HIGHLIGHTED PAPERS: The 2012 Archiving Conference

Winner of the Obsolete Media Best Interactive Paper Award

retroReveal.org: Semi-automated Open-source Algorithms and Crowdsourcing Tools for the Discovery, Characterization, and Recovery of Lost or Obscured Content

Hal M. Erickson, University of Utah Health Sciences Center, and Joyce Ogburn, University of Utah (USA)

Abstract: This interactive session will mark the formal launch of retroReveal 1.0, a free service located at www.retroReveal.org. Supported and hosted by the University of Utah Marriott Library. The server provides semi-automated forensic-style enhancement of digital images of varying quality from cameras and scanners. Though originally targeted at archivists, curators, conservators and scholars, retroReveal algorithms have proven useful to others during the development phase, most notably archaeologists.

retroReveal accepts source images of modest-to-good quality and provides an accessible interface allowing non-experts to apply forensic-style algorithms and to easily review, flag and tag sets of processed images from their own or institutional uploads. retroReveal is not intended to replace advanced imaging technologies for the most difficult cases. It merely delivers free user-friendly tools for discovery and adequate identification/characterization of relevant content in that vast majority of cases where sophisticated investigation is infeasible.

That conceded, recent problems solved include:

1. rendering for translation of a papyrus palimpsest so faint that the scholar hadn't even correctly identified the language; the palimpsest is Moslem "cover scroll" that reportedly predates the previous earliest known instance;
2. reading through strong redaction in a Mark Twain letter;
3. reading through endpapers down to a vellum letter used as a book's sewing support in the binding process ;
4. visualizing medieval Arabic content through gold leaf;
5. recovering Beethoven's water-damaged instructions to a publisher concerning musical details of a score;
6. imaging miscarriage-related erasures on a sketched self-portrait of Frida Kahlo with Diego Rivera;
7. revealing fine detail of Stradivarius wood and varnish in a nearly black section of a journal-published photomicrograph;
8. recovering content from massively-overexposed microfilms of objects that can no longer be accessed;
9. revealing from a poor-quality low-light aerial photo slide that a well-surveyed small and unimportant archaeological site was actually a major archaeoastronomical complex;
10. rom low-quality source images, visualizing exposure-faded traces of messages written in wagon axle-grease on "message stones" along the Oregon Trail;
11. recovering a title from faint scratches on the skiver-covered front board of a Brigham Young diary covering one of the most contentious summers in the history of Utah settlement. . . . [*see PDF of paper for remainder of abstract*]

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 2012, held June 12-15, 2012, in Copenhagen, Denmark.

INSIDE THIS ISSUE

Digitizing and Archiving of All Information Taken from Rare Blockbooks

Peter Meinlschmidt, Fraunhofer-Institute for Wood Research; Markus Brantl, Irmhild Schäfer, Bettina Wagner, and Rahel Bacher, Bavarian State Library; and Volker Märgner, Technische Universitaet Braunschweig (Germany)

Abstract: Xylographic books of the 15th century, the so-called blockbooks are objects of extreme rarity and considerable value. Due to their age and as a result of paper corrosion caused by the copper content of coloring pigments, some books are in rather poor condition. Digitization opens up new perspectives for research in such rare and fragile materials, as many of the surviving blockbooks have never been reproduced in print. Furthermore, the technology of digital infrared photography for the first time allows a comprehensive documentation of the watermarks which occur in the paper on which blockbooks were printed.

Unlocking the Transparent Archive

Olaf Slijkhuis, Picturae BV (the Netherlands)

Abstract: In the history of modern photography mankind has accumulated an enormous collection of photographic material. A large part of this collection consists of transparent material (e.g. Glass plate, acetate, nitrate, celluloid based material and slides). Most of the time only a selection was made from this material. By now it's clear that this material isn't going to last forever. In search for a cost effective way of preserving this material we can use digital equipment to make a copy. Technology has made such huge advancements in resolution and color accuracy that we are able to put it to our advantage. Having gained a wealth of experience in the last 2 years in a Dutch project called "Images for the Future" (the digitization of over 2 million transparent images) we are now ready for the next step in large scale digitization of transparent photographic material.

Practical Total Appearance Imaging of Paintings

Roy S. Berns and Tongbo Chen, Rochester Institute of Technology (USA)

Abstract: The total appearance of a painting is defined by its spatially varying spectral reflectance factor, surface macrostructure (depth or surface normal), and surface microstructure (bi-directional reflectance distribution function, BRDF). For paintings with uniform BRDF (e.g., varnished), their total appearance can be measured using equipment commonly found in a photographic studio. Such a system was built and tested for several acrylic-dispersion paintings. The system consisted of three strobes affixed with triacetate film linear polarizers and a Dual-RGB camera also affixed with a linear polarizer in order to achieve cross polarization. Using the principles of photometric stereo, images of each light source taken sequentially from 30° from the normal and 120° apart annularly were used to measure surface normal. A learning-based algorithm was used to measure colorimetry and spectral reflectance factor. Software, Artviewer, was written to render images for specific geometries and for studio lighting. The system produced images that approximated, but not equaled, conventional studio photography. Because diffuse data were collected, these images are useful for the long-term evaluation of color changes. Evaluation of the surface normal provide new information for the technical examination of artwork.

Compliance Conundrums: Implementing PREMIS at two National Libraries

Haliza Jailani, National Library Board of Singapore (Singapore), and Peter McKinney, National Library of New Zealand Te Puna Mātauranga o Aotearoa (New Zealand)

Abstract: The purpose of this paper is to examine compliance with PREMIS at National Library Board Singapore and the National Library of New Zealand. It will look in detail at how the development process, variation in content types, existing embedded technologies, and current knowledge all play a role in influencing the shape of the preservation metadata that is created, stored and used in a digital preservation system.

3D Modelling of Cultural Objects in the V&A Museum: Tools and Workflow Developments

James Stevenson, Carlos Jimenez, Peter Kelleher, and Una Knox; Victoria and Albert Museum (UK)

Abstract: Scholars require images of cultural heritage (CH) objects to assist them with their research. Just as for decades the art historian was satisfied with black and white images and indeed had difficulty in both trusting and using colour images when they were first made available to them, 3D imaging now faces similar questions for the scholar. They do not yet fully understand it's potential. One of the purposes of this paper, which is written as a result of work undertaken within the 3D COFORM EU funded research project, is as an educational exercise for scholars. Comparing results from different cultural objects made from a variety of different materials will enable scholars to better judge the technological potential and then predict when it will be useful and for their work.

   The work at the V&A Photographic Studio has been undertaken in collaboration with Breuckmann GmbH and has used their Smart Scan-HE structured light scanner. Training Photographic Studio staff in the use of this new technology was part of the trial. Rates of learning and understanding of the medium were addressed to provide a better knowledge

Archiving 2012 Attracts Attendees from 21 Countries

By Jonas Palm, Archiving 2012 General Co-chair

The 9th Archiving conference took place in Copenhagen, Denmark, during the coldest June in many years—but the conference was held in a warm atmosphere with active and dedicated attendees.

More than 140 participants representing 21 countries took the opportunity to come to Copenhagen. In addition to attendees from most European countries, colleagues joined us from New Zealand, Jamaica, and South Korea. As it was stated in *The Reporter* article highlighting last year's conference, Archiving seems to have established it self worldwide as the annual event to attend.

The Archiving conference provides the opportunity for those of us working in the quickly-developing world of digital archiving to share information and discuss the latest development in producing, digitizing, and archiving digital image files.

After a day of short courses—which covered issues like digital forensics, camera and scanner performances, and planning preservation of digital image files—held at the School of Conservation of the Royal Academy of Fine Arts, attendees enjoyed a delicious Welcome Reception at the oldest active library in Denmark. The library,

part of the School of Conservation, offered a lovely courtyard in which to gather and connect.

The technical program (June 13 – 15), was held in the Prince's Palace, which now houses the Nationalmuseet (National Museum of Denmark). The museum holds collections covering the history of Denmark. The old Festsal (ballroom) hosted the coffee breaks, interactive session, and exhibition, while a modern lecture hall was the site of the oral talks and keynotes. The venue was a wonderful counterbalance for presentations and discussions of high tech subjects.

The two keynotes—by James Reilly, director of Image Permanence Institute (Rochester NY, USA), and John Aarons, university archivist, University of West Indies (Mona, Jamaica)—provided reflections from two different challenges: working on standards within a field that moves so quickly and the difficulties of digitiza-

ARCHIVING 2012

Attendees*:	141
Oral Papers:	45
Interactive Papers:	17
Short Courses:	8
Exhibitors:	6
Dates:	June 12-15, 2012
Location: Copenhagen, Denmark	

*includes Short Course only and guests

tion in developing countries. In a way, they were both presentations going back to basics.

The themes of the technical sessions were Building digital assets; Workflow and metadata creation; 3D imaging and standards; IQ testing and standards; Collaboration and costs; Novel capture; Compliance and Image processing; and JPEG2000. All in all 62 presentation covered these issues.

The interactive session attracted 22 presenters with subject ranging from identifying the age of digitized files by characteristics of motion films to research

IS&T President Rob Buckley presents Nora Kennedy (Metropolitan Museum of Art) with the 2011 HP Image Permanence Award for 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).

The Nationalmuseet in Copenhagen, which houses 14,000 years of Danish history, hosted the Archiving 2012 technical sessions.

James Reilly (Image Permanence Institute) giving the opening keynote (top); the Interactive Paper Session and Exhibit gave attendees time to delve deeper into papers and resources.

Photos: Peter Burns.

in another permanent data storage solution to developing tools and methods for share point to archive process. The winner of the "Obsolete Media Award," given to the author with the best Interactive Paper presentation was presented to Hal M. Erickson (University of Utah Health Sciences Center) for "CrretroReveal.org: Semi-automated Open-source Algorithms and Crowdsourcing Tools for the Discovery, Characterization, and Recovery of Lost or Obscured Content." Erickson was presented with an original black and white photo taken by Conference General Co-chair Mogens Koch.

The Interactive Session was combined with time for the exhibitors to present their products and services. I enjoyed the arrangement, which allowed plenty of time to mingle with colleagues, discuss papers with presenters, and get in contact with the industry we all use.

A unique feature of the Archiving conference is the "Behind the Scenes Tours" This years tours provided partici-

Photos: Peter Burns.

Clockwise from upper left: Don Williams and Tim Zaman enjoy the conference reception. The Danish schmorgesborg was a favorite as witnessed by Eric Landsberg and Steve Puglia; Joop Korswagen and Robert Gillesse; and Marg van der Burgh.

pants the opportunity to visit the Royal Library's Department of Maps, Prints, and Photographs; The Danish National Archives; and two digital camera manufacturers: the Hasselblad Danish branch and PhaseOne. The tour at Hasselblad (which I attended) included a very interesting presentation by Danish photographer Jørgen Angel, who had taken pictures of rock musicians from the 1960s through the 1980s. It was a nostalgic trip for some of us and a lot of fantastic stories connected with the images for all of us.

The Conference reception was held at Kulturhuset Islands Brygge, on the waterfront, in the old harbour of Copenhagen.

The tenth Archiving conference will be held April 2-5, 2013 in Washington, DC. The work for this event has already started and will include a half-day CURATEcamp "unconference" and Behind-the-Scenes Tours of local institutions. We look forward to meeting old friends and colleagues there, as well as making new acquaintances. ▲

SAVE THE DATE

Archiving 2013
April 2–5, Washington, DC

Featuring:
short courses on Digital Forensics Tools, Camera and Scanner Performance, Storage Technologies, FADGI Still Imaging Guidelines, Web Archiving, and more

half-day CURATEcamp "unconference"

Keynotes from Doug Munson (Chicago Albumen Works) and Carl N. Stephan (JPAC) on using recovered and digitized deteriorated acetate x-rays to identify POW/MIAs and Paul M. Wester, Jr. (NARA) on the US federal government's planned transition to electronic records

Behind-the-Scenes Tours

of the effort required to adopt 3D as a routine tool. A wide range of cultural objects was scanned from stone and wood sculpture to textiles and silverware. An analysis of the success of these was made and the results validated by discussion with V&A curators. This paper will illustrate this work and draw conclusions on the workflow developed. ▲

IS&T President's Annual Report

July 1, 2011 to June 30, 2012

The field of imaging continues to evolve and remains a vibrant, innovative, and exciting area for developments in science, technology, and engineering. IS&T has been in the middle of many of these developments, providing an international forum for business and intellectual advancement for its members and for customers in the wider community. It is all the more remarkable that IS&T, as a relatively small society, has been able to offer so many industry-leading conferences in areas that cover the imaging chain from input to output, and beyond to both digital and hardcopy archiving and preservation. These are achievements that we can point to with satisfaction and promise for the future, even as we recognize and respond to the challenges that have emerged over the past few years.

There are several ways in which IS&T engages its members and customers: conferences, publications, chapters, and the imaging.org website. There have been developments in all of these in the last year. None of this would have been possible without the dedication of Suzanne Grinnan, our Executive Director, and her professional staff; the diligence of the editors and associate editors of our journals; and the contributions of the volunteers who put together and run our conferences.

Conference Portfolio

Since the last annual report, IS&T has sponsored or co-sponsored seven conferences (see details at right). This conference portfolio covers a wide range of topics. Attendees can hear about 3D displays at EI and 3D printing at Digital Fabrication; hardcopy image permanence at NIP and digital preservation at Archiving; printing photo books at TDPF and printing electronics at Digital Fabrication; and all aspects of color at CIC and CGIV.

EI, co-sponsored with the SPIE, continues to be the largest meeting, with attendance up in 2012. EI is an ensemble of 20+ allied conferences in six—soon to be seven—technology areas. It serves a platform for exploring new areas and launching new conferences: next year EI will increase its presence in mobile imaging and add a conference on video surveillance and transportation. TDPF is our smallest meeting. In 2012 it went from being an independent stand-alone conference held before the Digital Imaging Marketing Association (DIMA) conference held at PMA, to a session within it. This decreased the Society's financial exposure while maintaining the collocation with PMA valued by the attendees.

While EI may be the largest conference, NIP27/Digital Fabrication 2011, which was held in Minneapolis in October, 2011, is considered by many to be IS&T's flagship conference. Although technical attendance declined from the year before,

reflecting ongoing weaknesses in the economy and changes in the hardcopy printing industry, the two conferences have successfully extended the traditional base of ink-jet, toner-based, and thermal printing to the printing of a wide range of materials for emerging applications such as printed electronics and biofab-

July 2011 – June 2012 MEETING DATA

Meeting: NIP27/Digital Fabrication 2011
Dates: October 2-6, 2011 / **Location:** Minneapolis, MN
General Chair: Xavier Bruch (NIP) and Shinri Sakai (Digital Fab.)
Attendance: 494 (481 technical attendees)
Oral Papers: 162
Interactive Papers: 41
Short Courses: 18
Exhibitors: 38

Meeting: Color and Imaging Conference (CIC19)
Dates: November 7-11, 2011 / **Location:** San Jose, CA
General Chairs: James Ferwerda and Geoff Woolfe
Attendance: 217 (186 technical attendees)
Oral Papers: 40 (38 presented)
Interactive Papers: 28
Short Courses: 21

Meeting: TDPF 2012 (Third Symposium on Technologies in Digital Photo Fulfillment) held as part of DIMA
Dates: January 8-9, 2012 / **Location:** Las Vega, NV
General Chair: Stuart Gordon
Attendance: varied by session
Oral Papers: 15

Meeting: Electronic Imaging Symposium
Dates: January 22-26, 2012 / **Location:** Burlingame, CA
General Chairs: Majid Rabanni and Gaurav Sharmai
Attendance: 1065 (1031 technical attendees)
Oral Papers: 572
Interactive Papers: 163 accepted
Short Courses: 16
Exhibitors: 1

Meeting: CGIV2012
Dates: May 6-9, 2012 / **Location:** Amsterdam, the Netherlands
General Chair: Theo Gevers
Attendance: 115 (111 technical attendees)
Oral Papers: 38
Interactive Papers: 28
Short Courses: 3

Meeting: Archiving
Dates: June12-15, 2012 / **Location:** Copenhagen, Denmark
General Chairs: Mogens Koch and Jonas Palm
Attendance: 141 (124 technical attendees))
Oral Papers: 45
Interactive Papers: 17
Short Courses: 8
Exhibitors: 6

rication. Besides sessions on innovative technology and sustainability, NIP/Digital Fabrication also hosted a panel on the Velocity of Innovation and Technology and Application roundtable discussions, in line with our mission to provide a forum for business advancement.

CIC, traditionally based in venues in the Western US, continues to introduce new topics, such as color rendering with solid state illumination, which was a focus of the conference this past year in San Jose. From its inception, CIC was co-sponsored by IS&T and the Society for Information Display (SID). The agreement governing the partnership ended this year and was not renewed. As a result, the CIC20 will be the last joint meeting, and starting next year IS&T will assume full responsibility for the direction of CIC. SID has had a tremendous impact on the success of CIC and it is a pleasure to recognize their contributions even as we make plans to continue without their participation and the unique perspective they brought to the meeting.

In 2012, CGIV and the Archiving Conference were held in Europe within a month of each other; CGIV is a biennial European conference and Archiving has been located in Europe in even numbered years. Held in cooperation with a local academic or cultural heritage institution, these meetings—our smallest and most intimate stand-alone meetings—have a distinctive feel and tap into an enthusiastic European community. The Spring Board of Directors meeting was collocated with the Archiving Conference in Copenhagen—the first time the Board has met in Europe.

The international nature of the Society is also evident in an analysis of our customer base. Over the last six years, 51% of our customers come from North America, 31% from Europe and the Middle East, 16% from Asia, and 2% from other regions.

Chapters

For years, IS&T has had chapters in Rochester, Tokyo, and Europe. This year we added a new chapter in Korea. This is a significant addition, acknowledging the developments in the field of imaging that are coming from there. During the last few years IS&T has recognized several imaging scientists and engineers in Korea for their contributions to the field and to the Society. It seems fitting then that there is now a Chapter in Korea to build on those contributions as we look to the future.

IS&T 2011 Financial Statement

Statement of Income
Fiscal Years Ending December 31, 2011 and December 31, 2010

	2011	2010
Income		
Conferences	$1,179,436	$1,064,853
Publications	566,330	623,087
Membership	107,014	97,466
Other	31,196	14,660
Total Income	$1,883,976	$1,800,066
Expense		
Conference	$1,180,171	$1,240,309
Publications	486,984	621,600
Membership	86,715	118,349
Other	42,639	39,492
Total Expenses	$1,796,509	$2,019,750
Net Operations	87,466	(219,684)
Realized Gain (Loss)	27,030	27,538
Realized Gain (Loss)	(61,086)	89,271
NET INCOME (Loss)	$53,410	$(102,875)

Balance Sheet Notes
1. Income (Loss) from operations in 2011 was ($53,410).
2. IS&T's 2011 Annual Report is available to members upon request.

Statement of Income Notes
General Administration and Labor allocations in 2010 were as follows:
publications 24%; meetings 17%: membership 5%. These percentages were applied to administration and labor expenses to determine a net gain (loss) for publications, meetings, and membership.

IS&T's investements are administered through Smith Barney in Washington, DC. The investments are currently invested in Money Market funds, Corporate bonds, CD's and in the TRAK stock portfolio. As of December 31, 2011, these investments had a market value of $1,179,780 (in 2010 valued at $1,212,143).

Balance Sheets
Fiscal Years Ending December 31, 2011 and December 31, 2010

ASSET	2011	2010
Current Assets		
Checking and Petty Cash	$ 324,206	$ 126,921
Money Market / CD's	788,480	735,028
Investments	1,176,996	1,211,251
Accounts Receivable	67,362	21,902
Book Inventories	108,218	84,397
Prepaid and deferred expense	71,864	53,624
Total Current Assets	$2,537,125	$2,233,123
Property and Equipment		
Land	$29,000	$29,000
Building and Improvements	156,291	156,291
Furniture and Equipment	269,403	247,627
Subtotal	454,694	432,918
Less Accumulated Depreciation	(398,617)	(388,724)
Total Fixed Assets	56,077	44,194
Total Assets	$2,593,202	$2,277,317
LIABILITIES AND FUND BALANCES		
Liabilities		
Accounts Payable	$321,798	$80,947
Accrued Expenses	57,807	54,947
Due to Chapters	40,302	28,089
Deferred Income, Dues, Subscriptions,		
Meetings	450,823	438,331
Total Liabilities	870,730	602,314
Equity		
Unrestricted	$1,667,728	$1,620,259
Davis Scholarship Fund	54,744	54,744
Total Liabilities and Equity	$2,593,202	$2,277,317

Corporate Members
The Society currently has 19 Corporate Members, including seven Sustaining members: Adobe, Apple, Canon, Eastman Kodak, Hewlett Packard, Lexmark and Xerox.

Publications
Publications has been an area that has seen significant developments over the last year. A transition is underway to a new digital library that will improve online access and searchability of our journal and conference publications. Geoff Woolfe (CISRA), halfway through his term as a Vice President, was nominated and elected as Publications Vice President, to see through the transition that began under Raja Bala (Xerox), the outgoing Pubs VP.

This is the first full year of the new editors of our two journals: George Chiu (Purdue University), editor of the *Journal of Imaging Science and Technology* (JIST), and Gaurav Sharma (University of Rochester), editor of the *Journal of Electronic Imaging* (JEI). Already we are seeing changes. For example, the editorial board of JEI has significantly expanded to handle a 40% increase in submissions last year. (See journal editor reports, page 8.) The *IS&T Reporter,* the IS&T newsletter edited by Peter Burns, in 2012 went from a bi-monthly to a quarterly publication schedule, which will ease the production schedule, decrease costs, and improve the timeliness of the information it contains.

imaging.org
The IS&T website is the portal our members and customers use for obtaining the latest on conferences, registering for meetings, accessing and ordering publications, and generally finding out what's happening at IS&T. Starting in 2010, the website has also had links to videos of the oral presentations at CIC and CGIV, as well as EI Plenary talks and the Stereoscopic Displays and Applications (SD&A) Conference presentations. This service, offered in cooperation with River Valley TV, has proved popular. At the time this was written the papers on the CIC 2011 site had had more than 14,000 page views, which averages to more than 500 per paper; SD&A 2011 has had about 50,000 views or an average of almost 1,200 per paper.

More changes are in the works for the website. To help with them, in 2012 we engaged a web editor to maintain and streamline imaging.org and to keep the information on it up-to-date and current. Some of the changes are already evident; you can expect to see more.

TC42 Photography Standards
As Rita Hoffman, my predecessor reported last year, IS&T took on the Secretariat for ISO TC42, the ISO Technical Committee for Photography standards and responsibility for the US TAG (Technical Advisory Group) for TC42 as of January 1, 2011. While TC42 operates independently, IS&T has financial responsibility for the US TAG and the Secretariat, which we have contracted with the American National Standards Institute (ANSI) to run. The transition has gone smoothly and the TC42 Standards Management Board, with the IS&T Executive Director now a member, continues to oversee the standards process. The TC activities cover a wide range of

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IS&T BOARD OF DIRECTORS

2011-2012	2012-2013
President: Robert Buckley (Univ. of Rochester/NewMarket Imaging)	**President:** Robert Buckley (Univ. of Rochester/NewMarket Imaging)
Immediate Past President: Rita Hofmann (ILFORD Imaging Switzerland GmbH)	**Immediate Past President:** Rita Hofmann (ILFORD Imaging Switzerland GmbH)
Executive VP: Alan Hodgson (3M Security Printing & Systems Ltd.)	**Executive VP:** Alan Hodgson (3M UK PLC)
Conference VP: Sabine Süsstrunk (Ecole Polytechnique Fédérale de Lausanne)	**Conference VP:** Sabine Süsstrunk (Ecole Polytechnique Fédérale de Lausanne)
Secretary: Ingeborg Tastl (Hewlett-Packard Co.)	**Secretary:** Ingeborg Tastl (Hewlett-Packard Co.)
Treasurer: David Weiss (University of Rochester)	**Treasurer:** Scott Silence (Xerox Corp.)
Publications VP: Raja Bala (Xerox Corp.)	**Publications VP:** Geoff Woolfe (Canon Information Systems Research Australia Pty. Ltd.)
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.)	**Vice Presidents:** Reinhard Baumann (Chemnitz University of Technology); Makoto Omodani (Tokai University); Eric Peeters (GoogleX); Alessandro Rizzi (Università Degli Studi di Milano); Steven Simske (Hewlett-Packard Labs); and Marcel Slot (Océ Technologies BV)
Chapter Directors	**Chapter Directors**
Europe: Wolfgang Schmidt (Felix Schoeller jr Foto- und Spezialpapiere GmbH & Co KG) and Dietmar Wueller (Image Engineering GmbH & Co. KG)	*Europe:* Wolfgang Schmidt (Schoeller Technocell GmbH & Co KG) and Dietmar Wueller (Image Engineering GmbH & Co. KG)
Japan: Junichi Hanna (Tokyo Institute of Technology)	*Japan:* Junichi Hanna (Tokyo Institute of Technology)
Rochester: David Odgers (retired)	*Korea:* Choon-Woo Kim (Inha University)
IS&T Executive Director: Suzanne E. Grinnan	*Rochester:* David Odgers (retired)
	IS&T Executive Director: Suzanne E. Grinnan

Publications Annual Report
July 1, 2011 to June 30, 2012

Journal of Imaging Science and Technology (JIST)
by George Chiu, editor

George Chiu became the editor of the *Journal of Imaging Science and Technology* in January 2012, succeeding Mel R. V. Sahyun, who served as editor from 1997 to 2011. In January 2012, Professor Hiroyuki Kawamoto (Waseda University, Japan) and Professor Yeong-Ho Ha (Kyungpook National University, South Korea) became Associate Editors of the Journal, giving us Asian-Pacific presence. Professor Kawamoto received the IS&T Chester F. Carlson Award in 2007 and has strong background and industry experience in digital printing technologies. Professor Ha is a Fellow of IS&T and holds appointments in the School of Electronics Engineering. He has a strong technical background in image and video processing, image coding, and computer vision. Both Professors Kawamoto and Ha have been active in IS&T conferences. During the coming year we will look to adding Associate Editors in the area of digital fabrication and imaging technologies and image processing.

From 1 July 2011 to 30 June 2012, the Journal received 97 submissions, published 43 articles, rejected 17 manuscripts, and forwarded 3 manuscripts to the *Journal of Electronic Imaging,* on the basis of their subject matter. In 2011, the Journal received an impact factor of 0.933, ranking 10th out of 21 journals in the category of Imaging Science and Photographic Technology. The 5-year impact factor for the Journal is 0.753.

The Special Issue on Functional Printing (digital printing technology applied to the creation of functional devices) based on selected papers from Digital Fabrication 2010 along with additional invited papers, guest edited by Drs. Ross Mills and Jim Stasiak, was published in the second half of 2011. A selection of articles based on presentations at NIP26 was solicited and published in the Digital Printing Special Issue in September 2011. Professors Jon Hardeberg and Line Clemmensen guest edited a Focused Section on Imaging Science in Food Quality, which was published in March 2012. Two Focused Sections on Digital Fabrication and Digital Printing Technology are planned for the later half of 2012.

In 2012, the Journal has been working with River Valley Technology to transition into a web-based manuscript submission and management system. Our goal is to significantly reduce the manuscript dwelling time and provide better service to the authors and the editorial staff by improving the efficiency and transparency of the manuscript review process as well as facilitate production of accepted articles. We are anticipating the new system to go live by the later half of 2012.

Journal of Electronic Imaging (JEI)
by Gaurav Sharma, editor

The *Journal of Electronic Imaging* (JEI) received 278 submissions, including 221 contributed papers, 34 special section papers, and 23 letters in 2011 and published 72 papers, including 70 contributed papers and 2 letters in a total of 852 pages. This represents a very substantial increase in submissions over past years (in 2010, JEI had 197 submissions) and the trend appears to be continuing. In the first half of 2012, JEI has received 193 submissions, including 175 contributed papers, 6 special section papers, and 12 letters. Over the same period, JEI has published 84 papers, including 55 contributed papers, 28 special section papers, and 1 letter, tallying up to 928 total pages.

To handle the increased number of submissions, the Editorial board has been significantly expanded: Our existing team of Associate Editors is joined by Dr. Adnan Alattar (Digimarc Corporation), Prof. Kobus Barnard (University of Arizona), Prof. Jovan Brankov (Illinois Institute of Technology), Prof. Marvin Doyley (Univ. of Rochester), Prof. Keigo Hirakawa (Univ. of Dayton), Prof. Patrick Le Callet (Univ. of Nantes), Dr. Debargha Mukherjee (Google), and Dr. Andrew Segall (Sharp Laboratories America). I am very pleased that each of them has agreed to serve JEI; in addition to reinforcing the core of JEI, they also strengthen the Journal in a number of new and emerging directions. We have also had a few retirements: Profs. George Chiu, Nicu Sebe, and Miles Wernick have retired from the JEI Editorial Board. Thank you for your many years of dedicated service and all the best in your future endeavors – which I hope continue to involve JEI.

Special sections augment the regular Journal papers, also helping bring in and highlight a variety of new areas. In the first half of 2012, JEI published two special sections: Stereoscopic Displays and Applications (Neil Dodgson and Nick Holliman, guest editors) and Quality Control by Artificial Vision IV (Jean-Charles Pinoli, Karen Panetta, and Seiji Hata, guest editors). For 2013, three special sections are planned: Mobile Computational Photography (Todor Georgiev, Andrew Lumsdaine, and Sergio Goma, guest editors), Compressive Sensing for Imaging (Fauzia Ahmad, Gonzalo Arce, Ram Narayanan, and Dimitris Pados, guest editors), and Video Surveillance and Transportation Imaging Applications (Bob Loce and Eli Saber). If you or someone you know is interested in these areas, please ask them to contact the guest editors, me, or the JEI staff.

Starting with manuscripts submitted in January 2013, JEI will be moving to a new author choice open access model that better meets the requirements of most funding agencies, employers of researchers, and authors.

analog and digital photography standards, including DSC characterization, color encodings, image permanence, and archival recording. TC42 has found a good home with IS&T and we will look for more ways to cooperate to the mutual benefit of both organizations.

Finances

The Executive Director and the Board continue to manage and oversee the operation of the Society with a view to the bottom line. The audited financial statement for 2011 shows a surplus in net operations after two years in which they were in the red. The Society's balance sheet shows that we are in a good position to invest in and develop new services while also providing a buffer against unforeseen and external developments.

Awards

One of the happy functions of IS&T is to recognize those who have contributed to the field of imaging and to the Society. Our highest award, Honorary Membership, was conferred on Chang Yeong Kim, a senior VP and fellow with the Samsung Advanced Institute of Technology. Nora Kennedy of the Metropolitan Museum of Art received the HP Image Permanence Award and Mary Lou Jepsen, founder and CEO of Pixel Qi, received the Edwin H. Land Medal. Mel Sayhun received a special President's Citation for his more than 15 year of service as editor of JIST. Al-

together, the Society bestowed awards to 34 imaging scientists and engineers.

Looking Ahead

As I look forward to the coming year, several things are underway that I expect to report on next year. Among them are the phased transition to a new digital library, starting with JIST; a review of the Societies' Bylaws that will accommodate 21st Century forms of communication and doing business; an ongoing review of our conferences and cost models to keep them relevant and viable; and the output of a strategic planning exercise to address the ongoing challenges and evolving landscape that IS&T faces.

However, accomplishing as much as we do takes more than just strategy. Above all, it needs a successful and dedicated team of both staff and volunteers, working together, focusing on the challenges we face, and bringing a passion to what they do and to the field of imaging. The exceptional team we have and the contributions they are making are what give me confidence in the future of the Society.

Robert Buckley

Robert Buckley, IS&T President

Authors that pay page charges to support publication costs for the journal will receive the benefit of immediate open access for their articles. Articles for which page charges are not paid will continue to be supported by subscription revenues and will be accessible only by subscription.

Information relating to the Journal, including subscription options, table of contents of current and past issues, prospective authors guidelines, calls for papers, and the editorial schedule for upcoming special issues are found at the Journal websites: www.imaging.org/ist/publications/jei and www.spie.org/jei.

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UPCOMING IS&T EVENTS

January 6-7, 2013; Las Vegas, Nevada
International Symposium on Technologies for Digital Photo Fulfillment (held as a session within DIMA at PMA@CES)
Symposium Chair: Joe LaBarca

January 3-7, 2013; San Francisco Airport Hyatt Regency
Electronic Imaging 2013
Symposium Chairs: Gaurav Sharma and Sergio Goma

April 2-5, 2013; Washington, DC
Archiving 2013
General Chair: Peter Burns

September 29-October 3, 2013; Seattle, Washington
NIP29/Digital Fabrication 2013
General Chairs: Steve Simske and Werner Zapka

November 4-8, 2013; Albuquerque, New Mexico
21st Color Imaging Conference (CIC21)
General Chair: Clément Fredembach

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

STANDARDS UPDATE:

David Q. McDowell, Editor

Recently I was reminded that for many people the standards development process is a mystery. This issue of Standards Update focuses on some of the procedures and issues involved in the organization of the standards process and the creation of ISO standards. An excellent resource for information about ISO standards is www.ISO.org.

Who is ISO

First of all ISO (International Organization for Standardization) is the world's largest developer of voluntary International Standards. Its focus is industrial standards and it collaborates with other international standards groups such as IEC (International Electrotechnical Commission) and the ITU (International Telecommunication Union), particularly in the field of information and communication Technologies. Another international standards group, of particular interest to IS&T, is the CIE (Commission Internatioale de l'Eclairage) which also has a collaborative agreement with ISO for standards relating to color.

ISO—a nongovernmental organization—is a network of the national standards bodies of some 160 countries (as of April 2011), one per country, from all regions of the world, including developed, developing and transitional economies. Each ISO member is the principal standards organization in its country. The members propose the new standards, participate in their development and provide support in collaboration with ISO Central Secretariat for nearly 3,280 technical groups that actually develop the standards. These technical groups include 224 technical committees (TC), 513 subcommittees (SC) and 2,516 working groups WG). A listing of the ISO TCs and their SCs and WGs is found at www.iso.org/iso/home/standards_development/list_of _iso_technical_committees.htm.

ISO members appoint national delegations to standards committees. In all, there are some 50,000 experts contributing directly to the work of the organization each year, plus an estimated 300,000 who follow the work and provide input to national "mirror" committees.

National Mirror Committees

A key aspect of ISO standards development is that although standards are developed and created by individual technical experts all official inputs and responses are through National Bodies and their mirror committees. Only the national standards organizations are members of ISO. They in turn appoint experts to participate in ISO TCs and cast the official country vote on any ballots relating to each TC and standards project. The actual response to ISO is through ANSI.

In the United States that national standards organization is ANSI (American National Standards Institute). In some countries the national mirror committee is organized and run by the national standards body. In the United States ANSI does not organize and run the national mirror committees themselves but charters various industry groups to take on those responsibilities. In the United States our mirror committees are know as Technical Advisory Groups (TAGs) and there is one for each ISO TC or SC in which the United States participates (no we do not participate in all ISO TCs and SCs). These mirror committees organize the US participation in the ISO TCs, recommend the US response to any ballot, and nominate experts to participate in the work of an ISO TC, SC or WG. However, all nomination of experts, ballot responses, etc. are officially submitted by ANSI.

For ISO TC 42, Photography, IS&T has recently become the Secretariat (sponsor) of the US TAG. For TC130, Graphic technology, the TAG Secretariat is NPES. (A complete listing of US TAGs is available at http://publicaa.ansi.org/sites/apdl/ Documents/Standards%20Activities/International%20Standardization/ISO/US%20TAGs%20to%20ISO/ISOTAG_July12.pdf).

Participation in ISO TCs

I noted earlier that the US is not a participant in all of the ISO TCs and SCs. While that is correct, it is important to note that all member countries of ISO have the right to comment on, or respond to ballots on, the work of any ISO TC.

Some ISO TC ballots are circulated to all National Bodies, while others are only circulated to Participating Members (P-members) of the particular TC involved. In addition a National Body may request to be an Observing Member (O-member) of a particular TC. An O-member gets all of the documentation but does not actively participate in the work or meetings.

These various levels of participation usually only become important in the details of the balloting process.

Standards Development

The more important issues for most of us are the steps in the standards development process.

New Area of Standardization

When work is proposed in a technical area for which there is no existing ISO Technical Committee, ISO has is a process for the creation of new Technical Committees. While this is done more and more as technology evolves, it is not of general interest so I will not dwell on it.

New Work in Existing Committees

The steps involved in the creation of a new document or the revision of an existing document are what are critical for most of us. Let's look at those steps in detail.

But first a minor sidetrack. ISO doesn't only create standards. Several other document types are used and while the development process is almost identical the balloting process includes some variation. Those other documents currently are:

Technical Specifications (TS), Publicly Available Specifications (PAS), and Technical Reports (TR).

A TS is used when the subject in question is still under development or where for any other reason there is the future but not immediate possibility of an agreement to publish an International Standard. A PAS may be an intermediate specification, published prior to the development of a full International Standard. It is a document not fulfilling the requirements for a standard and usually based on an existing non-ISO specification. TRs are used when a technical committee or subcommittee has collected data of a different kind from that which is normally published as an International Standard (this may include, for example, data obtained from a survey carried out among the national bodies, data on work in other international organizations or data on the "state of the art" in relation to standards of national bodies on a particular subject.

New Work Item Proposal (NWP) Every ISO project starts as a NWP. It consists of a proposal for a new document and includes the proposed title, a proposed scope, a justification for the work, and a draft or outline of the proposed document.

A NWI may come from any National Body, or from within a TC itself. NWIs typically are directed to the work of a specific TC . (Where NWIs are proposed by a National Body without a specific TC identified, ISO has administrative procedures that either assign the work to a specific TC or create a new TC for the work.) Although NWI ballots are circulated to all ISO National Bodies, the response that is critical is from the P-members of the TC directly involved in the work. There are two parts to the ballot response: 1) does the National Body agree to the addition of this work to the activities of the TC, and 2) is the National Body willing to appoint experts to actively work on the subject matter involved.

While a simple majority of P-members is required to approve a NWI proposal at least 4 P-members (5 in larger committees) must agree to actively work on the subject matter involved.

JWG26, officially known as "Imaging system capability qualification for archival recording and approval", was formed at the 22nd Plenary meeting of ISO/TC42. The convener is Franziska Frey, head of preservation and digital imaging services at Harvard Library. The scope of JWG26 is to unify metrics, related methods, and tools used to specify and measure image quality capability of systems for the recording and evaluation of cultural heritage materials for archival purposes. The group met just prior to the Archiving meeting in Copenhagen.

Preparatory Stage Although officially identified as the Preparatory Stage, this is more commonly referred to as the Working Draft (WD) stage. An editor or editing committee develops a proposed document as a WD and circulates it to members of the WG for comments. There are no official ballots but the WG members are expected to comment, provide input and come to consensus on the contents of the WD. Usually several WDs are required to reach consensus within the WG. When the WG is satisfied that they have a document that meets the needs of the TC it is sent out for ballot as a Committee Draft (CD).

Committee Stage The Committee stage begins with the distribution of the CD to all P-members and O-members of the TC for review comment and ballot. National Body members may respond either to Approve the CD or to Not Approve the CD. If a National Body votes to Not Approve, it must submit comments that indicate why it did not agree with the document technical content. If a National Body Approves the CD it may still include comments that are either technical or editorial in nature to help improve the document.

The committee stage is the principal stage at which comments from National Bodies are taken into consideration, with a view to reaching consensus on the technical content. National Bodies are therefore expected carefully study the texts of committee drafts and submit all pertinent comments at this stage. It is not unusual to require several CDs to reach full consensus.

Enquiry stage Officially the next stage is known as the Enquiry stage, more practically it is called the DIS (Draft International Standard) stage which is the document distributed to all National Bodies in ISO for review and comment. Although all National Bodies receive the document the tally of voting responses is primarily focused on the P-members of the TC submitting the DIS. Here again, any negative votes must be accompanied by comments that indicate why the National Body did not agree with the document technical content.

Since all technical issues are expected to be resolved at the Committee Stage usually only one DIS ballot is required.

Approval Stage The final stage is the Approval or FDIS (Final Draft International Standard). The FDIS is in essence a proof to allow all National Bodies to check to be sure

any comments on the DIS were incorporated properly and that no errors were introduced by the ISO Central Secretariat in their preparation of the document. Where there are no negative votes on the DIS and no substantial technical comments, the FDIS stage may be replaced by a Proof review by the editing committee that prepared the document.

Systematic Review Once published all ISO documents must be reviewed on a regular basis. For International Standards this is every 5 years. During he Systematic Review all National Bodies are invited to comment on the applicability and correctness of the standard. However, the key decision criteria are focused on the P-members of the TC responsible for the standard.

Resources

For those that wish to understand the ISO process in more detail there are two documents that are essential. These are the ISO Directives Part 1, Procedures for the technical work, and Part2, Rules for the structure and drafting of International Standards

Both documents are available free of charge from www.ISO.org. If there are general question that my brief summary has raised do not hesitate to contact me.

For suggestions for (or input to) future updates, or standards questions in general, please contact the editor at dmcdowell@npes.org.

IS&T is a cooperating society for

AIC 2013

8-12 July 2013
Newcastle upon Tyne, UK

Call for Papers

The AIC 2013 organising committee invites submissions of papers, posters, or interactive demonstrations on any aspect of colour. To view the list of subjected topics visit http://aic2013.org/call-for-papers. Submission deadline: Dec. 17th.

Keynote Speakers

- *Fiona Jenvey (Mudpie Ltd., UK)*
  Colour Trend Forecasting Intelligence
- *Roy Berns (RIT, USA)*
  Measuring the Total Appearance of Artwork for Archiving and Rendering
- *Stephen Palmer (Univ. of California, Berkeley, USA)*
  Colour, Music, and Emotion
- *John McCann (USA)*
  Retrospective on Colour Appearance

Conference registration is also open at this time.