, Harvard University Library (USA)*

### Hardcopy Permanence

1:30 pm to 3:10 pm

Session Chair: Rita Hoffman, Ilford

**Light Fade VOC Based End-point Study for Home Consumer Prints Part II**, *David J. Oldfield and John Paul Twist, Eastman Kodak (USA)*

**The Light Fading of Dye Based Inkjet Images – a Multidimensional Issue**, *Alan Hodgson and Amanda Jackson, Ilford Imaging UK Ltd. (UK)*

**Permanence of Dry Toner Based Documents**, *Michael Hopper<sup>1</sup> and Marcel Breton<sup>2</sup>, <sup>1</sup>Copperas Consulting and <sup>2</sup>Xerox Research Centre of Canada (Canada)*

**Adhesion at Toner – Paper Interface in Electrophotographic Printing**, *Laurence Leroy and Véronique Morin, Centre Technique du Papier; Alessandro Gandini –Ecole Française de Papeterie et des Industries Graphiques (France)*

**Document Archiving – Analog Preservation of Paper and E-Documents**, *Robert Breslawski, Eastman Kodak (USA)*

### Digital Archiving - Components

3:40 pm to 5:00 pm

Session Chair: Sabine Süssstrunk, Swiss Federal Institute of Technology (EPFL)

**Reference Model, Requirements and Reality: A Case Study on Implementing OAIS at OCLC**, *Pam Kircher and Dawn Lawson, OCLC Online Computer Library Center (USA)*

**Archiving Scientific Literature in the Digital Age**, *M. R. V. Sahyun, Consultant and Editor, "JIST" (USA)*

**Archival Appraisal, Websites, and DSpace™**, *Anne Marie Donovan, Maria Esteva, Patricia Galloway, Addy Sonder, and Susan Trombley, University of Texas at Austin (USA)*

**The History Component of the DSpace Institutional Digital Repository**, *Michael J. Bass<sup>1</sup> and Jason Kinner<sup>2</sup>, <sup>1</sup>Hewlett-Packard Company and <sup>2</sup>Dynamic Digital Media, LLC (USA)*

## Thursday April 22, 2004

### Keynote Session

8:00 am to 9:40 am

Session Chairs: Robert R. Buckley, Xerox Corp.; Franziska Frey, Rochester Institute of Technology

**Preservation and Authentication of Government Information: Are we ready for the 21st Century?**, *Judy Russell, Government Printing Office (USA)*

**Storing Everything Personal: What are the Implications?**, *Gordon Bell, Microsoft Corp. (USA)*

# Conference Program

## Digital Preservation Strategies

9:40 am to 11:50 am

Session Chair: Scott Stovall, U.S. Government  
Printing Office

**Global Digital Registry Format**, *David Seaman, Digital Library Federation; Stephen L. Abrams, Harvard Univ. (USA)*

**On Preserving Digital Documents for the Long-Term**, *Raymond A. Lorie, IBM Research, Almaden Research Lab (USA)*

**A Web-Based Paradigm for File Migration**, *Frank L. Walker and George R. Thoma, National Library of Medicine (USA)*

**Steering Resources to Safe-Harbor Repositories: The Need for Reliable, Accurate and Affordable Ingest Services**, *Stephen Chapman and Stephen Abrams, Harvard University Library (USA)*

**Preserving Content: A Case Study of a Multi-Faceted Approach**, *Eileen Fenton, Electronic Archiving Initiative, JSTOR (USA)*

## Photographic Collections

1:30 pm to 3:20 pm

Session Chair: Steven Puglia, U.S. National  
Archives & Records Admin.

**Invited Talk - Issues and Expectations for Digital Archives in Museums -One Consideration in A Historical Museum**, *Kimiyoishi Miyata, National Museum of Japanese History, Department of Museum Science (Japan)*

**A Technological Approach to Archival Family Records**, *Rodney Shaw, Hewlett Packard (USA)*

**Optimising Preservation and Presentation of Cellulose Nitrate Film Collections**, *Jesper S. Johnsen<sup>1</sup>, Thomas Christensen<sup>2</sup> and Jacob Trock<sup>2</sup>, <sup>1</sup>The National Museum of Denmark and <sup>2</sup>Danish Film Institute (Denmark)*

**High-security, Sub-zero Cold Storage for the Permanent Preservation of the Corbis-Bettman Collections**, *Henry Wilhelm and Mark McCormick, Wilhelm Imaging Research, Inc. (USA)*

**Permanent Pixels: Building Blocks for the Longevity of Digital Surrogates of Historical Photographs**, *René van Horik<sup>1</sup>, Henk Koppelaar<sup>2</sup>, Kees van der Meer<sup>2</sup>, Peter Doorn<sup>1</sup>, <sup>1</sup>Netherlands Institute for Scientific Information Services and <sup>2</sup>Delft University of Technology (Netherlands)*

## Interactive Poster Session

3:20 pm to 5:30 pm

Session Chairs: Melville R.V. Sahyun, IS&T,  
Katri Vikman, Helsinki Univ. of Technology

**Dissertation Archiving and Access: A Case Study for Accessibility and Preservation**, *Austin Mclean; ProQuest Information & Learning (USA)*

**Search, Controlled Display, and Linking of Segments in Large Format Material Using JPEG2000**, *Joe Tavares and Greg Zick, DiMeMa Inc. (USA)*

**Using JPEG2000 for Enhanced Preservation and Web Access of Digital Archives – A Case Study**, *James Janosky, Aware, Inc. (USA)*

**Autosophy Failure-Proof Multimedia Archiving**, *Klaus Holtz, Eric Holtz, and Diana Kalienky, Autosophy (USA)*

**Displaying Digitally Archived Images**, *Kate Devlin<sup>1</sup>, Alan Chalmers<sup>1</sup>, and Erik Reinhard<sup>2</sup>, <sup>1</sup>Univ. of Bristol (UK), and <sup>2</sup>Univ. of Central Florida (USA)*

**Steganalysis Using n-Pixel Comparison**, *Sos Aгаian and Benjamin Rodriguez, Univ. of Texas at San Antonio (USA)*

**The Cybercemetery: Prolonging Usable Afterlife**, *Cathy Hartman, Samantha Hastings, Daniel G. Alemneh, Univ. of North Texas (USA)*

**A Case Study - Twenty Years Experience at the Smithsonian Institution: The Planning and Operation of a Cold Storage Facility for Photographs**, *James H. Wallace Jr., Smithsonian Institution, Retired (USA)*

**High Speed Slide Scanning**, *Victor Y. Guinto, Case Western Reserve University (USA)*

**The Design and Operation of a Passive Humidity-Controlled Storage Vault Using Conventional Freezer Technology and Moisture Sealed Cabinets**, *Mark McCormick-Goodhart and Henry Wilhelm, Wilhelm Imaging Research, Inc. (USA)*

**Human Readable Preservation of Digital Images**, *Peter Burns and Don Williams, Eastman Kodak Company (USA)*

**A New Way to Archive Video**, *Jim Wheeler, Tape Restoration and Archival Services (USA)*

**Recommendations for Metadata Standards for 3D Images on the Web**, *Samantha Hastings, Cathy Hartman and Elise Lewis, University of North Texas (USA)*

# Conference Program

**Implementing a Digital Imaging and Archiving Program: Technology Meets Reality**, *Oya Rieger, Cornell Univ. Library (USA)*

**A Hierarchical Document Description and Comparison Method**, *Burak Bitlis, Xiaojun Feng, Jacob Harris, Charles Bouman, Ilya Pollak, Mary Harper, and Jan Allebach, Purdue Univ. (USA)*

**The Best Transform in the Replacement Coefficients and the Size of the Payload Relationship Sense**, *Sos Agaian<sup>1</sup> and Eric Silva<sup>2</sup>, <sup>1</sup>Univ. of Texas at San Antonio and <sup>2</sup>RSA Security Inc. (USA)*

**Rewind: Artists' Video in the 1970s and 1980s**, *Stephen Partridge, Duncan of Jordanstone College of Art & Design, Univ. of Dundee (Scotland)*

**Low-temperature Storage of Nitrate Still Film: A Case Study and Model**, *Loren Pignoli, Bancroft Library, Univ. of CA/Berkeley (USA)*

**A Personal Family Archiving: Organizing an Unplanned Collection Using Consumer Level Digital Technologies**, *Mark McCormick-Goodhart, Wilhelm Imaging Research, Inc. (USA)*

**StorHouse: an Affordable Strategy for High-Volume Digital Preservation**, *David Clements, FileTek, Inc (USA)*

**Gravell's Contribution to the Recording of Watermarks**, *Rolf Dessauer (USA)*

**The Authenticity of Electronic Records: The InterPARES Approach**, *Jean-François Blanchette, Univ. of British Columbia (Canada)*

**The Digital Signature Dilemma: to Preserve or not to Preserve?**, *Jean-François Blanchette, University of British Columbia (Canada)*

**The Working Digital Collection: Preserving for the Future**, *Serge Tremblay, Serge Peters, and Michel Roy, The National Defence Imagery Library (Canada)*

**Long-Term Preservation of Authentic Electronic Records**, *Babak Hamidzadeh<sup>1</sup> and Luciana Duranti<sup>2</sup>, <sup>1</sup>Boeing Company and <sup>2</sup>Univ. of British Columbia (Canada)*

## Friday April 23, 2004

### Keynote and Focal Session

8:00 am to 10:00 am

**Keynote: Rethinking Stewardship for the Digital Age**, *Clifford A. Lynch, Coalition for Networked Information (USA)*

**Focal: America's Cultural Record: A Thing of the Past**, *Laura Gasaway, University of North Carolina – Chapel Hill (USA)*

**Focal: PDF/A: An Electronic Document File Format for Long-Term Preservation**, *Stephen Abrams<sup>1</sup> and Stephen Levenson<sup>2</sup>, <sup>1</sup>Harvard Univ. and <sup>2</sup>Administrative Office U.S. Courts (USA)*

### Digital Archiving — Architecture

10:30 am to 11:50 am

Session Chair: Thomas B. Hickey, Online Computer Library Center

**DISTARNET - A Distributed Archival Network**, *Lukas Rosenthaler and Rudolf Gschwind, University of Basel (Switzerland)*

**Using Hard Disks for Digital Preservation**, *David Rosenthal<sup>1</sup>, Mema Roussopoulos<sup>2</sup>, TJ Giuli<sup>1</sup>, Petros Maniatis<sup>3</sup>, and Mary Baker†, <sup>1</sup>Stanford University, <sup>2</sup>Harvard University, <sup>3</sup>Intel Research, and †HP Labs (USA)*

**Digital Preservation and Permanent Access: The UVC for Images**, *Erik Oltmans and Hilde van Wijngaarden, Koninklijke Bibliotheek — National Library of the Netherlands (Netherlands)*

**A Single Source SNR/Resolution Scalable Video Server for Archiving**, *Eisaburo Itakura, Eric Edwards, Akifumi Mishima, and Hiroyasu Furuse, Sony Corporation (USA)*

**Roundtable: 12:30 - 1:30 pm  
Preservation & Policy in the Digital Culture**

### Imaging

1:30 pm to 3:20 pm

Session Chairs: Robert R. Buckley, Xerox Corp.; Franziska Frey, Rochester Institute of Technology

**Automatic Exposure: Capturing Technical Metadata for Digital Still Images**, *Günter Waibel and Robin L. Dale, RLG (USA)*

**JPEG 2000 in Practice: Effect of Image Content and Imaging System Characteristics**, *Ronald Murray, Library of Congress (USA)*

**High Resolution Image Compositing as a Solution for Digital Preservation**, *Spencer Thomas and David Yakimischak, JSTOR (USA)*

**JPEG2000/Part 6 for Scanned Documents in Archiving Applications**, *Klaus Jung and Thomas Zellmann, Algo Vision LuraTech GmbH (Germany)*

**Focal Talk - Digital Libraries and Document Image Analysis**, *Henry Baird, Palo Alto Research Center (USA)*

# Hotel Reservation Request Form

## IS&T's ARCHIVING CONFERENCE

April 20 -23, 2004

Hyatt Regency San Antonio, San Antonio, Texas

Name \_\_\_\_\_ No. in party \_\_\_\_\_

Company \_\_\_\_\_

Mailing Address \_\_\_\_\_

Telephone (\_\_\_\_\_) \_\_\_\_\_ Fax(\_\_\_\_\_) \_\_\_\_\_

A special block of rooms at a discounted rate is being held at the Hyatt Regency San Antonio for IS&T attendees for the nights of April 19 through 24. The discounted rate will also be extended for 3 days before and 3 days after these dates if space and rate is available. Reservations will be assigned on a priority basis to the IS&T group provided they are received by March 20, 2004. All reservations must be guaranteed with one night's deposit by check or a major credit card number, expiration date and signature. Check in time is 3:00 p.m. Check out time is 12:00 noon. There is no charge for children under 18 years when sharing a room with their parents. Please advise us of any change of date or plan 210-222-1234—ask for reservations.

Please reserve my room as indicated: Single-\$196 Double -\$216 Triple-\$236 Quad-\$256  
Rates are as above per night, plus tax (currently 16.75%).

Arrival Date \_\_\_\_\_ Time \_\_\_\_\_ Departure Date \_\_\_\_\_ Time \_\_\_\_\_

Sharing with: \_\_\_\_\_

Special Requirements: \_\_\_\_\_

AMEX  MasterCard  Visa

Exp. Date \_\_\_\_\_ Card # \_\_\_\_\_

Signature \_\_\_\_\_

**This is Fiesta Week in San Antonio - reserve early!**

**Send this form to:** Reservations Manager, Attn: IS&T's ARCHIVING CONFERENCE  
Hyatt Regency San Antonio  
On the Riverwalk at Paseo del Alamo, 123 Losoya Street  
San Antonio, TX 78205, USA  
Telephone: 210-222-1234, Fax: 210-362-6340  
[www.sanantonioregency.hyatt.com](http://www.sanantonioregency.hyatt.com)

NOTE: IS&T will facilitate participants finding others interested in sharing a room. If you are interested, send us an e-mail ([info@imaging.org](mailto:info@imaging.org)) with your name, e-mail address, gender, room preferences, i.e., smoking, special needs, etc.

## San Antonio

From its founding in 1691 by Spanish missionaries, San Antonio has grown from a sleepy little Texas pueblo to the 9th largest city in the USA. Downtown, amid soaring modern office buildings, you'll find the old Spanish Governor's Palace has been preserved, as well as La Villita, the site of San Antonio's original settlement, now a collection of artisans' workshops, restaurants and historic houses. In the heart of the city, 20 feet below street level, lies San Antonio's most popular attraction, the River Walk. There, stretching for approximately two and a half miles along the tree-shaded banks of the San Antonio River, the diversity of cafes, shops, galleries and restaurants offer a sampling of San Antonio's many cultures. And, there on the River Walk, and just across the street from the Alamo, is the Hyatt Regency San Antonio, the site of IS&T's Archiving Conference. We also have the good fortune to have our conference coincide with Fiesta San Antonio, a 10-day citywide celebration, which includes exciting carnivals, fantastic fireworks, lively entertainment, ethnic feasts, art exhibits and parades that glide down the River Walk and streets.

**Find out more about San Antonio at [www.sanantoniocvb.com](http://www.sanantoniocvb.com)**

# Conference Registration Form

IS&T's ARCHIVING Conference  
April 20-23, 2004  
San Antonio Hyatt, San Antonio, Texas

Name \_\_\_\_\_

Title/Position \_\_\_\_\_

Company \_\_\_\_\_

Mailing Address \_\_\_\_\_

Telephone (\_\_\_\_\_) \_\_\_\_\_ Fax(\_\_\_\_\_) \_\_\_\_\_

E-mail: \_\_\_\_\_

Full registration includes admission to all regular sessions, the final program/proceedings book, and ticketed receptions. Separate registration fees are required for the short courses.

(CHECK ONE)

	until 3/20	after 3/20
<input type="checkbox"/> Full Conference-Member	\$525.00	\$575.00
<input type="checkbox"/> Full Conference-Non-member	\$625.00	\$675.00
<input type="checkbox"/> Full Conference-Student(Student ID required)	\$125.00	\$150.00
<input type="checkbox"/> Full Conference-Speaker Member	\$400.00	\$400.00
<input type="checkbox"/> Full Conference-Speaker Non-member	\$500.00	\$500.00

All participants circle days you will attend: T, W, Th, F

Tutorials per Class (Separate registration required):

	Member	Non-member
<input type="checkbox"/> 4-hour-/per class	\$195.00	\$245.00
<input type="checkbox"/> 2-hour-/per class	\$145.00	\$185.00

After 3/20, add \$25 per class late registration fee.

Indicate Classes you will Attend:

T\_\_\_; T\_\_\_; T\_\_\_; T\_\_\_

Total Classes: \$ \_\_\_\_\_

Total Remittance U.S. \$ \_\_\_\_\_

Payment Method:  Check  AMEX  MC  VISA Check # \_\_\_\_\_

Card# \_\_\_\_\_ Exp. Date \_\_\_\_\_

Name as it appears on card \_\_\_\_\_

Signature \_\_\_\_\_

Charge Authorization

Return this form with signed credit card authorization or check payable in U.S. dollars to IS&T, 7003 Kilworth Lane, Springfield, VA 22151; 703-642-9090; Fax: 703-642-9094; E-mail: info@imaging.org. - or register on line at www.imaging.org

Cancellations made one month before the meeting will be refunded in full.  
Late cancellations will be charged \$55.00.



The Society for Imaging Science and Technology  
7003 Kilworth Lane  
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Preliminary Program  
**ARCHIVING CONFERENCE**

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April 20 to 23, 2004  
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