Digital archiving services create wide possibilities, e.g., for developing eServices for citizens. First services produced are Terminal Archive Services and after that project continues developing Active Archive Services. Integrations in client systems used by municipalities are made continuously through the service life cycle, and these integrations are commercialized as separate products.

Service contracts are made between service provider and customer. Contract includes service descriptions, responsibilities for both parties and service levels. Support services are also described. Business model enables providing archive services to those organizations in municipality sector, which are customer owners of service provider, i.e., own shares of the provider company.

Abstract: This article shares some helpful advice and vocabulary for understanding how to determine digitization “resolution” based on need. It demystifies a key guideline established in many best practices and technical guidelines and explains why we sometimes do need 300ppi.

**How Long Is Long-Term Data Storage?**

Barry M. Lunt, Brigham Young University (USA)

Abstract: In the context of archiving of physical documents, long-term storage has long been accepted to mean centuries. Digital documents are much more ephemeral, so archivists should be aware of the inherent limitations of the technologies available for preservation of digital data. This paper compiles the results of several studies on this subject, in addition to presenting new findings on what can be expected for recordable optical discs (CDs and DVDs). The bottom line is that, with one notable exception, digital data cannot be expected to endure using any existing technologies.

To view the full papers of these abstracts for no fee go to www.imaging.org/ist/publications/reporter/index.cfm

* These papers were presented at Archiving 2011, held May 16-19, 2011, in Salt Lake City, Utah.
**Metadata Capture and Geospatial Records**

*Elizabeth Perkes, Utah State Archives and Records Service, and Lisa Speaker, North Carolina State Archives (USA)*

**Abstract:** When the electronic records that you are trying to preserve are unique, complex, and storage-hungry, they will quickly put an institution’s feet to the fire to come up with solutions. This has been the case for Utah, North Carolina, and Kentucky as we have tried to grapple with the needs and requirements of geospatial records in the grant-sponsored GeoMAPP project (http://www.geomapp.net). Much of what we have learned while studying geospatial records can be broadly applied to other types of electronic records. For instance, digitized images of the earth will have similar preservation requirements as documents that have been scanned, but with the added metadata needed to make sense of geospatial imagery. Geospatial data in the form of shapefiles or geodatabases also come with their own descriptive metadata, which must be captured along with the technical metadata, and reused for purposes of access and preservation. This session will focus on the nature of this metadata and the commonalities found with other types of electronic records, while we share the specific strategies and tools that we are developing. One such tool is an application created by the Utah State Archives, called the APPX-based Archives Enterprise Manager (AXAE M). This platform and database-independent open-source software is used to manage the entire workflow of the archives, and recent development has added the ability to ingest metadata of various types into the system and link it to the bibliographic data of series. A demonstration of this tool will be given.

**DIGITISE MORE, PAY LESS—Optimising the Preparation for Digitising Large Collections of Images: Case Study Photo Collection Netherlands Institution of Sound and Vision**

*Margot Knijn, Netherlands Institution of Sound and Vision (the Netherlands)*

**Abstract:** Through the Images for the Future project the Netherlands Institute for Sound and Vision was given the opportunity to digitise large parts of their collections. The sheer size and numbers of material, combined with the necessity of a European Tender procedure, forced Sound and Vision to rethink work processes and workflows. The photographic department has by now gathered experience in two Tender procedures where the digitisation of more than a million negatives was commissioned.

The general conclusion is that time and money spend on preparing your collection and your workflow with the digitisation process in mind will be earned back easily as the supplier will be able to optimise and automate their work process and more precisely calculate their risk, which will result in a lower price.

This approach can be applied to smaller digitisation project as well, with the same result: Digitise More, Pay Less.

**Enhanced Education for Better Imaging Practices: A Case Study at the University of Michigan**

*Paul Conway, University of Michigan, and Don Williams, Image Science Associates (USA)*

**Abstract:** Recent notable efforts to establish new technical standards and best practices for digital imaging, including the Federal Agency Digitization Guidelines Initiative in the United States and the Metamorfoze effort in the Netherlands, present important educational challenges and perhaps one of the biggest opportunities for the imaging science community to increase the level of imaging literacy in the ranks of new and upcoming cultural heritage professionals. This paper establishes the contexts for and presents the preliminary results of an educational exercise on digitization quality carried out in collaboration between academia and industry. A graduate level course introduces students to emerging standards and best practices and reinforces this information with training in the use of the GoldenThread image quality software via a server-based “virtual laboratory” environment. Recognizing that improvements in teaching imaging concepts are also needed, we present examples from an image quality interpretation manual developed to complement classroom discussion and laboratory exercises.

**The Case for Implementing Core Descriptive Embedded Metadata at the Smithsonian**

*Stephanie Ogeneski Christensen, Smithsonian Institution, and Doug Dunlop, Smithsonian Institution Libraries (USA)*

**Abstract:** The long-term goal, as established by the institutional strategic plan, to digitize collections at the Smithsonian Institution along with the increasing need to share data and increase access to collections has made it essential to establish institution-wide metadata standards, including those for embedding metadata. This paper documents the ongoing process of establishing core embedded metadata within the institution through the work of the Smithsonian Embedded Metadata Working Group (EmDaWG), which is pan-institutional in nature and includes museums, libraries, archives, and research institutes. The focus of the working group described within this paper is the creation of core embedded metadata fields for use in still images.
The Archiving 2011 Conference—the 8th in the IS&T series—was held May 16-19, 2011 in Salt Lake City, Utah. The conference, attended by 184 participants from 14 countries, was organized by General Chairs Wayne Metcalfe (FamilySearch International) and Kate Zwaard (US Government Printing Office). Participants came from as far away as Australia, New Zealand, Japan, China, and Europe. The worldwide attendance made this a truly international gathering.

The Archiving conference provides an opportunity for imaging scientists, archivists and others to share their challenges and findings with an interested community. The conference continues to allow for cooperation among the community in seeking collaborative solutions to vexing and complex problems.

The meeting began with a series of short courses designed to further the participant’s knowledge in a wide variety of digital archiving topics. This year, 12 courses were offered, from the perennial favorite “Scanner and Camera Imaging Performance” (given by Peter Burns and Don Williams) to ”JHOVE2—A Next Generation Framework” (given by Stephen Abrams and Richard Anderson) to a new course, “Using the Cloud for Digital Archives” (given by Michael Peterson).

The technical program of 35 papers was presented in a single track format over three days. Each morning started with a keynote address; this year the conference was fortunate to have three excellent and illustrious presenters. David Ferriero, National Archivist (US National Archives) spoke on, “Creating a Digital Future: The National Archives and Information Technology.” Jay Verkler, CEO (FamilySearch International) presented on, “Preservation in a Digital World.” Michael L. Wash, CIO (US National Archives) spoke on, “Preservation Starts from the Beginning.” On Thursday, 21 Interactive Papers rounded out the technical program.

A unique part of the Archiving program is the inclusion of the “behind the scenes” tours that allow attendees to visit the archiving and preservation departments at local cultural heritage institutions. This year’s tours included visits to the University of Utah’s J. Willard Marriott Library Digital Facilities, the Utah State Archives, Brigham Young University, and the LDS Church’s Family History Library, Church History Library, and Granite Mountain Records Vault.

Several social gatherings were also enjoyed during the conference, especially the conference dinner sponsored by Tessella, Inc. and held at the This is the Place Heritage Park, which showcases the history of the founding of the Salt Lake City area in the 1800s. On the final evening of the conference, FamilySearch sponsored a reception followed by an outstanding—and very memorable—concert by the world famous Mormon Tabernacle Choir.

Archiving 2012 will be held in Copenhagen, Denmark, June 12-15. The committee is hard at work planning a stimulating week of events and we look forward to seeing you there.
Nora Kennedy of the Metropolitan Museum of Art, was selected late this Spring as the recipient of the 2011 HP Image Permanence Award. Sponsored by the Hewlett-Packard Company and given by IS&T with participation of the IIC, the award recognized outstanding contributions that advance the longevity of photographic and fine art images created via modern digital methods. Kennedy was cited for her leadership in creating workshops on digital prints (as early as 2001); the digital sample book for the Mellon workshops; and The Photograph Information Record (PIR). This award comes with a $10,000 cash prize.

Nora W. Kennedy is the Sherman Fairchild Conservator of Photographs at The Metropolitan Museum of Art, where she established a lab devoted to the conservation and preservation of photographs. During her tenure at the Met she has worked on more than 90 photography exhibitions and continues to expand the Museum’s initiatives in education and research. Kennedy serves on the adjunct faculty of the New York University’s Institute of Fine Arts Conservation Center. She received her Master of Science degree in conservation from the University of Delaware/Winterthur Museum Art Conservation Program (1986). In 2003, the University awarded her a Presidential Citation for Outstanding Achievement and in 2006 she received the American Institute for Conservation’s Sheldon and Carolyn Keck Award recognizing a sustained record of excellence in the education and training of conservation professionals.

Kennedy worked with an international committee of colleagues to create the Photograph Information Record (PIR), an artist’s questionnaire designed to collect relevant data about works of art. Kennedy was the project coordinator for the Mellon Collaborative Workshops in Photograph Conservation, an initiative to provide continuing education for experienced photograph conservators and promote research and exchange. A Digital Sample Set was conceived and executed as one of the educational outcomes of this workshop series. Most recently, Kennedy has been pivotal in the Middle East Photograph Preservation Initiative, a three-year project to promote the preservation and awareness of photograph collections in the Middle East.
Society Activities

The Society for Imaging Science and Technology looks back at another successful year with a calendar full of activities. Our four main conferences NIP/Digital Fabrication, Color and Imaging (CIC), Electronic Imaging Symposium (EI), and Archiving attracted scientist and engineers from all over the world.

On average, more than 1,000 visitors per month use the resources provided on our website. You may have noticed the new web page that facilitates this service to our members and visitors. Further improvements are planned for the near future.

The United Nations declared 2011 “the year of volunteers”, recognizing how much of our well-being and our cultural achievements are based on work without a financial reward. IS&T volunteers deserve their share of this recognition. We strive to stay close to our members and conference attendees. I would like to encourage those with ideas on how to make our conferences and activities better and more relevant become involved in one of the various activities the Society offers.

Starting January 1, 2011, IS&T took on the secretariat of the standards activities for ISO Technical Committee Photography (TC42). IS&T will also coordinate the US standards activities in this area. TC42 is responsible for a broad range of standards for analogue and digital photography. Comprised under the umbrella of TC42 are standards related to image capture, quality, and digital file formats for capture. Other work groups care for measurements standards such as densitometry or image permanence of digital prints made by inkjet or electrophotography. Many of our conference participants and members have been active in creating standards for modern image applications. It was a natural move to invite the Standards Management Board of TC42 to continue their work with the assistance and under the umbrella of IS&T. I am grateful to all those who worked hard to achieve the ambitious deadline of transfer of activities on January 1st within only 3 months. With the American Standards Institute (ANSI) acting as the secretariat, we have found a most professional solution to manage the existing and upcoming standards.

Board of Directors

Some of the new governance principles that are required in the modern corporate environment are also applicable to non-profit organizations such as IS&T. The board has adopted whistleblower and conflict of interest policies. New auditors, Gelman, Rosenberg & Freedman, were

IS&T BOARD OF DIRECTORS

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<td>President: Rita Hofmann (ILFORD Imaging Switzerland GmbH)</td>
<td>President: Robert Buckley, University of Rochester/NewMarket Imaging</td>
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<td>Vice Presidents: Reinhard Baumann (Chemnitz University of Technology); Graham Finlayson (University of East Anglia); Makoto Omodani (Tokai University); Steven Simske (Hewlett-Packard Labs); Marcel Slot (Océ Technologies BV); and Geoff Woolfe (Canon Information Systems Research Australia Pty. Ltd.)</td>
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appointed for the 2009/2010 financial year review.

At this last year of my presidential term, I am looking back to a great experience and many constructive board meetings that—I hope—moved the Society ahead. I think we have been successful in identifying the challenges and the way forward for the future. I am grateful to a diligent and committed board, and a very dedicated CEO, Suzanne Grinnan, and her staff, who have accompanied me for two years. The Society is on sound financial ground and is very professionally managed.

Journals and Publications
One important part of our mission is the publication and archival of conference and journal papers. Our journals continue to excel in their field. Both the Journal of Imaging Science and Technology (JIST) and the Journal of Electronic Imaging (JEI), nearly doubled their impact factor from 2004 to 2010, which in spite of reservations about impact factors in the academic community, still shows growing significance of the journals. The Society honored Mel Sahyun for this long-term service to the Society and 15 years as editor of JIST with a President’s citation. He transitioned JIST from a publication dedicated to silver halide science to one encompassing a variety of topics in imaging, color, and hardcopy technologies. The Board of Directors is very happy that they could enlist George Chiu (Purdue University) as his successor and new JIST editor. Under the guidance of the Vice President of Publications, Raja Bala (Xerox Corp.), IS&T will continue to improve their publications and adapt them to an ever changing world of scientific requirements. Policies against plagiarism and against scientific misbehaviour/misbehaviour, as well as general guidelines for publication are being put into place, fortunately before we ever had to encounter such situation.

My thanks go to Peter Burns as an editor of the IS&T Reporter which allows all our members to get some insight in the Society’s activities and the conferences.

Conferences
For another year, the Society for Imaging Science and Technology ran its successful international conference. Although more than 27 years old, the NIP conference still
During 2010, the Journal received 94 submissions, published 58 articles, rejected 19 papers, and forwarded 7 papers to the Journal of Electronic Imaging, on the basis of their subject matter. At present only three papers are behind schedule in the review process. Although the review process is carried out entirely electronically, it is not web-based. We will be looking at ways to transition in this direction in 2011, to the end of further expediting review and providing better tracking of manuscript progress through the editorial process. The distribution of latency times from paper submission to print publication ranged from 5 to 16 months with a median time of 9 months. With the establishment of e-first publication through American Institute of Physics Scitation®, publication of papers on-line tends to occur one to two months in advance of print publication.

This year Prof. Meritxell Vilaseca (Autonomous University of Barcelona, Spain) became an Associate Editor of the Journal, giving us an additional European presence. Vilaseca holds appointments in both the Departments of Physics and Optometry, and has a strong technical background in imaging optics, digital photography, and human vision. She has been heavily involved in our CGIIV Conferences. During the coming year we will look to adding an Asian-Pacific presence on our Editorial Board.

Special Sections of the Journal in 2010 included: (1) an issue of papers derived from the 2009 Gjövik International Color Symposium, an important Nordic imaging science event that complements our Color Imaging Conference (CIC), with Prof. Jon Hardeberg as Guest Editor; and (2) one on the imaging science of the Shroud of Turin, which coincided with the 2010 exhibition in Italy of this artifact.

During 2011 a Special Issue on Functional Printing (digital printing technology applied to the creation of functional devices) based on selected papers from Digital Fabrication 2010 and NIP26 along with additional invited papers, guest edited by Drs. Ross Mills and Jim Stasiak, is planned. In addition plans are underway for a Special Section or Issue on imaging in food science, with Profs. Jon Hardeberg and Line Clemmensen as Guest Editors. This latter symposium-in-print, however, may not be published until early 2012.

A major focus during 2010 was the process of selecting a new Editor for the Journal. I would also like to take this opportunity to thank the members of the Editorial Board, the IS&T staff, especially Donna Smith, and the staff at the American Institute of Physics for all their help which makes the Journal production possible.

Gaurav Sharma became the editor of the Journal of Electronic Imaging in January 2011, succeeding Jan Allebach, who served as editor from 2001-2010.

The Journal of Electronic Imaging received an impact factor of 0.506 for 2010, ranking 14th out of 19 journals in the subject category of Imaging Science & Photographic Technology, 179th out of 247 journals in Electrical & Electronic Engineering, and 65th out of 78 journals in Optics. The 5-year impact factor for JEI is 0.682.

In 2010, JEI:
- received 197 submissions, including 180 contributed papers, 1 special section paper, and 16 letters.
- published 108 papers, including 74 contributed papers, 30 special section papers, and 4 letters in a total of 1,252 pages.

In the first half of 2011, JEI:
- received 139 submissions, including 110 contributed papers, 18 special section papers, and 11 letters.
- published 45 papers, including 43 contributed papers and 2 letters, in a total of 510 pages.

In 2010, JEI published three special sections:
- Image Quality (Susan Farnand and Frans Gaykema, guest editors)
- Digital Photography (Peter B. Catrysse and Sabine Süsstrunk, guest editors)
- Quality Control by Artificial Vision III (Shaun S. Gleason, Kurt S. Niel, and Edmund Lam, guest editors)

The following special sections are planned for 2012:
- Stereoscopic Displays (Neil Dodgson and Nick Holliman, guest editors)
- Quality Control by Artificial Vision IV (Jean-Charles Pinoli, Karen Panetta, and Seiji Hata, guest editors)
attracts more than 190 papers in the field of non-impact printing.

The color conference, CIC features new topics every year. In all our conferences, the steering committees actively solicit new topics that extend the range of the conference. This helps to focus our meeting on new trends and emerging technology areas. For some conferences we achieve the new focus by moving their location around. Such is the case for Archiving, which this year took place in Salt Lake City. With its strong tradition of family history and genealogy, the Salt Lake City community brought in their specific topics in imaging for archival purpose.

IS&T’s EI conference in January also changed location which was appreciated as it facilitated networking.

Corporate Members
We are grateful to our 20 corporate members for their financial support, but also for providing speakers and participants at conferences. More and more our activities are carried by small corporations and individuals which provide an over proportional part in assistance to our activities. Each and everyone’s contribution is very much appreciated and helps advance education and technology in imaging sciences.

Honors and Awards
The Society acknowledged the accomplishments of individuals for the progress and leadership in imaging sciences by its program of Honors and Awards. I would like to thank the chairs and members of the committees for Honors & Awards, the HP Image Permanence Award, and the Land Medal for their commitment and work.

The Honors and Awards Committee selected 11 scientists and two papers for special recognition. Their contributions span the range of IS&T activities in imaging. My congratulations go to all our honorees.

Rita Hofmann,
IS&T President, 2010 - 2011

UPCOMING IS&T EVENTS

January 8-9, 2012; Las Vegas, Nevada
International Symposium on Technologies for Digital Photo Fulfillment
Symposium Chair: Stuart Gordon

January 22-26, 2012; San Francisco Airport Hyatt Regency
Electronic Imaging 2012
Symposium Chairs: Majid Rabanni and Gaurav Sharma

May 6-9, 2012; Amsterdam, the Netherlands
CGIV 2012
General Chair: Theo Gevers

June 12-15, 2012; Copenhagen, Denmark
Archiving 2012
General Chairs: Mogens Koch and Jonas Palm

September 9-13, 2012; Quebec City, Canada
General Chairs: Scott Silence (NIP28) and Paul Benning (Digital Fabrication 2012)

November 12-16, 2012; Los Angeles, California
Twentieth Color Imaging Conference (CIC20)
General Chairs: Stephen Westland and Xuemei Zhang

To learn about all upcoming IS&T meetings, go to www.imaging.org/ist/Conferences/.
For a complete list of imaging-related meetings, go to www.imaging.org/ist/conferences/events.cfm