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
OCLC 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
How will we recover our images and documents a year, a decade, a generation or a century from now? How will we 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 21st 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

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CONFEREENCE 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
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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.” 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 statewide 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 Oce 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 dye-based 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 dye-based images on microporous paper as well as other ink/media combinations
• 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.

**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.

**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.

**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.

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 19th-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.
**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.

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**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.
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.

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.
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.

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**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**

**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 to12:15 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
**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
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)

**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


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


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, Kimiyoshi 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. Johnsen¹, Thomas Christensen² and Jacob Trock². ¹The National Museum of Denmark and ²Danish 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 Horik¹, Henk Koppelhaar², Kees van der Meer², Peter Doorn¹. ¹Netherlands Institute for Scientific Information Services and ² 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)


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

Displaying Digitally Archived Images. Kate Devlin¹, Alan Chalmers¹, and Erik Reinhard². ¹Univ. of Bristol (UK), and ²Univ. of Central Florida (USA)

Steganalysis Using n-Pixel Comparison. Sos Agaian 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)


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)
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 Agaian¹ and Eric Silva², ¹Univ. of Texas at San Antonio and ²RSA 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 Pigniolo, 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)


Long-Term Preservation of Authentic Electronic Records, Babak Hamidzadeh¹and Luciana Duranti², ¹Boeing Company and ²Univ. 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 Abrams¹ and Stephen Levenson², ¹Harvard Univ. and ²Administrative 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 Rosenthal¹, Mema Roussopoulos², TJGiuli¹, Petros Maniatis³, and Mary Baker†, ¹Stanford University, ²Harvard University, ³Intel Research, and †HP Labs (USA)


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 Character-istics, 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

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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
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on a priority basis to the IS&T group provided they are received by March 20, 2004. All reserva-
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April 20-23, 2004
San Antonio Hyatt, San Antonio, Texas

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Preliminary Program

IS&T's ARCHIVING CONFERENCE

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