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Conference Dates
23–27 January 2011
Hyatt Regency Hotel
San Francisco Airport,
California, USA

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Technologies
- 3D Imaging, Interaction, and Measurement
- Imaging, Visualization, and Perception
- Image Processing
- Digital Imaging Sensors and Applications
- Multimedia Processing and Applications
- Visual Information Processing and Communication
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Conferences and Courses:
23–27 January 2011
Hyatt Regency Hotel
San Francisco Airport, California, USA

New location
EI2011 will be held at the convenient San Francisco Airport and will take place at the same time as SPIE Photonics West. Attendees will have the chance to enjoy close proximity to San Francisco, and complimentary access to the Photonics West Exhibition.

Free shuttles to the airport, BART, Photonics West Exhibition, and local restaurants will be available. The hotel offers reasonable rates, ample parking, and excellent facilities.

Image courtesy of Gil Bohrer, Robert L. Walko, Rachael Brady and Roni Avissar, Duke Univ.
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IS&T/SPIE would like to express deep appreciation to the symposium chairs, conference chairs, program committees, session chairs, and authors who have so generously given their time and advice to make this symposium possible.

The symposium, like our other conferences and activities, would not be possible without the dedicated contribution of our participants and members. This program is based on commitments received up to the time of publication and is subject to change without notice.
Invitation to Participate

Please join us at the San Francisco Airport Hyatt Regency in California 23–27 January for Electronic Imaging (EI) 2011.

On behalf of the Society for Imaging Science and Technology (IS&T) and SPIE, we would like to invite you and your colleagues to join us at the 23rd annual EI Symposium.

EI2011 will feature 23 technical conferences covering all aspects of electronic imaging, from image sensing to display and hardcopy. Topics will include, but are not limited to, sensors, computational photography, color hardcopy, human vision, image, video and 3D processing and compression, image quality, image/video security and forensics, multimedia imaging systems, and 3D displays. Augmenting the plenary, oral, and interactive paper presentations will be a set of technical courses taught by experts from academia and industry. There will also be demonstrations by representatives from the imaging industry.

We are pleased to announce a new conference on Parallel Processing for Imaging Applications. In addition to the wide-range of topics offered in annual conferences, returning for 2011 are the Imaging Metrology II and the Real-Time Image and Video Processing 2011 conferences.

EI2011 takes place at the same time as SPIE Photonics West, the world’s leading photonics, laser, and biomedical optics event. Transportation and free entrance to the Photonics West Exhibit will be available to EI2011 attendees.

Imaging is pervasive in the human experience, be it through photographs that we take in our everyday lives to those that are used in space exploration, medical imaging, entertainment, science, or security. Electronic Imaging 2011 is the one international conference where papers on all aspects of electronic imaging are presented, and where you can develop both your career and business by networking with leading researchers and entrepreneurs in the field.

Here are 10 reasons for you to join us at EI2011:

1. To share your work with your peers by presenting an oral or interactive paper.
2. To learn about leading-edge technology and science across a broad range of imaging disciplines.
3. To gain insight from recognized experts in the electronic imaging field by attending the plenary sessions.
4. To network with fellow scientists, engineers, managers, and entrepreneurs.
5. To enhance your knowledge in a specific area by taking one or more of the many short courses offered.
6. To showcase your technology at a special demonstration session.
7. To participate in panel sessions that discuss the current and future states of electronic imaging technologies and products.
8. To become a vital part of the imaging community. Do so by volunteering to be a committee member at one of the many conferences.
9. To benefit from concurrent timing with SPIE Photonics West and visit its exhibit.
10. To enjoy the inviting business, cultural, and entertainment offerings found in San Francisco and the Silicon Valley.

We look forward to seeing you at EI2011 and sharing the joy of the electronic imaging spectrum with you!
3D Imaging, Interaction, and Measurement

Stereoscopic Displays and Applications XXII (EI101)

Conference Chairs: Andrew J. Woods, Curtin Univ. of Technology (Australia); Nicolas S. Holliman, Durham Univ. (United Kingdom); Neil A. Dodgson, Univ. of Cambridge (United Kingdom)

Program Committee: Gregg E. Favalora, Optics for Hire (United States); Takashi Kawai, Waseda Univ. (Japan); Janusz Konrad, Boston Univ. (United States); Vivian K. Walworth, StereoJet, Inc. (United States); Chris Ward, Lightspeed Design, Inc. (United States); Michael A. Weissman, TrueVision Systems (United States); Samuel Z. Zhou, IMAX Corp. (Canada)

Founding Chair: John O. Merritt, The Merritt Group

Due Dates:
Abstract (500 words) and Summary (200 words): 28 June 2010
Manuscript for Post-Meeting Proceedings: 13 December 2010

Abstract Notes:
• Please be sure to read the SD&A structured abstract guidelines to give your paper the best chance of acceptance: http://www.stereoscopic.org/sag.html
• The submission wizard requires a text-only version of your abstract. Uploading a file attachment with photos, figures, equations, etc. is optional. Please do not upload a file attachment that is text only.

This conference focuses on recent advances in stereoscopic systems, including 3D display hardware, computer software, algorithms, image acquisition, and applications illustrating the use of stereoscopic 3D displays. We also consider human factors and other issues that guide the development and use of 3D displays. In both real-world and computer-generated imaging applications, stereoscopic 3D display technologies can improve task performance, enhance the user’s ability to perceive objects in their correct spatial locations, and to identify objects efficiently and accurately. The conference brings together practitioners and researchers from industry and academia to facilitate an exchange of current information on stereoscopic imaging topics. Hardware demonstrations of 3D technologies and applications are strongly encouraged at the conference demonstration session. Large-screen stereoscopic projection (both still and video) will be available, and presenters are encouraged to make full use of these facilities during their presentations. A peer-review process is available for academic authors. Papers are solicited for, but not limited to, the following topics:

Applications of stereoscopic displays
• especially novel applications and user trials of existing applications. Application areas include scientific visualization, medical imaging, games, television, entertainment, communications, training, CAD/CAM, molecular modeling, teleoperation, telepresence, industrial inspection, and advertising.

Advances in true 3D display technologies
• including autostereoscopic displays, super and high-density multi-view displays, volumetric displays, mobile 3D displays, stereoscopic projection, & electro-holography.

Stereoscopic Systems design
• for teleoperation, telerobotics, telesurgery, virtual reality, augmented reality, mobile devices, game systems, consumer and professional broadcast, content delivery and interaction technologies.

Stereoscopic 3D digital cinema
• including production, presentation, and case studies.

Stereoscopic imaging
• stereoscopic and multi-view computer graphics, including gaming
• image processing and compression of stereoscopic imagery
• stereoscopic image synthesis: 2D to 3D conversion, depth map generation, multi-viewpoint generation
• software and hardware issues for computer display of stereoscopic images
• methods for recording, playback, transmission, and processing of stereoscopic video.

3D image acquisition and generation techniques
• single- and multi-lens camera systems
• motion parallax, volume projection, graphical construction, stereoscopic computer graphics, computational photography, and other stereoscopic image generation techniques
• guidelines for stereoscopic content development.

Human factors and user-interface issues
• task performance comparisons between stereoscopic and non-stereoscopic displays
• evaluation methodologies (e.g., depth-acuity measurement) and task-performance testing
• benefits for processing and compression of stereoscopic images
• perceptual and cognitive guidelines
• 3D remote manipulation and control of viewpoint
• ortho-stereo, hyper-stereo, and the geometry of 3D perceptual space.

Standards for stereoscopic imaging
• including hardware interfaces, software and transmission formats, and content production parameters.

Visit the SD&A conference website for more information: http://www.stereoscopic.org
The Engineering Reality of Virtual Reality 2011 (EI102)

Conference Chairs: Ian E. McDowall, Fakespace Labs, Inc. (United States); Margaret Dolinsky, Indiana Univ. (United States)

Due Dates:
Abstract (500 words), or Full Paper and Summary (200 words): 28 June 2010
Manuscript for Post-Meeting Proceedings: 13 December 2010

Virtual and augmented reality systems are evolving. In addition to research, the trend toward real applications continues and practitioners find that technologies and disciplines must be tailored and integrated for specific visualization and interactive applications. This conference serves as a forum where advances and practical advice toward this end is presented and discussed, and where research results can be presented. In addition to the general topic area, the 2011 conference is encouraging the submission of work in the following areas:

• **Industrial Applications:** Systems that solve real-world problems from a wide variety of disciplines are a mainstay of the conference. It especially promotes papers that describe systems which are important because of the problems they solve, and not the technology they use, and papers that describe systems which can quantify their utility. Practitioners in industry are highly encouraged to make submissions.

• **Compelling Experiences:** A compelling immersive experience transports the user to a place that is viscerally felt, not easily forgotten, yet completely synthetic. This requires subtle interplay between the technological and creative arts. Papers that present working systems or ongoing research into the delicate balance between these disciplines are desired.

• **Stubborn Problems:** Interaction, tracking, lag, rendering speed, field of view, resolution, these are but a few of the topic areas which vex the field every year. Papers presenting work improving the state of the art in these areas are encouraged. In addition, the 2011 conference is specifically seeking work that explores manual interaction in 3D environments.

• **Late Breaking Progress:** One to two presentations are allotted for exciting ‘late breaking’ work that is submitted after the formal paper deadline but within a month of the conference date. Papers reporting on work-in-progress, last minute results, or interesting but incomplete findings are welcome for these limited spots.

**Peer Reviewed Papers:** If you would like to submit your paper for a Reviewed Papers Section, please indicate such interest and submit a completed paper, as opposed to a simple abstract, by the abstract due date.

**Critical Dates**

Abstract and 200-word Summary Due Date: 28 June 2010

On-site Proceedings Manuscript Due Date: 15 November 2010

Post-meeting Proceedings Manuscript Due Date: 13 December 2010

Please Note: Submissions imply the intent of at least one author to register, attend the symposium, present the paper either orally or in interactive paper format and submit a full-length manuscript for publication in the conference proceedings.

Submit your abstract today!

electronicimaging.org
3D Image Processing (3DIP) and Applications II (EI103)

Conference Chair: Atilla M. Baskurt, Univ. of Lyon (France)

Program Committee: Mongi A. Abidi, The Univ. of Tennessee (United States); Hugues Benoit-Cattin, Univ. of Lyon (France); Adrian G. Bors, The Univ. of York (United Kingdom); Saida Bouakaz, Univ. of Lyon (France); Mohamed Daoudi, Institut Télécom (France); Jean-Luc E. Dugelay, Institut Eurécom (France); Florent Dupont, Univ. of Lyon (France); Azfal Godil, National Institute of Standards and Technology (United States); Benoît M. Macq, Univ. Catholique de Louvain (Belgium); Serge Miguel, Univ. of Lyon (France); Levent Onural, Bilkent Univ. (Turkey); Eric Paquet, National Research Council Canada (Canada); Marc Pollefeys, The Univ. of North Carolina at Chapel Hill (United States) and ETH Zurich (Switzerland); Bülent Sankur, Bogaziçi Univ. (Turkey); Peter Schelkens, Vrije Univ. Brussel (Belgium); Robert Sitnik, Warsaw Univ. of Technology (Poland); Michela Spagnuolo, IMATI (Italy); Frédéric Truchetet, Univ. de Bourgogne (France); Stefano Tubaro, Politecnico di Milano (Italy)

Due Dates:
Abstract (3–4 page extended abstract) and Summary (200 words): 28 June 2010
Manuscript for Post-Meeting Proceedings: 13 December 2010

Scientific and technological advances in the fields of image acquisition, processing, telecommunications, and computer graphics during the last decade, have contributed to the emergence of new multimedia, especially 3D digital data. Nowadays, the acquisition, processing, transmission and visualization of three-dimensional objects are a part of possible and realistic functionalities over the Internet. Confirmed 3D processing techniques exist and a large scientific community hardly works on open problems and new challenges, including 3D data processing, transmission, fast access to huge 3D databases, or content security management.

The emergence of 3D media is also directly related to the emergence of the 3D acquisition technologies. Indeed, recent advances in 3D scanner acquisition and 3D graphics rendering technologies boost the creation of 3D model archives for several application domains. These include archaeology, cultural heritage, Computer Assisted Design (CAD), medicine, 3D face recognition, videogames or bioinformatics.

Three-dimensional objects are quite more complex to handle than other multimedia data, such as audio signals, images or videos. Indeed, only a unique and simple 2D grid representation is associated to a 2D image. All the 2D acquisition devices generate this same representation (digital cameras, scanners or 2D medical systems). Unfortunately (for the users) and fortunately (for the scientists), there exist different three-dimensional representations for a 3D object. An object can be represented on a 3D grid like a digital image, or in a 3D Euclidian space. In the later case, the object can be expressed by a single equation (like algebraic implicit surfaces), by a set of facets representing its boundary surface or by a set of mathematical surfaces. One can easily imagine the numerous open problems related to these different representations and their processing, a new challenge for the image processing community.

This conference will be focused on the following topics related to 3D data:
- video, 3D and 4D image capture
- representations: models, tools for transformation, simplification
- analysis: feature extraction, segmentation, classification, pattern recognition...
- 3D shape indexing and retrieval
- compression and communication
- security: encryption, watermarking
- scene analysis: from 2D views to 3D reconstruction and interpretation
- 3D scene or model reconstruction from video or still camera
- quality assessment
- hardware/software implementations

The applications domains are:
- multimedia services
- computer aided design (CAD)
- cultural heritage
- gaming
- tourism (e.g., virtual museum tours)
- medical imaging and analysis
- machine vision
- geographical information systems (GIS).
Call for Papers

3D Imaging Metrology (EI114)

Conference Chairs: J. Angelo Beraldin, National Research Council Canada (Canada); Geraldine S. Cheok, National Institute of Standards and Technology (United States); Mike McCarthy, National Physical Lab. (United Kingdom); Ulrich Neuschafer-Rube, Physikalisch-Technische Bundesanstalt (Germany)

Program Committee: Burcu Akinci, Carnegie Mellon Univ. (United States); Jan Bähm, Univ. Stuttgart (Germany); Robert E. Bridges, FARO Technologies Inc. (United States); Simone Carmignato, Univ. degli Studi di Padova (Italy); Luc Cournoyer, National Research Council Canada (Canada); Sabry F. El-Hakim, Guy Godin, National Research Council Canada (Canada); Darin Ingimarson, Quantapoint, Inc. (United States); Kenichi Kanatani, Okayama Univ. (Japan); Derek D. Lichti, Univ. of Calgary (Canada); Alan M. Lytle, National Institute of Standards and Technology (United States); Hans-Gerd Maas, Technische Univ. Dresden (Germany); Masaaki Mochimaru, National Institute of Advanced Industrial Science and Technology (Japan); Norbert Pfeifer, Technische Univ. Wien (Austria); Steven D. Phillips, National Institute of Standards and Technology (United States); Paul W. Reed, Boeing Research and Technology (United States); Stuart Robson, Univ. College London (United Kingdom); Robert Sablatnig, Technische Univ. Wien (Austria); Kamel S. Saidi, National Institute of Standards and Technology (United States); Jonathan M. Saint Clair, The Boeing Co. (United States); Marc-André Soucy, InnovMetric Software, Inc. (Canada); M. George Vosselman, International Institute for Geo-Information Science and Earth Observation (Netherlands); Gregory C. Walsh, Leica Geosystems HDS, LLC (United States)

Due Dates:
Abstract (500 words) and Summary (200 words): 28 June 2010
Manuscript for On-site Proceedings: 15 November 2010

Three-dimensional (3D) imaging systems are now widely available, but standards, best practices and comparative data are limited. The need for standards is mainly driven by users and product developers who are concerned with 1) the applicability of a given system to the task at hand (fit-for-purpose), 2) the ability to fairly compare across instruments, 3) instrument warranty issues, 4) costs savings through 3D imaging. This conference focuses on two topics. The first topic is the metric performance of 3D imaging sensors and algorithms where the performance of a system is usually evaluated using quality parameters such as resolution, uncertainty, accuracy and complexity. Metrology provides a framework to assess the overall performance of a system in terms of uncertainty characterization and reporting. The second topic focuses on the development of standards for 3D imaging systems.

This conference on 3D imaging metrology provides a unique forum for researchers, developers, users and policy makers to present the latest advances in 3D imaging and modeling of existing object and sites along with the most recent work in standard definitions. These 3D measurement systems, based on high speed, non-contact optical sensors, provide dense 3D surface data. Systems include 3D capture methods that use coded-light projection systems, triangulation and time-of-flight systems for distances from a few centimeters to several kilometers. This conference is in response to the rapidly growing interest in 3D imaging technology and the increase in demand of such technology and standards in applications and disciplines such as 3D modeling (e.g., structures, human body) rapid product development, manufacturing, construction, forensics, medicine, cultural heritage objects/sites documentation, and exploration of remote and hazardous sites, to name a few.

We invite submission of original research contributions, state-of-art summaries, as well as demonstrations of successful and less successful applications in, but not limited to, the following technical areas:

Performance evaluation of 3D sensing methods, sensor calibration, data processing and surface modeling
• 3D surface sensing (measurement physics), systems, and methods (e.g., fringe projection, time-of-flight, triangulation, dense stereo methods)
• portable metrology equipment
• advances in calibration techniques
• performance evaluation: artifacts, methodologies, facilities and fundamentals
• freeform metrology
• object and large volume metrology
• measurement of small geometries
• integration and fusion of multiple data sources (CMM, laser trackers, flash lidar, 3D imaging)
• multi-view registration and integration
• data processing (e.g. data cleaning)
• modeling of deformable surfaces
• human body scanning and modeling
• validation of computer vision algorithms
• time-resolved 3D-image analysis techniques.

Emerging and new standards for 3D imaging systems
• dimensional standards and their impact (e.g., VDI/VDE 2634, ASTM E57, ISO TC 172, ISO/DIS 10360-8)
• measurement uncertainties & traceability issues
• standards & calibrations at National Metrology Institutes
• best practice (e.g. test cases, in-field checks)
• performance evaluation and calibration facilities
• free-form verification artifacts: construction, surface finish and shape
• education, training and operator capability
• policy making.
Human Vision and Electronic Imaging XVI (EI104)

Conference Chairs: Bernice E. Rogowitz, Visual Perspectives Consulting (United States); Thrasyvoulos N. Pappas, Northwestern Univ. (United States)

Program Committee: Albert J. Ahumada, Jr., NASA Ames Research Ctr. (United States); Jan P. Allebach, Purdue Univ. (United States); Erhardt Barth, Univ. zu Lübeck (Germany); Walter R. Bender, MIT Media Lab. (United States); Michael H. Brill, Datacolor (United States); John C. Dalton, Synthetik Software (United States); Scott J. Daly, Sharp Labs. of America, Inc. (United States); Huib de Ridder, Technische Univ. Delft (Netherlands); Elena A. Fedorovskaya, Eastman Kodak Co. (United States); Jennifer Gille, Qualcomm Inc. (United States); Sheila S. Hemami, Cornell Univ. (United States); Laurent Itti, The Univ. of Southern California (United States); Stanley A. Klein, Univ. of California, Berkeley (United States); Patrick Le Callet, Univ. de Nantes (France); John J. McCann, McCann Imaging (United States); Jeffrey B. Mulligan, NASA Ames Research Ctr. (United States); Karol Myszkowski, Max-Planck-Institut für Informatik (Germany); Adar Pelah, The Univ. of York (United Kingdom); Eliezer Peli, Schepens Eye Research Institute (United States); Hawley K. Rising III, Consultant (United States); Sabine E. Süsstrunk, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Christopher W. Tyler, The Smith-Kettlewell Eye Research Institute (United States); Andrew B. Watson, NASA Ames Research Ctr. (United States)

Due Dates:
Abstract (500-1,000 words) and Summary (200 words): 28 June 2010
Manuscript for Post-Meeting Proceedings: 13 December 2010

Abstract Notes:
- Additional files can be uploaded, such as a longer abstract, a full paper, or key illustrations
- Abstracts that do not make explicit reference to human perceptual or cognitive processes will be rejected
- Abstracts will be peer reviewed according to these questions:
  - What problem does this work address?
  - How is this work novel or innovative?
  - How does it relate to the literature?
  - What are the experimental or analytical methods and procedures?
  - What are the main outcomes, observations, results?
  - Is this a significant contribution to perceptual science or perception-based imaging?

The goal of this conference is to explore the role of human perception and cognition in the design, analysis, and use of electronic media systems. Over the years, it has brought together researchers from a wide variety of scientific and technical disciplines, from all over the world, for a rich and lively exchange of ideas. We believe that understanding the human observer is fundamental to the advancement of electronic media systems, and that advances in these systems and applications are driving new research into the perception, and cognition of the human observer.

Please submit papers for these Special Sessions:
- Visual, Auditory, and Tactile Interactions
- Attention, Search, and Vigilance for Image Perception, Coding, and Search
- Vision and Cognition for Visualization and Visual Analysis
- Perceptual issues in Stereoscopic and 3D Technologies
- Human Color Perception for Imaging, Displays, Printing, Graphics
- Measuring Perceptual Quality for New Media: Graphics, Multimedia, Stereo, 3D
- Advances in the Perceptual Psychology of Art and Aesthetics

In addition, please submit papers in any of the following areas. All contributions that consider fundamentals of human perception and cognition will be considered, including basic research and applications to the full range of imaging media and technologies.
- human perception and cognition, including psychophysical, neurophysiological, and computational approaches
- spatial, temporal, color, and stereo vision
- visual, auditory, and haptic perception, and multimodal interactions
- attention, top-down and bottom-up processing, regions of interest
- pattern recognition, visual organization, object perception, semantics
- perceptual and computational models of color vision, effective use of color
- psychophysical modeling and evaluation of multimedia quality
- human perception-based metrics and algorithms for still and video compression, rendering, enhancement and restoration
- perceptual approaches to understanding and measuring quality for computer graphics, animation, visualization, and surface analysis
- Image analysis and perception, including semantics, segmentation and feature analysis
- perceptual issues in visualization and virtual reality, including interactive exploration of data, visual organization, and 3D space perception
- art, aesthetics and emotion in electronic media.

For more information, refer to the HVEI web site: http://www.hvei.org

Be sure to sign up for the HVEI Banquet, Monday, 24 January.

Submit your abstract today!
electronicimaging.org
Color imaging has historically been treated as a constant phenomenon well described by three independent parameters. Recent advances in computational resources and in the understanding of the human aspects are leading to new approaches that extend the purely metrological view towards a perceptual view of color in documents and displays. Part of this perceptual view is the incorporation of spatial aspects, adaptive color processing based on image content and the automation of color tasks, to name a few.

This dynamic nature applies to hardcopy devices, but to an even larger extend to soft-copy displays. Adaptive gamut and tone mapping, dynamic contrast, adaptive power usage and color management continue to support the unprecedented development of the display hardware spreading from mobile displays to large size screens.

This conference provides an opportunity for presenting, as well as getting acquainted, with the most recent developments in color imaging technologies and applications. Focus of the conference is on color image input, dynamic color image output and rendering, color image automation, emphasizing color in context and color in images, and on the reproduction of images across local and remote devices. The conference covers software, media, and systems. Special attention is given to applications and requirements created by new disciplines.

Areas of interest include:

- **image processing for color input, softcopy / hardcopy output and electronic publishing**: automatic color correction, image preference processing (automatic as well as user-guided), visual tolerance, quantization, halftoning, data compression and artifact reduction

- **color reproduction**: spatial aspects of color, color in context, color reproduction across devices, network color management, color appearance, color preference and estimation, chromatic adaptation, computational color science, high dynamic range imaging and tone mapping, wide gamut imaging systems, wide pixel encoding and image processing pipelines

- **device modeling and characterization**: scanners, displays, systems, color models, lookup table methods, color conversion algorithms, gamut mapping, color correction, device limitations, device characterization, methodology, color metrology

- **effects of extra-spectral attributes**: paper UV fluorescence, infra-red behavior, etc. and their influence on rendering

- **systems and architectures**: device independent color implementation in commercial systems, color management, color matching device drivers, system performance, imaging workflow

- **applications of color hard and soft copy**: medical imaging, cartography, fine arts, use of color in documents, new communications media, knowledge delivery

- **color image encoding and standards**: interchange languages, file formats, color encoding, ICC profiles

- **representation and encoding of compound documents**: mixed raster content, multiple imaging models, document compression.

The SPECIAL SESSION entitled “The Dark Side of Color” will group challenging questions, open issues, alternative views, paradigm shifts, bottom up experimentation, re-addressing the current state of the color science, technology and applications. For this session, we are looking for well-asked questions rather than tangible results.
Image Quality and System Performance VIII (EI106)

Conference Chairs: Susan P. Farnand, Rochester Institute of Technology (United States); Frans Gaykema, Océ Technologies B.V. (Netherlands)

Program Committee: Peter D. Burns, Carestream Health, Inc. (United States); Majed Chambah, Univ. de Reims Champagne-Ardenne (France); Luke C. Cui, Lexmark International, Inc. (United States); Mark D. Fairchild, Rochester Institute of Technology (United States); Dirk W. Hertel, Sensata Technologies, Inc. (United States); Robin B. Jenkin, Aptina Imaging Corp. (United States); Sang Ho Kim, Samsung Electronics Co., Ltd. (Korea, Republic of); Mohamed-Chaker Larabi, Univ. de Poitiers (France); Lindsay W. MacDonald, London College of Communication (United Kingdom); Yoichi Miyake, Chiba Univ. (Japan); Göte S. Nyman, Univ. of Helsinki (Finland); D. René Rasmussen, Xerox Corp. (United States); Sophie Triantaphillidou, Univ. of Westminster (United Kingdom); Eric K. Zeise, Kodak’s Graphic Communications Group (United States); Hongqin Zhang, Apple Inc. (United States)

Due Dates:
Abstract (500 words) and Summary (200 words): 28 June 2010
Manuscript for On-site Proceedings: 15 November 2010

We live in an era of significant technological advancements in electronic imaging. Developments in digital printing, flat panel displays, camera sensors, image processing power, and 3D imaging are enabling new or enhanced possibilities for creating and conveying visual content that informs or entertains. Wireless networks and mobile devices expand the ways to share imagery. The power of imaging, however, rests directly on the quality of the images and the systems that produce them. And as the images are generally intended to be viewed by humans, consideration of the role of human visual perception is intrinsic to the effective assessment of image quality. This conference brings together industrial and academic engineers and scientists who strive to understand what makes a high quality image and how to assess the requirements and performance of modern imaging systems. We focus on both objective and subjective methods for evaluating the perceptual quality of images. We include applications throughout the imaging chain from image capture, through processing, and on to output, whether printed or displayed. Abstracts are welcome which describe recent developments in the following and related areas:

Image quality attributes characterization and measurement
- advances in perceptual image quality understanding
- color and spatial attribute characterization and metrics
- interactions between, or integration of, image quality attributes
- image defect perception, classification and simulation
- tools and instrumentation to quantify visual attributes
- digital versus analogue techniques.

Subjective image quality evaluation
- psychophysical scaling, modeling and metrics
- preference measurement and modeling
- image quality survey design and analysis (traditional or web-based)
- vision based modeling of image quality perception
- multimedia system evaluations
- applications of subjective evaluation methods.

Image quality standards for capture, print, and display
- emerging standards for image quality
- performance of existing and proposed standards
- representation of 3D objects and scenes
- poorly defined or ambiguous attributes that would benefit from standardization.

System performance measurement and modeling
- linking perceptual image quality to system performance parameters
- advances in image acquisition, sampling and encoding
- MTF, rendering of fine detail, and perception of sharpness
- extraction of image quality measures from digital images
- measurement of print and display microstructure (dots, edges, color, resolution, distortion, etc.)
- technology dependent characterization (banding, streaking, defective pixels, etc)
- image noise analysis and color error propagation
- quantitative metrics for imaging device performance
- methods for system performance benchmarking
- balancing image quality against cost, features and reliability
- statistical methods for system performance specification.

Image quality evaluation for emerging technologies
- readability of electronic paper, mobile display, and signage
- image quality definition, analysis and viewing experience for 3D display, head mounted display (HMD), gaming, 3D and 2D cinema
- image quality evaluation for usability (e.g. medical imaging, automotive vision, and remote sensing)
- effect of ambient illumination on image quality
- image quality and content.

New in 2011:
- Cellphone Image Gallery—Cellphone Image Gallery provides a showcase for the capture performance capabilities of cellular telephone imaging systems. Those interested in participating should contact Sophie Triantaphillidou, triants@wmin.ac.uk
- Best Student Paper award
Call for Papers

Visualization and Data Analysis 2011 (EI107)

Conference Chairs: Pak C. Wong, Pacific Northwest National Lab. (United States); Jinah Park, Information and Communications Univ. (Korea, Republic of); Ming C. Hao, Hewlett-Packard Labs. (United States); Chaomei Chen, Drexel Univ. (United States)

Due Dates:
Full Papers for Review and Summary (200 words): 28 June 2010
Manuscript for On-site Proceeedings: 15 November 2010

The VDA 2011 conference covers all research and development and application aspects of data visualization and, more recently, visual analytics. Examples of the work can be seen at http://nvac.pnl.gov/. Since the first VDA conference was held in 1994, the annual event has grown steadily into a major venue for visualization researchers and practitioners from around the world to present their work and share their experience every year. We invite you to participate by submitting your original research as full paper or posters and join us in San Francisco, CA.

Both paper and poster submissions will be peer reviewed. The average paper acceptance rate of the recent VDA conferences is about 50%. The latest information regarding conference participation and paper submission can be found on the conference website at http://cgv.kaist.ac.kr/vda2011.

Since the term “data visualization” was found in the literature in the early 90’s, it has gradually evolved into a broad area of research and development. The data visualization Wikipedia page http://en.wikipedia.org/wiki/Data_visualization and its references provide a glimpse into its history of innovation and the latest cutting-edge technology.

Papers and posters are solicited on all topics of data visualization. They include, but are not limited to:
• Internet imaging, medical imaging, image processing
• biomedical visualization and applications
• Internet, web, and security visualizations
• analysis techniques and data mining
• data exploration using classic and novel approaches
• databases and visualization
• high-performance computing and parallel rendering
• tools and applications exemplified by case studies
• virtual environments and data visualization
• information and scientific visualization
• volume and flow visualization
• interaction paradigms and human factors.

Critical Dates

Abstract and 200-word Summary Due Date: 28 June 2010
On-site Proceedings Manuscript Due Date: 15 November 2010
Post-meeting Proceedings Manuscript Due Date: 13 December 2010

Please Note: Submissions imply the intent of at least one author to register, attend the symposium, present the paper either orally or in interactive paper format and submit a full-length manuscript for publication in the conference proceedings.
Computer Vision and Image Analysis of Art II (EI108)

Conference Chairs: David G. Stork, Ricoh Innovations, Inc. (United States); Jim Coddington, Museum of Modern Art (United States); Anna Bentkowska-Kafel, King’s College London (United Kingdom)

Program Committee: Ingrid Daubechies, Princeton Univ. (United States); Charles R. Dyer, Univ. of Wisconsin-Madison (United States); Roger L. Easton, Jr., Rochester Institute of Technology (United States); Daniel J. Graham, Dartmouth College (United States); Ella Hendriks, Van Gogh Museum (United States); Shannon M. Hughes, Univ. of Colorado at Boulder (United States); Mohammad Tanvir Irfan, Stony Brook Univ. (United States); Siwei Lyu, New York Univ. at Albany (United States); Kirk Martinez, Univ. of Southampton (United Kingdom); Eric O. Postma, Univ. van Tilburg (Netherlands); Daniel N. Rockmore, Dartmouth College (United States); Robert Sablatnig, Technische Univ. Wien (Austria); Ron Spronk, Queen’s Univ. (Canada); Filippo D. Stanko, Univ. degli Studi di Catania (Italy); David M. Stone, Univ. of Delaware (United States); Yvonne Szafran, J. Paul Getty Museum (United States); Song-Chun Zhu, Univ. of California, Los Angeles (United States)

Due Dates:

Abstract (500 words) and Summary (200 words): 28 June 2010
Manuscript for Post-Meeting Proceedings: 13 December 2010

This third conference will present leading research in the application of computer vision, image analysis, pattern recognition and computer graphics to problems of interest to art historians, curators and conservators.

The conference chairs and program committee invite high-quality submissions of papers discussing new results in the following and closely related topics: image analysis of perspective, brush strokes, form, color and multi-spectral images for attribution and dating; color modeling and manipulation for predicting the effects of conservation treatments; image de-warping to reveal undistorted images from anamorphic art or depictions of reflections in curved mirrors. This symposium will strongly favor work on computer analysis, rather than on image acquisition, database creation, archiving, image search, human perception of art, or the creation of digital art. That is, the conference will focus on problems where the computer makes some “decision.”

A goal is to foster dialog and collaboration between image scientists and humanists; as such, interdisciplinary teams of image scientists and art scholars are encouraged to submit.

Recent questions have highlighted the value of rigorous image analysis in the service of studies of art, for example: fractal image analysis for the authentication of drip paintings by Jackson Pollock; sophisticated perspective, shading and form analysis to address claims that early Renaissance and Baroque masters traced optically projected images; automatic multi-scale analysis of brushstrokes for the attribution of portraits within a painting; and multi-spectral, x-ray and infra-red scanning and image analysis to reveal Leonardo’s techniques; correlation tests for artists’ use of counterproofing, analysis of marks to infer artists’ tools or to date printed works. Such work strongly suggests that computer methods will play an increasing role in scholarship of art.

Papers will be judged on the quality of the research methodology, the rigor of the analysis of the algorithms, the novelty and usefulness of the approaches, the clarity of the scholarly presentation, and most importantly the relevance of the work to our understanding of visual artifacts such as prints, paintings and sculpture in both realist and abstract vernaculars.

Computer methods
- perspective analysis
- style, brushstroke or tooling analysis
- shape from shading
- three-dimensional reconstruction of spaces
- wavelet and multiscale analysis
- fractal analysis
- pattern classification
- inferring illumination within depicted scenes
- inferring artist (“camera”) models
- shape analysis
- digital correlation analysis
- and more...

Art historical questions
- authentication and detection of forgeries
- digital connoisseurship
- dating of artwork, including intaglio and woodblock prints
- “reverse aging” of faded artworks such as tapestries to recover original colors
- predicting color changes due to conservation treatment
- reconstructing artists’ studios from artworks
- separation and enhancement of overlaid images as in palimpsests and paintings with underdrawings
- inferring artists’ techniques, aids, and praxis based on images
- dewarping anamorphic, distorted or panoramic artwork
- dewarping of distorted passages depicted within artwork
- geometrical transformations for re-presenting curved art
- completing missing or damaged passages in paintings
- image understanding in realist paintings
- metrology in artistic imagery
- quantifying trends (color, brush stroke, ...) in artistic images throughout an artist’s career
- testing for artists’ use of tools
- determining the studio illumination from a realist painting
- and more...

Submit your abstract today!
electronicimaging.org
The conference Image Processing: Algorithms and Systems IX continues the tradition of the conferences Nonlinear Image Processing and Pattern Analysis in exploring new image processing algorithms. It also reverberates the growing call for integration of the theoretical research on image processing algorithms with the more applied research on image processing systems.

Specifically, the conference aims at highlighting the importance of interaction between linear, nonlinear, and transform-based approaches for creating sophisticated algorithms and building modern imaging systems for new and emerging applications.

The conference chairs and program committee invite high-quality submissions of papers discussing new results in, but not limited to, the following topics:

### Methods
- linear filtering
- nonlocal methods in image processing
- transforms and denoising
- wavelets
- multiresolution
- statistical modeling
- estimation
- fuzzy systems
- neural networks
- genetic and evolutionary computing
- logic-based algorithms
- graph theoretic methods
- interpolation, scaling, morphing

### Applications and Systems in
- machine vision
- visual and multimedia communications
- biomedical image processing
- microarray imaging
- data fusion
- human-machine interaction.

**Note:** Please follow the submission instructions and submit a 1000-word abstract plus Figures, Tables, etc., clarifying your approach. Full-length manuscript submission (6 pages minimum) is highly encouraged in order to help the peer-reviewing process.
Real-time image and video processing involves algorithmic, hardware, and software aspects of making an image or video processing system to operate in real-time. The IS&T/SPIE Real-Time Image and Video Processing Conference is the only conference that is dedicated to the subject of real-time image and video processing. It is intended to be the field catalyst bringing together scientists and researchers from industry and academia working in real-time image and video processing to present recent research results pertaining to new real-time algorithmic, hardware, and software approaches as well as real-time system designs and applications.

Papers addressing real-time issues are solicited, but not limited to the following topics:
- real-time image and video processing algorithms
- real-time image and video analysis and annotation
- real-time image and video processing in multimedia and media convergence
- real-time issues in medical image and video processing
- real-time embedded image/video processing systems
- real-time image and video processing hardware including FPGA, DSP, GPU, GPP, ASIC, SoC, and SiP implementations
- real-time software optimizations and related design paradigms
- real-time computational photography, augmented reality and 3D applications
- real-time image and video compression and coding
- real-time spectral image analysis for industrial application and remote sensing
- real-time image and video processing in autonomous and cognitive systems
- real-time image and video processing applications including digital, cell-phone, and smart cameras, machine vision, automatic visual inspection, robot vision, surveillance and security, biomedical imaging, spectral imaging, etc.

Due Dates:
- Abstract (500 words), or Full Paper and Summary (200 words): 28 June 2010
- Manuscript for Post-Meeting Proceedings: 13 December 2010
Parallel Processing for Imaging Applications (EI111)

Conference Chairs: John D. Owens, Univ. of California, Davis (United States); I-Jong Lin, Hewlett-Packard Labs. (United States); Yu-Jin Zhang, Tsinghua Univ. (China)
Program Committee: Yen-Kuang Chen, Intel Corp. (United States); Ngai-Man Cheung, Stanford Univ. (United States); Ajay Divakaran, Sarnoff Corp. (United States); Mei Han, Google Inc. (United States); Michael Houston, Advanced Micro Devices, Inc. (United States); Wen-Mei Hwu, Univ. of Illinois at Urbana-Champaign (United States); Christopher R. Johnson, The Univ. of Utah (United States); Kurt W. Keutzer, Univ. of California, Berkeley (United States); Ron Kimmel, Technion-Israel Institute of Technology (Israel); David P. Luebke, NVIDIA Corp. (United States); Thomas Malzbender, Hewlett-Packard Labs. (United States); Robert A. Ulichney, Hewlett-Packard Labs. (United States); Marilyn C. Wolf, Georgia Institute of Technology (United States)

Due Dates:
Abstract (500 words) and Summary (200 words): 28 June 2010
Manuscript for On-site Proceedings: 15 November 2010

Papers submitted to this conference should fuse parallel implementation design principles under physical constraints with an understanding of imaging applications.

Imaging translates information into and out of the visual system with today’s computation engine of choice: digital electronic systems. While scalar architectures are no longer scaling at historical rates, we see a massive explosion in the total number of connected computation devices and the ways that hardware architectures and software parallel programming environments use these devices to work in concert and in parallel. From the computing cloud to map-reduce programming models and systems to multi-core CPUs to the regular layout of graphics processing units (GPUs) to the increasing capacity of FPGA fabrics, a range of parallel architectures and parallel programming environments are available to designers and researchers to solve computationally complex problems in efficient (and often real-time) imaging applications.

Under physical constraints such as power, speed, and/or cost, the data throughput and degree of data dependence of imaging applications suggest a good match between parallel architectures and imaging applications; similarly, the choice of parallel architectures often reflects the structure of the imaging problem targeted by the application. Thus, the duality of imaging problem definition and parallelism implies that the efficient implementation of parallelism for imaging offers insight into the mind’s internal imaging computation. This duality also implies that measures of parallel efficiency can formalize the definition of many imaging problems. This conference explores this duality through new parallel designs for imaging and architectures and design tools to optimize parallelism in imaging algorithms.

We expect papers in this conference to combine principles and techniques for parallelism, such as:
- cloud computing
- GPU computing
- high-level parallel programming constructs
- design tools for extracting parallelism
- efficient, scalable architectures
- memory hierarchy design for parallel systems
- metrics for parallelism and capacity planning
- efficient algorithm mapping onto parallel hardware
- algorithmic classification by efficient parallel architecture
- algorithms for parallel scheduling and resource allocation.

Other novel parallel programming techniques, constructs, abstractions, and implementations with an understanding of imaging applications, such as:
- teleconferencing
- medical imaging
- remote sensing
- image fusion
- spectral imaging
- volumetric imaging
- compression
- halftoning
- color rendering
- raster image processing
- image analysis
- computer vision
- document analysis
- forensics
- resampling
- computational optics
- other novel imaging applications.
We are pleased to announce the 18th Document Recognition and Retrieval Conference (DRR), to be held 23-27 January 2011, at the Hyatt Regency San Francisco Airport, CA, USA. DRR is an international conference focused on state-of-the-art research in document recognition and retrieval, for offline, online, and Web documents. The conference is part of the Electronic Imaging Symposium, which brings together researchers from various backgrounds related to electronic imaging for an exciting research event.

The conference will include oral/poster presentations, invited talks and invited papers. Accepted papers will be published in DRR Proceedings. For the fifth year, the Best Student Paper will be selected among papers whose first authors are full-time students. Note that after many years in San Jose, the conference is moving to the San Francisco Airport. Additional details and updated information of this conference can be found at http://www.cs.iit.edu/~drr2011.

Recognizing handwritten or degraded machine printed documents (e.g. faxed and old/historical documents) remains a challenging problem. Beyond OCR, document recognition includes the recovery of a document’s logical structure and format. With successful layout analysis and recognition, document recognition aims to fully reconstruct a document in electronic form, in its original format (fonts, layout etc.). Among the challenges for machine-printed documents are complex layouts (text written on images, complex backgrounds, etc.), degraded and noisy documents, and robust recognition of tables and equations. Handwritten documents with unconstrained writing style pose additional challenges due to increased variability and segmentation ambiguities. Handwritten documents can be processed both online (where temporal stroke information is available) and offline. Non-textual elements in documents form another class of interesting problems. These include the extraction and recognition logos and signatures, and the conversion of line drawings in documents from raster to vector format, thus creating graphical objects endowed with semantic meaning. Web documents pose both similar and new challenges. We are soliciting papers describing algorithms and systems in all aspects of document recognition and retrieval, for offline, online, and Web documents.

One of the primary reasons for digitizing existing paper materials is to simplify retrieval and organization of information. In this regard we are particularly interested in papers which address any of the following issues: retrieval in the presence of noise; retrieval based on sketches, images, tables, diagrams or other non-linguistic objects that appear in the document; retrieval based on text appearing with non-standard alignment, in images or graphics; recognition and tagging of mathematical arrays and equations which serve as indicators of subject content or methodology; recognition based on sketches, images, tables, diagrams or other non-linguistic objects that appear in the document; recognition aims to fully reconstruct a document in electronic form, in its original format (fonts, layout etc.). Among the challenges for machine-printed documents are complex layouts (text written on images, complex backgrounds, etc.), degraded and noisy documents, and robust recognition of tables and equations. Handwritten documents with unconstrained writing style pose additional challenges due to increased variability and segmentation ambiguities. Handwritten documents can be processed both online (where temporal stroke information is available) and offline. Non-textual elements in documents form another class of interesting problems. These include the extraction and recognition logos and signatures, and the conversion of line drawings in documents from raster to vector format, thus creating graphical objects endowed with semantic meaning. Web documents pose both similar and new challenges. We are soliciting papers describing algorithms and systems in all aspects of document recognition and retrieval, for offline, online, and Web documents.

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Papers are solicited in, but not limited to, the following areas:

**Document Recognition**
- document segmentation and layout analysis
- machine-printed and handwritten text recognition
- identification and recognition of tables or equations
- processing of degraded (e.g. faxed) or historical documents
- processing of multilingual documents
- filtering, enhancement, and compression techniques for document images
- performance metrics
- document degradation models
- web document analysis (including wikis and blogs)
- video-, camera-, and mobile phone-based OCR
- recognition of text in natural scene images
- graphics recognition (line-art, maps, and technical drawings)
- symbol, signature, and logo recognition
- document style recognition, writer identification
- document analysis and synthesis for digital publishing (template reuse and layout generation for new contents)
- system engineering, systems, and quality assurance methods toward large-scale digital libraries
- information extraction from forms
- document analysis techniques for electronic voting systems

Submit your abstract today!
Call for Papers

Computational Imaging VIII (EI112)

Conference Chairs: Charles A. Bouman, Purdue Univ. (United States); Ilya Pollak, Purdue Univ. (United States); Patrick J. Wolfe, Harvard Univ. (United States)

Due Dates:
Abstract (500 words) and Summary (200 words): 28 June 2010
Manuscript for Post-Meeting Proceedings: 13 December 2010

More than ever before, computers and computation are critical to the image formation process. Across diverse applications and fields, remarkably similar imaging problems appear, requiring sophisticated mathematical, statistical, and algorithmic tools.

This conference focuses on imaging as a marriage of computation with physical devices. It emphasizes the interplay between mathematical theory, physical models, and computational algorithms that enable effective current and future imaging systems.

Contributions to the conference are solicited on topics ranging from fundamental theoretical advances to detailed system-level implementations and case studies. Areas of particular interest include:

Algorithms and Methodologies
- strategies for inverse problems
- Bayesian and frequentist estimation techniques
- imaging system modeling and simulation
- iterative and multigrid optimization approaches
- multiscale image processing and modeling
- statistical learning and analysis methods.

Key Problem Areas
- image recovery from sensor data
- denoising, demosaicking, color correction
- deblurring and high-resolution rendering
- image and color transforms and analysis
- visual perception as an inverse problem
- tomography, transmission and emission
- microscopy, light, EM, and non-classical
- optical coherence imaging
- MRI, anatomical, functional, and molecular
- acoustic imaging
- diffusion optical imaging
- electrical resistance and impedance imaging
- crystallography
- synthetic aperture radar
- computational depth-of-field enhancement
- intelligent image cropping and scaling
- plenoptics and non-classical image capture
- coded aperture and compressed sensing.

Current and Future Applications
- consumer imaging and computational photography
- super-resolution and enhancement
- imaging and camera networks
- medical imaging and image-guided surgery
- microscopy and clinical applications
- emerging biomedical applications
- geophysical imaging
- environmental remediating and monitoring
- nondestructive testing and evaluation
- imagery-based surveillance and tracking
- target classification and identification
- remote sensing applications.

Document Retrieval
- keyword spotting in document images
- approximate string matching algorithms for OCR’ed text
- summarization of text documents and imaged documents
- text categorization from imaged documents
- entity tagging using OCR’ed text
- retrieval of noisy text documents (messages, blogs, etc.)
- nontextual retrieval (e.g. using graphics and images)
- recovery and use of logical structure for retrieval
- cross-language and multi-lingual retrieval
- benchmarking and evaluation issues
- relevance feedback techniques for document retrieval
- impact of recognition accuracy on retrieval effectiveness.

Note: Submissions to Document Recognition and Retrieval XVIII should contain full papers (at least 6 pages). Submissions should be informative, describe the problem that is addressed by the paper, the original contribution in the paper, the way it relates to existing work, and provide experimental/theoretical evaluation. Final manuscripts to be published in the proceedings are expected to be at least 6 pages long. Questions concerning the conference should be addressed to: drr2011@cs.iit.edu
Digital Imaging Sensors and Applications

Sensors, Cameras, and Systems for Industrial/Scientific Applications XII (EI115)

Conference Chairs: Ralf Widenhorn, Portland State Univ. (United States); Valerie Nguyen, CEA Leti MINATEC (France)

Program Committee: Morley M. Blouke, Portland State Univ. (United States); Erik Bodegom, Portland State Univ. (United States); Terrence S. Lomheim, The Aerospace Corp. (United States); Pierre Magnan, Institut Supérieur de l’Aeronautique et de l’Espace (France); Kevin J. Matherson, Hewlett-Packard Co. (United States); Gloria G. Putnam, Eastman Kodak Co. (United States); Alice L. Reinheimer, e2v (United States); Nobukazu Teranishi, Panasonic Corp. (Japan); Bruce True, Intevac Photonics, Inc. (United States); Xinyang Wang, CMOSIS nv (Belgium); Penny G. Warren, Ball Aerospace & Technologies Corp. (United States)

Due Dates:
Abstract (500 words), or Full Paper and Summary (200 words): 28 June 2010
Manuscript for Post-Meeting Proceedings: 13 December 2010

Solid state optical sensors and solid state cameras have established themselves as the imaging systems of choice for many demanding professional applications such as scientific and industrial applications. The advantages of low-power, low-noise, high-resolution, high-geometric fidelity, broad spectral sensitivity, and extremely high quantum efficiency have led to a number of revolutionary uses.

This conference will focus on current work in the areas of solid state detectors, solid state cameras, new optical concepts and novel applications with emphasis given to the following subjects:

• large format and mosaic imagers for astronomical and medical applications
• high frame rate sensors for adaptive optics, plasma diagnostics, confocal microscopy, motion capture, and neural imaging
• linear arrays used in cameras for industrial and airborne applications
• very low-power imagers for portable applications
• image sensors for spectroscopy applications
• amorphous and polycrystalline silicon arrays for non-destructive test and medical imaging
• CMOS and CCD TDI arrays and applications
• e-beam, x-ray, EUV, and charge particle arrays and applications
• novel imaging devices and applications
• CCDs, OLEDs, and CMOS sensors and camera integration
• active pixel sensors and cameras
• HDTV cameras and sensors
• new and novel processes for making CCD and CMOS arrays
• system-on-chip solutions for smart sensors and applications
• CMOS process and design enhancements for next generation active pixel sensors
• single photon detection and very low light image sensors
• sensors and cameras enhanced for increased UV and IR response
• color imaging sensors and cameras with improved dynamic range and resolution
• color and hyperspectral imaging sensors and sensor systems
• new optical systems for improved photon collection, resolution, optical image processing.
• biomimetic image sensors
• noise in CCD and CMOS sensors
• sensors with small pixel dimensions
• low power image sensors.

You are invited to submit papers on any of the above or related topics.

Critical Dates

Abstract and 200-word Summary Due Date: 28 June 2010
On-site Proceedings Manuscript Due Date: 15 November 2010
Post-meeting Proceedings Manuscript Due Date: 13 December 2010

Please Note: Submissions imply the intent of at least one author to register, attend the symposium, present the paper either orally or in interactive paper format and submit a full-length manuscript for publication in the conference proceedings.
Digital Photography VII (EI116)

Conference Chairs: Francisco H. Imai, Canon Development Americas Inc. (United States); Feng Xiao, Fairchild Imaging (United States)

Cochairs: Jeffrey M. DiCarlo, Hewlett-Packard Labs. (United States); Nitin Sampat, Rochester Institute of Technology (United States); Sebastiano Battilo, Univ. degli Studi di Catania (Italy)

Program Committee: Donald J. Baxter, STMicroelectronics (R&D) Ltd. (United Kingdom); Ajit S. Bopardikar, Samsung India Software Operations (India); Peter B. Catrysse, Stanford Univ. (United States); Ted J. Cooper, Lens Vector (United States); Alexandru F. Drimbarean, Tessaera (Fotobion) Ireland Ltd. (Ireland); Joyce E. Farrell, Stanford Univ. (United States); Guotong Feng, Ricoh Innovations, Inc. (United States); Boyd A. Fowler, Fairchild Imaging (United States); Sergio R. Goma, Qualcomm Inc. (United States); Mirko Guarnera, STMicroelectronics (Italy); Frédéric Guichard, DoX Labs (France); Xiaoyun Jiang, Qualcomm Inc. (United States); George John, Motorola, (United States); Michael A. Kriss, Consultant (United States); Feng Li, Aptina Imaging Corp. (United States); J. Dylan Li, LifeSize Communications (United States); Kevin J. Matherson, Hewlett-Packard Co. (United States); Jon S. McClain, Digital Imaging Systems (United States); Ricardo J. Motta, Seishi Ohmori, Nikon Corp. (Japan); Manu Parmar, Qualcomm Inc. (United States); Gloria G. Putnam, Eastman Kodak Co. (United States); John R. Reinert-Nash, Lifetouch, Inc. (United States); M. Dirk Robinson, Ricoh Innovations, Inc. (United States); Brian G. Rodrickis, Fairchild Imaging (United States); Todd Sachs, Qun Sun, Aptina Imaging Corp. (United States); Sabine E. Dürrbrun, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Touraj Tajbakhsh, Dream Chip Technologies (Germany); Radka Tezaur, Nikon Precision Inc. (United States); Michael Wang, Cisco Systems, Inc. (United States); Dietmar Wüller, Image Engineering Dietmar Wüller (Germany); Weihua Xiong, OmniVision Technologies, Inc. (United States); Ali reza Yasan, Foveon Inc. (United States); Lei Zhang, The Hong Kong Polytechnic Univ. (Hong Kong, China)

Due Dates:
Extended Abstract (1,000 words up to 4 pages including preliminary results) and Summary (200 words): 28 June 2010
Manuscript for On-site Proceedings: 15 November 2010

Featuring:
- Selected papers will be considered for a special issue/topic of an international journal
- Best paper awards
- Panel discussions with experts

Digital photography is experiencing explosive growth both in the consumer and professional markets. Digital camera sales have exceeded multi-use film camera sales for several years, and since 2004, cell-phone camera sales exceeded both digital and film camera sales combined. Due to the many advances, by way of new component technologies, lens systems, and image processing techniques, digital photography has become a reality for consumers and professionals alike.

This conference serves to bring together researchers, scientists, and engineers working in the imaging field to describe recent progress in digital and computational photography and all its relevant areas, from capture, processing, color, compression, transmission and applications, to photo-finishing and hard and soft output. Papers are solicited in the following areas:

**Image sensor technologies and sensor advancements**
- pixel design and scaling
- filter design, CFA (color filter array) layouts
- camera on a chip
- interplay pixel optics between imaging optics

**Sensor, lens, and system characterization**
- pixel, ADC and sensor characterization
- crosstalk and vignetting
- lens systems and characterization
- IR, UV, anti-aliasing filter

**Image processing technologies**
- autofocus and autoexposure
- illuminant estimation and correction
- noise suppression and sharpening
- spatial and temporal demosaicing
- tone correction and color correction
- image enhancement algorithm
- compression
- image and video stabilization
- color image/video quality assessment
- adaptive image up-sampling, super-resolution
- sparse representation-based image restoration

**Computational photography**
- plenoptic, mosaicing solutions, and HDR cameras
- multicamera arrays, image composite technologies
- new optics and cathodrioptics
- multispectral imaging
- depth estimation, extended depth of field (EDOF)
- compressive imaging
- re-lighting, de-hazing
- real-time image processing, image understanding
- image rendering (HDR, perceptual, artistic)
- image quality criteria for computational photography
- joint optical-digital system design and optimization
- system-level cost/performance modeling and analysis

**Innovative technologies for digital photography**
- nanophotonics, nanoplasmics
- black silicon
- quantum imaging and ghost imaging
- 3D camera, 3D sensor, 3D solutions and applications

**Mobile imaging**
- cell-phone and PDA cameras
- size, power, and processing issues
- storage, distribution, display and printing
- mobile imaging standards
- camera module usage patterns
- optical and electrical image-stabilization solutions
- compensation for dynamic range affected by pixel size
- mobile computational photography
- mobile visual search
- novel aperture design, method and implementation

**Rendering technologies**
- profiling techniques, color management
- soft and hard copy rendering
- photo kiosks and on-line photofinishing
- archival photography, revival of old photographs

**Image standards**
- image communications
- ISO speed, MTF, and color image encodings
- image storage technologies
- file formats and image metadata

**Embedded Solutions**
- hardware/software enhancement for computer vision
- embedded system color processing and enhancement.
Image Processing: Machine Vision Applications IV (EI117)

Conference Chairs: David Fofi, Univ. de Bourgogne (France); Philip R. Bingham, Oak Ridge National Lab. (United States)

Program Committee: Atilla M. Baskurt, Univ. Claude Bernard Lyon 1 (France); Pierrick T. Bourgeat, Australian e-Health Research Ctr. (Australia); Jun Cheng, Chinese Academy of Sciences (China); Michael J. Cree, The Univ. of Waikato (New Zealand); Laurent C. Duval, Institut Français du Pétrole (France); Ewald Faustier, vatron GmbH (Austria); Steven P. Floedero, 3M Co. (United States); Luciano F. Fontoura Da Costa, Univ. de São Paulo (Brazil); Olivier Laligant, Univ. de Bourgogne (France); Edmund Y. Lam, The Univ. of Hong Kong (Hong Kong, China); Xavier Lladó, Univ. de Girona (Spain); Fabrice Mériadeau, Univ. de Bourgogne (France); Dinesh Nair, National Instruments Corp. (United States); Kurt S. Niel, Fachhochschule Wels (Austria); Jeffery R. Price, Oak Ridge National Lab. (United States); A. Ravishankar Rao, IBM Thomas J. Watson Research Ctr. (United States); Hamed Sari-Sarraf, Texas Tech Univ. (United States); Peter Schelkens, Vrije Univ. Brussel (Belgium); Ivan W. Selesnick, Polytechnic Institute of NYU (United States); Ralph Seulín, Univ. de Bourgogne (France); Yvon Volzin, Univ. de Bourgogne (France); Gerald Zauner, Fachhochschule Wels (Austria)

Due Dates:
Abstract (500 words), or Full Paper and Summary (200 words): 28 June 2010
Manuscript for Post-Meeting Proceedings: 13 December 2010

The goal of this conference is to bring together real-world practitioners and laboratory researchers in machine vision to share recent applications and developments. Topics of interest include the integration of imaging sensors, supporting hardware, computers, and algorithms for manufacturing inspection, characterization, and/or control. The decreased cost of computational power and vision sensors has motivated the rapid proliferation of machine vision technology in a variety of industries. Examples of such industries include aluminum, automotive, forest products, textiles, glass, steel, metal casting, and chemicals. Other industries, such as semiconductor and electronics manufacturing, have been employing machine vision technology for several years. Machine vision supporting handling robots is another main topic for industrial applications. There is need of accurate, fast and robust detection of objects and their position in space. Their surface, the background and illumination is uncontrolled, in most cases the objects of interest are within a bulk of many others. For both new and existing industrial users of machine vision, there are numerous innovative methods to improve productivity, quality, and compliance with product standards.

There are several broad problem areas that have received significant attention in recent years. For example, some industries are collecting enormous amounts of image data from product monitoring systems. New and efficient methods are required to extract insight and to perform process diagnostics based on this historical record. Regarding the physical scale of the measurements, microscopy techniques are nearing resolution limits in fields such as semiconductors, biology, and other nanoscale technologies. Techniques such as resolution enhancement, model-based methods, and statistical imaging may provide the means to extend these systems beyond current capabilities. Furthermore, obtaining real-time and robust measurements in-line or at-line in harsh industrial environments is a challenge for machine vision researchers, especially when the manufacturer cannot make significant changes to their facility or process.

Note that this year, Wavelet Applications in Industrial Processing will become part of the Image Processing: Machine Vision Applications conference.

Abstracts are sought that are related to both novel applications of existing methodology and/or new algorithms or techniques. Abstracts are encouraged from, but not limited to, the following list of topics:
- image processing algorithms and applications
- image-related pattern recognition techniques and applications
- image-related data mining and knowledge discovery
- three-dimensional imaging (stereo, structure-from-motion, laser range finding)
- thermal, color, and/or spectroscopic imaging algorithms and applications
- novel hardware designs
- vision system architectures
- imaging and inspection in harsh environments
- machine vision for process control/diagnosis, trend analysis, or preventative maintenance
- high-throughput systems for medical or biological applications
- case studies on the impact of machine vision in manufacturing
- machine vision applications for industrial research and development
- machine vision supporting handling robots
- wavelet applications: new trends in wavelet and multisresolution approach, frame and overcomplete representations, Gabor transform, space-scale and space-frequency analysis, multiwavelets, directional wavelets, lifting scheme, empirical mode decomposition, etc.

Abstract submissions should be ~500 words in length and should contain all of the following information:
- (1) a clear problem statement and motivation for the work, (2) methods, (3) experimental results (these may be preliminary), and (4) a summary or conclusion. Submissions that do not meet these requirements will not be considered. All abstracts will be peer reviewed. Papers of exceptional quality will be invited to submit revised, extended drafts to the IS&T/SPIE Journal of Electronic Imaging.

There will be a Best Paper Award within this conference.

Submit your abstract today!

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Call for Papers

Intelligent Robots and Computer Vision XXVIII: Algorithms and Techniques (EI118)

Conference Chairs: Juha Rönning, Univ. of Oulu (Finland); David P. Casasent, Carnegie Mellon Univ. (United States); Ernest L. Hall, Univ. of Cincinnati (United States)

Program Committee: Norbert Lauinger, CORRSYS 3D Sensors AG (Germany); Dah Jye Lee, Brigham Young Univ. (United States); Kurt S. Niel, Fachhochschule Wels (Austria); Yoshihiko Nomura, Mie Univ. (Japan); Daniel Raviv, Florida Atlantic Univ. (United States); Neelima Shrikhande, Central Michigan Univ. (United States); Oliver Sidla, SLR Engineering (Austria); Bernard L. Theisen, U.S. Army Tank Automotive Research, Development and Engineering Ctr. (United States); Dili Zhang, Monotype Imaging (United States)

Due Dates:
Abstract (500 words), or Full Paper and Summary (200 words): 28 June 2010
Manuscript for Onsite Proceedings: 15 November 2010

This meeting will focus on new algorithms and techniques for intelligent robots and computer vision with emphasis on algorithms and techniques. With computer vision, the conference is focused on the development of the science of computer imaging, theory, algorithms, paradigms and applications.

This conference emphasizes intelligent robotics, new computer vision and pattern recognition algorithms and applications in robotics and product inspection, modeling of human visual processing, learning for swarms of robots, etc. In 2011, we plan several major sessions on new advances in intelligent mobile robots (systems, navigation, obstacle avoidance, route planning, etc.) with emphasis on results obtained in diverse government and other programs. New sessions are also planned on detection and tracking of people and vehicles in complex environments, product inspection, cognitive learning strategies and systems, autonomous multi-vehicle collaboration and vehicle automation and enhanced safety through driver assisted aids for manned and unmanned vehicles for the military and automotive applications.

Papers are solicited specifically for the following topics:
- intelligent mobile robot methods and advancements (tracking, scene analysis, path planning, obstacles)
- autonomous multi-vehicle collaboration
- robotic aids for the elderly
- cognitive learning strategies and systems (intelligent robots that adapt, learn, and manage complexity)
- people and vehicle recognition and tracking
- computer vision algorithms and applications for intelligent robots
- tracking and scene analysis for intelligent vehicles
- product inspection, testing, and assembly
- intelligent packaging, processing, and material handling
- segmentation for object location and obstacle avoidance for intelligent robots
- pattern recognition and image processing for computer vision and robotics
- active vision and real time techniques
- color image processing
- image understanding and scene analysis
- object modeling and recognition
- 3D vision: modeling, representation, perception, processing, and recognition; predictive 3D vision
- industrial applications
- novel sensors for intelligent robots.

Intelligent Robots and Computer Vision Best Student Paper Awards

Awards will be given for Best Oral and Poster Presentation for student authors. For award consideration, the student author or co-author must present the paper and verify their student status to the session chair. Awards will be based on relevance, creativity, theoretical and experimental quality, and presentation effectiveness.

Critical Dates

Abstract and 200-word Summary Due Date: 28 June 2010
On-site Proceedings Manuscript Due Date: 15 November 2010
Post-meeting Proceedings Manuscript Due Date: 13 December 2010

Please Note: Submissions imply the intent of at least one author to register, attend the symposium, present the paper either orally or in interactive paper format and submit a full-length manuscript for publication in the conference proceedings.
Multimedia Processing and Applications

Imaging and Printing in a Web 2.0 World II (EI119)

Conference Chairs: Qian Lin, Hewlett-Packard Labs. (United States); Jan P. Allebach, Purdue Univ. (United States); Zhigang Fan, Xerox Corp. (United States)

Program Committee: Patricia Albanese, Rochester Institute of Technology (United States); Kathrin Berkner, Ricoh Innovations, Inc. (United States); Susanne C. J. Boll, Univ. of Oldenburg (Germany); Guotong Feng, Ricoh Innovations, Inc. (United States); Jerry J. Liu, Hewlett-Packard Labs. (United States); Jiebo Luo, Eastman Kodak Co. (United States); Robert J. Rolleston, Xerox Corp. (United States); David N. Slatter, Hewlett-Packard Labs. (United Kingdom); Yonghong Tian, Beijing Univ. (China); Shengjin Wang, Tsinghua Univ. (China); Wiley H. Wang, Shutterfly (United States)

Due Dates:
Abstract (500 words), or Full Paper and Summary (200 words): 28 June 2010
Manuscript for Post-Meeting Proceedings: 13 December 2010

The recent progresses in internet and web technologies have created a new wave of interests in web related printing and imaging topics, from content creation and repurposing, to web printing and publishing, from engineering challenges, to aesthetics and legal issues. Compared to many subjects in traditional imaging, these topics are more multi-discipline in nature. This conference will provide a forum for researchers and engineers from various related areas, both academic and industrial to exchange ideas and share research results in this rapidly evolving field.

Papers are solicited in, but not limited to, the following areas:

• Web content creation and repurposing: content creation tools, content-based indexing, search and retrieval, digital content mash-up and remixing, image processing for repurposing, image resizing and image inpainting, photo to art, advertisement insertion, user interfaces.

• Web design: structure and layout for web pages and hardcopies, styles and aesthetics, color harmony and balance.

• Web content analysis and representation: page classification, digital libraries, image representation on the web, device and context-dependent metadata, annotation, geo-tagging applications on the web.

• Web printing and publishing: style adaptation for hardcopy, hyperlink classification and document boundary determination, linearization of multi-page structure, coping with multi-media, mobile content transformation, workflow for web-to-print applications, online photo services, electronic papers for web imaging.

• Legal issues and technical solutions for web printing: provenance tracking, copyright, security, authentication, verification.

• Linking of digital content and analog content: cellphone camera object recognition and web services.

• Social networks: use of images in social networks, web-based testing and ground-truth data collection (crowdsourcing).

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Critical Dates
Abstract and 200-word Summary Due Date: 28 June 2010
On-site Proceedings Manuscript Due Date: 15 November 2010
Post-meeting Proceedings Manuscript Due Date: 13 December 2010

Please Note: Submissions imply the intent of at least one author to register, attend the symposium, present the paper either orally or in interactive paper format and submit a full-length manuscript for publication in the conference proceedings.
Call for Papers

Media Watermarking, Security, and Forensics XIII (EI120)

Conference Chairs: Nasir D. Memon, Polytechnic Institute of NYU (United States); Jana Dittmann, Otto-von-Guericke-Universität Magdeburg (Germany); Adnan M. Alattar, Digimarc Corp. (United States); Edward J. Deip III, Purdue Univ. (United States)

Program Committee: Mauro Barni, Univ. degli Studi di Siena (Italy); Patrick Bas, Ecole Nationale Supérieure de Physique de Grenoble (France); Jeffrey A. Bloom, Dialogic Media Labs (United States); Hany Farid, Dartmouth College (United States); Jessica Fridrich, Binghamton Univ. (United States); Ton Kalker, Hewlett-Packard Co. (United States); Andrew D. Ker, Univ. of Oxford (United Kingdom); Bénédicte M. Macq, Univ. Catholique de Louvain (Belgium); Bangalore Manjunath, Univ. of California, Santa Barbara (United States); Pierre Moulin, Univ. of Illinois at Urbana-Champaign (United States); Dulce B. Ponceleon, IBM Almaden Research Ctr. (United States); Regunathan Radhakrishnan, Dolby Labs., Inc. (United States); Husrev T. Sencar, TOBB Ekonomi ve Teknoloji Univ. (Turkey); Gaurav Sharma, Univ. of Rochester (United States); Tienu Tan, Institute of Automation (China); Claus Vielhauer, Otto-von-Guericke-Universität Magdeburg (Germany); Sviatoslav V. Voloshynovskiy, Univ. of Geneva (Switzerland); Min Wu, Univ. of Maryland, College Park (United States); David Zhang, The Hong Kong Polytechnic Univ. (China)

Due Dates:
Extended Abstract (500 to 2,000 words) and Summary (200 words) 28 June 2010
Manuscript Due for Post-Meeting Proceedings: 13 December 2010

The availability of multimedia content in digital form and the distribution of this content across the worldwide web and wireless systems have brought a number of security issues to the forefront. The importance of these issues has promoted research and innovative applications of secure technologies in the context of multimedia creation, distribution, usage and forensics. The Multimedia Forensics and Security conference has been the top destination for high quality cutting edge research in these topics. The most unique nature of this conference is that it provides authors the ability to submit a short abstract describing work in progress and hence present innovative ideas fresh from the laboratory to motivate new research directions and present early results to the community. Full papers are due only at the time of the conference.

The conference provides an excellent opportunity for researchers and practitioners to present their innovative and significant work as well as to keep abreast with the latest developments in security and forensics. Areas of interest include, but are not limited to:

- digital watermarking algorithms, applications and benchmarking of watermarks, watermarking protocols and systems, attacks on digital watermarks
- implementations of security and watermarking systems
- digital forensic methods and systems
- steganography and steganalysis
- media authentication
- media encryption and signal processing in the encryption domain
- theoretical aspects of information hiding
- content protection systems
- secure publishing systems
- digital rights management (DRM) systems
- security for long term preservation
- biometrics: from uni-model to multi-modal approaches, security issues of biometric reference protection, biometric protocols
- standardization aspects (e.g., MPEG IPMP and MPEG-21)
- legal implications.

The conference features a best paper award, sponsored by the Digital Watermarking Alliance.

Authors should submit 500-2000 word abstracts. Submissions that are significantly longer or significantly shorter may be rejected without review. Authors must include a paragraph in their submission that clearly identifies the specific contribution(s), the novelty and significance of the work, and its relationship to prior work in the subject. Extended abstracts representing work in progress must include preliminary results and give a clear indication on the type of results that will be provided in the final manuscript.

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Multimedia on Mobile Devices 2010 (EI121)

Conference Chairs: David Akopian, The Univ. of Texas at San Antonio (United States); Reiner Creutzburg, Fachhochschule Brandenburg (Germany)

Program Committee: Sos S. Agaian, The Univ. of Texas at San Antonio (United States); Faouzi Alaia Cheikhh, Gøvik Univ. College (Norway); Nina T. Bhatti, Hewlett-Packard Labs. (United States); Linda Breitlauch, Mediadesign Hochschule Düsseldorf (Germany); Chang Wen Chen, Univ. at Buffalo (United States); Philip C. L. Chen, The Univ. of Texas at San Antonio (United States); Kenneth J. Crisler, Motorola, Inc. (United States); David S. Doermann, Univ. of Maryland, College Park (United States); Elizabeth Dykstra-Erickson, Kinoma (United States); Stefan Edlich, Technische Fachhochschule Berlin (Germany); Atanas P. Gotchev, Tampere Univ. of Technology (Finland); Lajos Hanzo, Univ. of Southampton (United Kingdom); Zhihai He, Univ. of Missouri-Columbia (United States); Hendrik O. Knoche, Univ. College London (United Kingdom); Catalin Lacatus, Telcordia Technologies, Inc. (United States); Xin Li, West Virginia Univ. (United States); Manzur M. Murshed, Monash Univ. (Australia); Sethuraman Panchanathan, Arizona State Univ. (United States); Kari A. Pulli, Nokia Research Ctr. (United States); Matthias Rauterberg, Technische Univ. Eindhoven (Netherlands); Phillip A. Regalia, TELECOM & Management SudParis (France); Phanikrishna K. Sagiraju, The Univ. of Texas at San Antonio (United States); Abhay Samant, National Instruments (India); Thomas Schwotzer, FHTW (Germany); Olli J. Silvén, Univ. of Oulu (Finland); Jarmo H. Takala, Tampere Univ. of Technology (Finland); Kaisa A. Väänänen-Vainio-Mattila, Tampere Univ. of Technology (Finland); Haitao Zheng, Univ. of California, Santa Barbara (United States)

Due Dates:
- Extended Abstract (500 words) and Summary (200 words) 28 June 2010
- Manuscript for Post-Meeting Proceedings Due: 13 December 2010

The goal of this conference is to provide an international forum for presenting recent research results on multimedia for mobile devices, and to bring together experts from both academia and industry for a fruitful exchange of ideas and discussion on future challenges.

Submissions are solicited on, but not limited to, the following topics on mobile and ubiquitous multimedia:
- emerging mobile applications
- multimedia signal processing and modern compression for mobile devices
- streaming mobile multimedia
- new compression techniques for mobile devices
- novel energy efficient architectures and algorithms for mobile multimedia
- protocols, and algorithms to cope with mobility, roaming, limited bandwidth, or intermittent connectivity for mobile multimedia
- case studies, field trials and evaluations of new applications and services for mobile multimedia
- HCI, interaction design and techniques, user-centered studies for mobile devices
- wearable computers
- new displays for mobile and ubiquitous multimedia
- intelligent, aware, proactive, and attentive environments, perception, sensing, and modeling of the environment
- middleware and distributed computing support for mobile and ubiquitous multimedia
- power issues when transmitting multimedia content
- mobile healthcare
- mobile computer graphics
- mobile games and entertainment
- novel adaptive/context-aware/mobile/ubiquitous/ambient/wireless multimedia applications and systems
- m-commerce and m-learning systems
- digital Rights Management for mobile applications
- location-based-services and technologies and safety.

The conference selects Best and Best-Student Papers. Outstanding papers might be recommended for the publication in IS&T/SPIE Electronic Imaging Journal.

Critical Dates

Abstract and 200-word Summary Due Date: 28 June 2010
On-site Proceedings Manuscript Due Date: 15 November 2010
Post-meeting Proceedings Manuscript Due Date: 13 December 2010

Please Note: Submissions imply the intent of at least one author to register, attend the symposium, present the paper either orally or in interactive paper format and submit a full-length manuscript for publication in the conference proceedings.
Multimedia Content Access: Algorithms and Systems V (EI122)

Conference Chairs: Cees G. M. Snoek, Univ. van Amsterdam (Netherlands); Nicu Sebe, Univ. degli Studi di Trento (Italy); Lyndon Kennedy, Yahoo! Research (United States)

Co-chairs: Theo Gevers, Univ. van Amsterdam (Netherlands); Raimondo Schettini, Univ. degli Studi di Milano-Bicocca (Italy); Simone Santini, Univ. Autónoma de Madrid (Spain)

Program Committee: John Adcock, FX Palo Alto Lab. (United States); Noboru Babaguchi, Osaka Univ. (Japan); Tat-Seng Chua, National Univ. of Singapore (Singapore); Matthew L. Cooper, FX Palo Alto Lab. (United States); Francesco G. B. De Natale, Univ. degli Studi di Trento (Italy); Alberto Del Bimbo, Univ. degli Studi di Firenze (Italy); Jianping Fan, The Univ. of North Carolina at Charlotte (United States); Yuli Gao, Hewlett-Packard Co. (United States); Alan Hanjalic, Technische Univ. Delft (Netherlands); Alexander G. Hauptmann, Carnegie Mellon Univ. (United States); Winston H. Hsu, Columbia Univ. (United States); Gang Hua, Nokia Research Ctr. Hollywood (United States); Xian-Sheng Hua, Microsoft Research Asia (China); Yu-Gang Jiang, Columbia Univ. (United States); Paul H. Lewis, Univ. of Southampton (United Kingdom); Rainer W. Lienhart, Univ. Augsburg (Germany); Vasileios Mezaris, Informatics and Telematics Institute (Greece); Chong-Wahn Ngo, City Univ. of Hong Kong (Hong Kong, China); Alan F. Smeaton, Dublin City Univ. (Ireland); John R. Smith, IBM Thomas J. Watson Research Ctr. (United States); Hari Sundaram, Arizona State Univ. (United States); Qi Tian, The Univ. of Texas at San Antonio (United States); Luc J. Van Gool, Katholieke Univ. Leuven (Belgium); Dong Wang, Hulu (China); Meng Wang, Microsoft Research Asia (China); Changsheng Xu, Institute of Automation (China); Rong Yan, Facebook (United States); Jun Yang, Facebook (United States)

Due Dates:

Draft Paper for Review (6 pages minimum) and Summary (200 words): 28 June 2010

Manuscript for On-site Proceedings: 15 November 2010

Modern computer technology has brought multimedia to the limelight as a new communication form, quite possibly the first original communication form of the computer age. Today, “being multimedia” is a real possibility for almost any online computer user, and the communicative possibilities that will ensue from this fact will have an impact in a wide range of fields. To benefit from this potential, developers need reliable techniques for the analysis, search, and management of multimedia data, as well as distributed system architectures in which these techniques can be embedded to effectively help the users. The purpose of this conference is to create an international forum to address the research challenges and opportunities of multimedia content analysis, management and retrieval. We are soliciting high quality submissions to present new and daring ideas, question established paradigms and unwritten rules, and introduce new and original research directions in the following (and related) areas:

Image and Video Content Analysis:
- image, audio and video characterization (feature extraction)
- fusion of text, image, video and audio data
- content clustering, parsing and classification
- semantic modeling
- image, video and audio similarity measures
- object and event detection and recognition
- content analysis methods and algorithms
- benchmarking of content analysis methods and algorithms
- affective content analysis
- image and video quality assessment

Content Management and Delivery:
- multimedia databases
- multimedia standards
- peer-to-peer storage and search techniques
- indexing and data organization
- system optimization for search and retrieval
- storage hierarchies, scalable storage
- personalized content delivery

Image and Video Content Search:
- multimedia data mining
- active learning and relevance feedback
- query models
- browsing and visualization
- search issues in distributed and heterogeneous systems
- benchmarking search, browsing, and retrieval algorithms and systems
- generation of video summaries and abstracts
- cognitive aspects of human/machine systems

Internet Imaging and Multimedia:
- peer-to-peer imaging systems for the internet
- content creation and presentation for the internet
- content analysis for social tag generation, denoising and propagation
- socially enriched image and video retrieval
- web cameras: impact on content analysis
- interactive multimedia creation for the internet
- content rating, authentication, non-repudiation, and cultural differences in content perception
- web crawling, caching, and security
- multimedia on the semantic web
- user interfaces
- mobile visual information processing and management.
Processing, storage and transmission of many types of visual information, including photos and stereo images, video, graphics, light fields, volumetric, spectral, etc., have become important engineering areas that attract interdisciplinary research interest. This conference is designed as a forum for presenting important research results as well as applications. Original and unpublished material is solicited on the following and related topics:

• compression of visual information: image, video, graphics, and light-field coding, compression standards, very-low bit rate coding, high quality image/video coding, volumetric data coding

• media over networks: media streaming, video over wireless networks, error resilience, scalability, quality of service, cross-layer optimization for improved media delivery, streaming media delivery networks

• visual information processing: filtering, interpolation (e.g. deinterlacing, frame-rate conversion), restoration, compressed-domain processing, superresolution, multimodal media processing

• visual information representations: multiresolution analysis, subbands, wavelets, sparse decompositions for visual data, related estimation, analysis, and reconstruction algorithms

• pattern matching of visual data: machine learning, augmented reality, mobile applications

• object-based methods: segmentation and tracking, feature extraction

• synthetic imaging and rendering: stereo, multiview and 3D video, synthetic image/video and graphics representations, 3D and animated 3D models, virtual reality, visualization and display techniques

• application systems: DTV, electronic cinema, multimedia content retrieval, man-machine interface, imaging/video surveillance

• media system design: hardware and software architectures and implementation issues, scalable computations, low-power implementations, multi-core algorithm design

• compression of medical imaging information

• other timely topics related to visual information communication and processing.

Please submit paper proposals of 3-4 pages in length, including problem statement, review of prior work, proposed approach, and experimental or theoretical results.

Submit your abstract today!

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About the Symposium Organizers

The Society for Imaging Science and Technology (IS&T), is an international non-profit dedicated to keeping members and others apprised of the latest developments in fields related to imaging science through conferences, educational programs, publications, and its website. IS&T encompasses all aspects of imaging, with particular emphasis on digital printing, electronic imaging, color science, photofinishing, image preservation, silver halide, pre-press technology, and hybrid imaging systems.

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General Information

Registration
IS&T/SPIE Electronic Imaging registration will be available September 2010. Fee information for conference and courses, a registration form, along with technical and general information will be available on the web site in September. All participants, including keynote, invited, and contributing speakers, cochairs, session chairs, and committee members, must pay the registration fee.

Hotel Accommodations
Information detailing the hotel reservations process will be available online with the Advance Technical Program in September.

Demonstration Session
The annual Demonstration Session allows authors and others to showcase their programs, products, and wares to all Electronic Imaging attendees during an evening program held in conjunction with the Interactive Paper Session.
Authors and companies interested in exhibiting should contact Donna Smith at +1 703 642 9090; +1 703 642 9094 (fax); dsmith@imaging.org.

Technical Program
Available Online: September 2010
The comprehensive Advance Technical Program for Electronic Imaging 2011 will list conferences, paper titles, and authors in presentation order; the educational program schedule, including course descriptions and instructor biographies; an outline of all planned special events; and information detailing the hotel reservations process.

Critical Dates

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An author or coauthor (including keynote, invited, oral, and interactive paper presenters) will:

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- Attend the meeting.
- Make the presentation as scheduled in the program.
- Submit a full-length manuscript (6 pages minimum) for publication in the Digital Library, conference Proceedings, and CD-ROM compilations.
- Obtain funding for their registration fees, travel, and accommodations, independent of IS&T and SPIE, through their sponsoring organizations.
- Ensure that all clearances, including government and company clearance, have been obtained to present and publish. If you are a DoD contractor in the USA, allow at least 60 days for clearance.

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- Abstract for Technical Review: Please see the individual conference Calls for Papers for abstract length requirements. IS&T and SPIE are authorized to circulate your abstract to conference committee members for review and selection purposes.
- 200-Word Summary: Please also submit a 200-word text summary suitable for early release. If accepted, this summary text will be published prior to the meeting in the online or printed programs promoting the conference.
- Only original material should be submitted.
- Abstracts should contain enough detail to clearly convey the approach and the results of the research.
- Commercial papers, papers with no new research/development content, and papers where supporting data or a technical description cannot be given for proprietary reasons will not be accepted for presentation in this conference.
- Please do not submit the same, or similar, abstracts to multiple conferences.

Review, Notification, and Program Placement Information

- To ensure a high-quality conference, all submissions will be assessed by the Conference Chair/Editor for technical merit and suitability of content.
- Conference Chair/Editors reserve the right to reject for presentation any paper that does not meet content or presentation expectations.
- The contact author will receive notification of acceptance and presentation details by e-mail no later than 17 September 2010.
- If your paper is accepted and you require a visa to travel to the U.S., please request an invitation letter from the link at http://spie.org/x37840.xml as soon as you are notified of acceptance.
- Final placement in an oral or interactive paper session is subject to the Chairs’ discretion.

Proceedings and Digital Library Information

- Conference Chair/Editors may require manuscript revision before approving publication and reserve the right to reject for publication any paper that does not meet acceptable standards for a scientific publication. Conference Chair/Editors’ decisions on whether to allow publication of a manuscript is final.
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