IS&T/SPIE 20th Annual Symposium

Electronic Imaging

Science and Technology

Technical Program

26–31 January 2008

San Jose Marriott and San Jose Convention Center
San Jose, California USA

NETWORK WITH PEERS — HEAR THE LATEST RESEARCH

IS&T
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Connecting minds. Advancing light.

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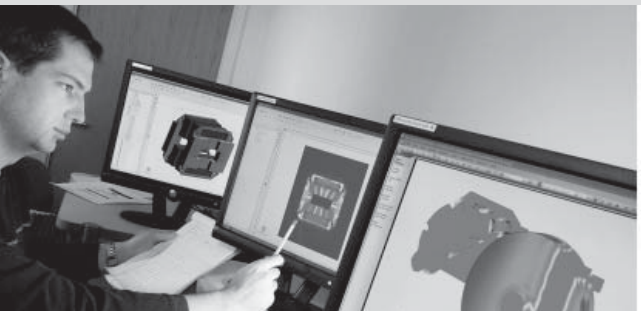

Cover Photos
(Left photo) Courtesy of Pacific Northwest National Laboratory
A Pacific Northwest National Laboratory scientist uses a photoemission electron microscope (PEEM) to study carrier dynamics and defect formation in single crystal iron oxide (hematite) thin films. These films mimic naturally occurring materials that are found in both geochemical and astrophysical environments.

(Middle photo) Photo by Stanley Leary. A researcher loads substrate for deposition of thin-film phosphor materials into an ion-assisted deposition system. Phosphor technology such as this is used in high-definition television, medical instrument monitors and virtual environment displays. Because they glow without any increase in temperature, phosphors are an important and highly researched area for many emerging flat panel display technologies. (Year of image: 2000)

Welcome

On behalf of IS&T and SPIE, I welcome you to the 20th annual Symposium on Electronic Imaging.

Imaging is pervasive in the human experience, be it the photographs that we take in our everyday lives, or those that are used in space exploration, medical imaging, entertainment, science, or national security.

EI 2008 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.

I look forward to seeing you this week and sharing with you the joy of the entire spectrum of electronic imaging.

Symposium Chair:
Nitin Sampat, Rochester Institute of Technology

Contents

Electronic Imaging
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27–31 January 2008
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Symposium Chair

Nitin Sampat, Rochester Institute of Technology

Symposium Organizing Committee

Charles A. Bouman, Purdue Univ.
Michael A. Kriss, MAK Consultants
Gabriel G. Marcu, Apple Computer, Inc.
Robert A. Sprague, SiPix, Imaging Inc.

Short Course Chairs

Michael A. Kriss, MAK Consultants
Berna Erol, Ricoh Innovations, Inc.
Sachin Deshpande, Apple Computer, Inc.

Technical Organizing Committee

Jaakko T. Astola, Tampere, Univ. of Technology (Finland)
Kathrin Berkner, Ricoh Innovations, Inc.
Morley M. Blouke, Ball Aerospace & Technologies Corp.
Katy Börner, Indiana Univ.
Charles A. Bouman, Purdue Univ.
Matthias F. Carlsohn, Computer Vision and Image Communication (Germany)
Jim Coddington, Museum of Modern Art
Brian D. Corner, U.S. Army
Reiner Creutzburg, Fachhochschule Brandenburg (Germany)
Edward J. Delp, Purdue Univ.
Jeffrey M. DiCarlo, Hewlett-Packard Labs.
Jana Dittmann, Otto-von-Guericke-Univ. Magdeburg (Germany)
Margaret Dolinsky, Indiana Univ.
Edward R. Dougherty, Texas A&M Univ.
Karen O. Egiazarian, Tampere Univ. of Technology (Finland)
Reiner Eschbach, Xerox Corp.
Susan P. Farnand, Rochester Institute of Technology
David Fofi, Univ. de Bourgogne (France)
Frans Gaykema, OCE Technologies BV (Netherlands)
Theo Gevers, Univ. van Amsterdam (Netherlands)
Matti T. Gröhn, Ctr. for Scientific Computing (Finland)
Nicolas S. Holliman, Univ. of Durham (United Kingdom)
Ramesh C. Jain, Univ. of California/Irvine
Nasser Kehtarnavaz, The Univ. of Texas at Dallas
Ligang Lu, IBM Thomas J. Watson Research Ctr.
Gabriel G. Marcu, Apple Computer, Inc.
Ian E. McDowall, Fakespace Labs., Inc.
Nasir D. Memon, Polytechnic Univ.
John O. Merritt, The Merritt Group
Eric L. Miller, Northeastern Univ.
Masaaki Mochimaru, National Institute of Advanced Industrial Science and Technology (Japan)
Kurt S. Niel, Fachhochschule Wels (Austria)
Thrasyvoulos N. Pappas, Northwestern Univ.
Jinah Park, Information and Communications Univ. (South Korea)
William A. Pearlman, Rensselaer Polytechnic Institute
Ilya Pollak, Purdue Univ.
Reza Rejaie, Univ. of Oregon
Jonathan C. Roberts, Univ. of Kent (United Kingdom)
Brian G. Rodricks, Micron Technology, Inc.
Bernice E. Rogowitz, IBM Corp.
Simone Santini, Univ. Autónoma de Madrid (Spain)
Robert Sitnik, Politechnika Warszawska (Poland)
David G. Stork, Ricoh Innovations, Inc.
Jarmo H. Takala, Tampere Univ. of Technology (Finland)
Shoji Tominaga, Chiba Univ. (Japan)
Ping Wah Wong, IDzap LLC
Andrew J. Woods, Curtin Univ. of Technology (Australia)
John W. Woods, Rensselaer Polytechnic Institute
Berrin Yanikoglu, Sabanci Univ. Turkey
Roger Zimmermann, National Univ. of (Singapore) (Singapore)

Marriott, San Jose Ballroom

Tuesday 29 January . . . . . .8:15 to 9:15 am

Award Announcements

8:15 to 8:30 am

2008 Electronic Imaging Scientist of the Year Award

Recipient: **James R. Janesick,** Sarnoff Corp.

For outstanding service and significant contributions to the electronic imaging communiy in the area of CCD and CMOS sensors.

8:30 to 9:15 am

Digital Forensics

Hany Farid, Dartmouth College

Abstract: Stalin, Mao, Hitler, Mussolini, Castro, and many more, each had photographs manipulated to alter history. Cumbersome and time-consuming darkroom techniques were required to alter history on behalf of Stalin and others. Today, powerful and low-cost digital technology has made it far easier for nearly anyone to alter digital images, and, the resulting fakes are often very difficult to detect. As a result, our trust in photographs has been greatly diminished. I will describe some of the legal, ethical and social implications of this fact, and I will describe recent advances in the development of techniques to detect tampering in digital images (and video).

Biography: **Hany Farid** received his undergraduate degree in Computer Science and Applied Mathematics from the University of Rochester in 1989. He received his Ph.D. in Computer Science from the University of Pennsylvania in 1997. Following a two year post-doctoral position in Brain and Cognitive Sciences at MIT, he joined the Dartmouth faculty in 1999. Hany is the David T. McLaughlin Distinguished Professor of Computer Science and Associate Chair of Computer Science. He is the recipient of an NSF CAREER award, a Sloan Fellowship and a Guggenheim Fellowship.

Wednesday 30 January

8:30 to 9:15 am

The Making of "Inner Life of the Cell"

David Bolinsky, Medical Director | Partner XVIVO Scientific Animation

Abstract: I plan to discuss XVIVO's creation of "the Inner life of the Cell", which was developed in collaboration with Professor Robert Lue and Alain Viel at the Department of Molecular and Cellular Biology at Harvard University. This animation, the first in what will eventually be a series, underpinning the web site, Biovisions at Harvard, shows in unprecedented detail the functions of proteins and protein motors in cell motion and communication. The best thing I can say about discussing and showing XVIVO's animations to audiences, especially those for whom the work was not originally intended, is that we continually get an affirmation, not only of the level of visual sophistication of ordinary people, but a validation that our search for the underlying /truth and beauty/ in science is shared by folks who do not even know it yet. As our community learns more about the seemingly endless complexities of subtle cell function, we at XVIVO are committed to help researchers and educators explain how it all works together. Join me!

Biography: **David Bolinsky** is a medical illustrator and runs XVIVO, a 3D scientific animation studio. He describes his work as a way to understand the truth and beauty in biological science using animations which show incredible images of the "inner life" of a human cell. He received an AMI-accredited BS in Medical Illustration from OSU in 1974 and served as Veterinary/Human Medical School faculty/medical illustrator at MSU from 1974-1977. He enrolled in the MSU College of Human Medicine from 1977-1979. After a year's leave to illustrate a book, he was hired as senior Medical Illustrator at the Yale School of Medicine in 1981. He is an active Association of Medical Illustrators Member and founded Advanced Imaging, a pioneer digital medical animation company in 1983. He co-founded XVIVO, an award-winning, full-service medical and scientific digital animation company in 2001. David lectures and participates in panel discussions. His recent affiliations are TEDMED2, TED2007; Law and Visual Media at the Quinnipiac University Law School; Johns Hopkins Center for Talented Youth; RedStick Animation Festival, and adviser at Chicago's Museum of Science and Industry.

All-Conference Reception

Marriott, San Jose Ballroom

Wednesday 30 January . . . . . .7:30 to 9:30 pm

The All-Conference Reception provides a wonderful opportunity to get to know and interact with all your Electronic Imaging colleagues. Plan to join us for this relaxing and enjoyable event.

Interactive Paper Session

San Jose Convention Center, Exhibit Hall 1

Tuesday 29 January . . . . . .5:30 to 7:00 pm

All conference attendees are encouraged to attend the Interactive Paper Session where authors of interactive papers are available to answer questions and engage in in-depth discussions about their papers. Light refreshments will be provided. Please note that conference registration badges are required for entrance and that papers may be previewed by all attendees beginning at 2:00 pm.

Authors are asked to set up their papers between 10:00 am and 2:00 pm on Tuesday. Pushpins will be provided; other supplies can be obtained by checking with Donna Smith at the Conference Registration Desk.

Authors must remove their papers at the conclusion of the Interactive Session; papers not removed will be considered unwanted and will be removed by staff and discarded. Neither sponsoring Society assumes responsibility for papers left up before or after the Interactive Paper Session.

Exhibition

San Jose Convention Center, Concourse 1 Lobby

Tuesday 29 January . . . . . .10:00 am to 6:00 pm

Wednesday 30 January . . . . . .10:00 am to 4:00 pm

An intimate exhibit features select Electronic Imaging companies and publishers showcasing the latest products, technologies, and books.

Technical Event: Mobile Imaging

Monday 28 January . . . . . .7:30 to 9:30 pm

Chair: **Gabriel Marcu,** Apple Computer, Inc.

Please check at registration desk for location.

Interactive Symposium Demonstration Session

San Jose Convention Center, Exhibit Hall 1

Tuesday 29 January . . . . . 5:30 to 8:30 pm

Interactive Paper/ Demonstration Session Registration

The highly successful, interactive, hands-on demonstration of hardware, software, display, and research products related to all the topics covered by the Electronic Imaging Symposium will again take place in conjunction with the Interactive Papers session.

This annual demonstration-which traditionally has showcased the largest and most diverse collection of stereoscopic research and products in one location-represents a unique networking opportunity, a time when attendees can see the latest research in action, compare commercial products, ask questions of technically knowledgeable demonstrators, and even make purchasing decisions about a range of EI products. Information regarding participation is found below.

Monday	Tuesday	Wednesday	Thursday

3D Imaging, Interaction, and Measurement

Conf. 6803 **Stereoscopic Displays and Applications XIX,** *(A. J. Woods/N. S. Holliman/J. O. Merritt),* p.11

Conf. 6804 **The Engineering Reality of Virtual Reality 2008,** *(I. E. McDowall/M. Dolinsky),* p. 15

Conf. 6805 **3D Image Capture and Applications 2008,** *(B. D. Corner/M. Mochimaru/R. Sitnik),* p.16

Imaging, Visualization, and Perception

Conf. 6806 **Human Vision and Electronic Imaging XIII,** *(B. E. Rogowitz/T. N. Pappas),* p. 18

Conf. 6807 **Color Imaging XIII: Processing, Hardcopy, and Applications,** *(R. Eschbach/G. G. Marcu/S. Tominaga),* p. 21

Conf. 6808 **Image Quality and System Performance V,** *(S. P. Farnand/F. Gaykema),* p. 24

Conf. 6809 **Visualization and Data Analysis 2008,** *(K. Börner/M. T. Gröhn/J. Park/J. C. Roberts),* p. 27

Conf. 6810 **Computer Image Analysis in the Study of Art,** *(D. G. Stork/J. Coddington),* p. 29

Image Processing

Conf. 6811 **Real-Time Image Processing 2008,** *(N. Kehtarnavaz/ M. F. Carlsohn),* p. 31

Conf. 6813 **Image Processing: Machine Vision Applications,** *(K. Niel, D. Fofi),* p. 36

Conf. 6812 **Image Processing: Algorithms and Systems VII,** *(J. T. Astola/K. O. Egiazarian/E. R. Dougherty),* p. 33

Conf. 6815 **Document Recognition and Retrieval XV,** *(B. A. Yanikoglu/ K. Berkner),* p. 40

Conf. 6814 **Computational Imaging VI,** *(C. A. Bouman/E. L. Miller/I. Pollak),* p. 38

Digital Image Sensors and Applications

Conf. 6817 **Digital Photography IV,** *(J. M. DiCarlo/B. G. Rodricks),* p. 44

Conf. 6816 **Sensors, Cameras, and Systems for Industrial/Scientific Applications IX,** *(M. M. Blouke),* p. 42

Multimedia Processing and Applications

Conf. 6818 **Multimedia Computing and Networking 2008,** *(R. Rejaie/R. Zimmermann),* p. 46

Conf. 6819 **Security, Forensics, Steganography, and Watermarking of Multimedia Contents X,** *(E. J. Delp III/P. Wong/J. Dittmann/N. D. Memon),* p.48

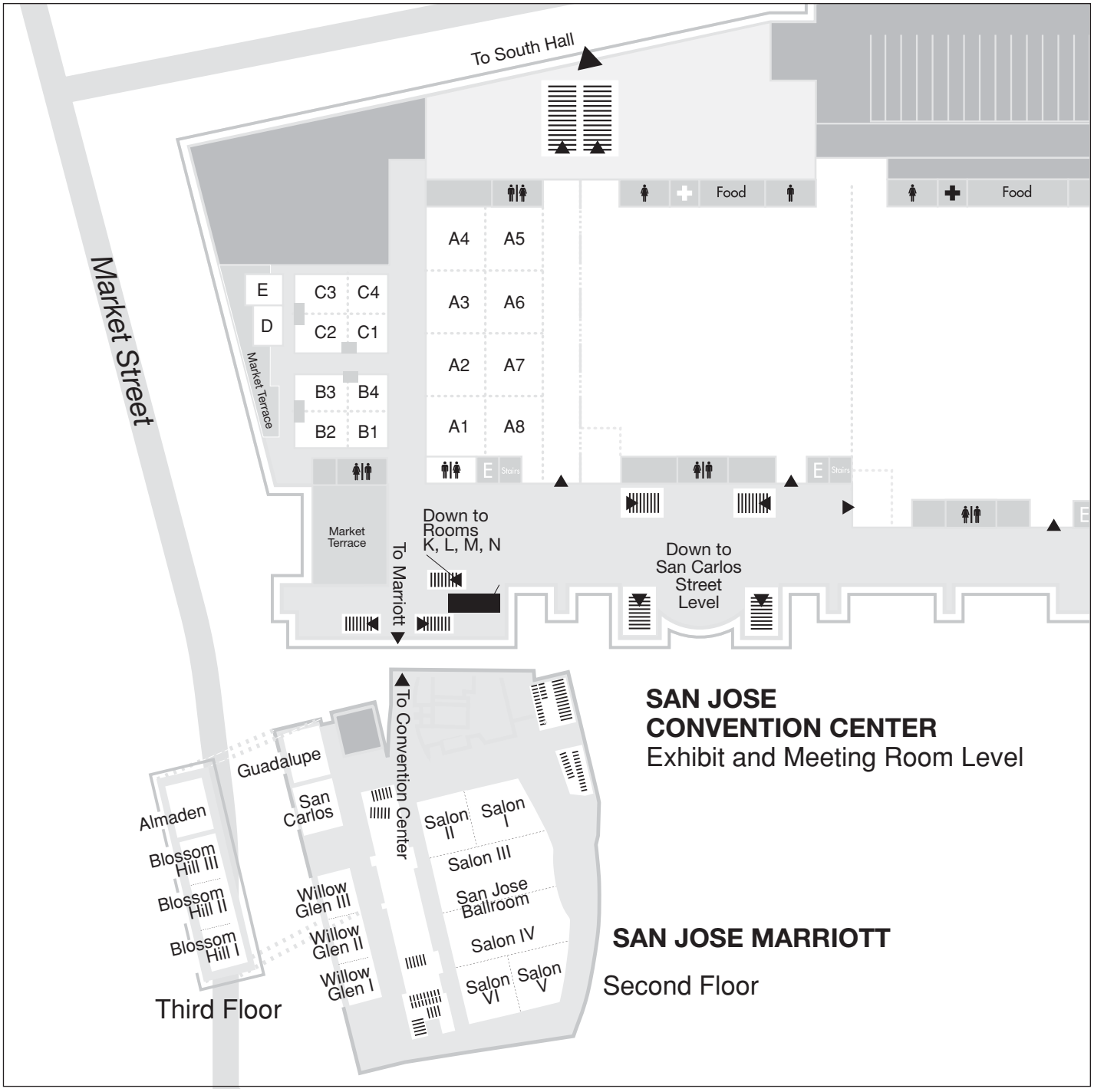
Conf. 6821 **Multimedia on Mobile Devices 2008,** *(R. Creutzburg/J. H. Takala),* p. 53

Conf. 6820 **Multimedia Content Access: Algorithms and Systems II,** *(T. Gevers/R. C. Jain/S. Santini),* p. 51

Visual Communications and Image Processing 2008

Conf. 6822 **Visual Communications and Image Processing 2008,** *(W. A. Pearlman/J. W. Woods/L. Lu),* p. 55

Meeting Room Location



Electronic Imaging 2008

San Jose Convention Center
408 S. Almaden Boulevard, San Jose, CA 95110

San Jose Marriott Hotel, 301 S. Market Street, San Jose, CA 95113

Registration Hours

San Jose Convention Center, Concourse 1 Lobby

Course Attendees Only:

Sunday 27 January . . . . . .7:00 am to 10:00 am

Conference + Course Registration and Badge Pickup:

Sunday 27 January . . . . . .10:00 am to 4:00 pm
Monday 28 January. . . . . .7:00 am to 4:00 pm
Tuesday 29 January . . . . . .7:30 am to 4:00 pm
Wednesday 30 January. . . . . .7:30 am to 4:00 pm
Thursday 31 January. . . . . .7:00 am to Noon

Registration

Full conference registration includes: Admittance to all symposium conferences, the interactive paper and demonstration session, the exhibit, coffee breaks, All-Conference Reception, and applicable EI proceedings.

Speaker AV Prep Room and Hours

San Jose Convention Center, Room E

Monday-Thursday 28 January-31 January . . . . . .7:30 am to 4:30 pm

Speakers are encouraged to preview their materials in the Audio Visual Prep Room prior to their presentation. Speakers who have requested special equipment beyond an LCD projector that will work with their laptop are asked to report to the AV Prep Room upon arrival at the symposium to confirm equipment requests.

Short Courses and Notes

Short courses will take place in various meeting rooms at the San Jose Marriott Hotel and San Jose Convention Center. Room assignments are noted on the course admission tickets and distributed with registration materials. Short course registrants exchange course tickets for course notes in the classroom where the course is held.

Video/Digital Recording Policy

For copyright reasons, audio or video recording of any technical session, short course, or the Interactive Paper/Demonstration session is strictly prohibited without the prior written consent of each presenter recorded. Individuals not complying with this policy will be asked to leave a given session and to surrender their film or disc. It is the responsibility of the presenter to notify the conference sponsors if such consent is given.

Message Board

There will be a message board next to the conference registration desk. Attendees are asked to check the board daily for any messages. Messages for attendees can be left by calling the IS&T/SPIE Message Center at 408-271-6100. Messages will be taken during registration hours Sunday through Thursday.

Business Center Services

Marriott San Jose Hotel: Self-service computer/printer, fax, copier, and internet access is available on 24 hr basis at the business center, accessible via hotel sleeping room key. All Marriott guest rooms include T-1 internet connections.

San Jose Convention Center Business Center: Located in the administration office; includes computers/printers, fax, and copiers. Open 8:00 am to 5:00 pm daily.

Complimentary WiFi

IS&T/SPIE are pleased to provide complimentary wireless access for all conference attendees with wireless-enabled laptop computers or PDAs.

Please configure your wireless settings as follows:

SSID: EI2008 (case-sensitive - all capital letters)
WEP: Disabled
Network Card Settings: DHCP

Properly secure your laptop before accessing this public wireless network. Failure to do so may allow unauthorized access.

IS&T Bookstore and Membership Booth

Sunday through Thursday. . . . . .during registration hours

IS&T publishes and/or distributes technical materials on a broad range of subjects pertinent to the field of electronic imaging. In addition to titles from leading scientific publishers, IS&T showcases proceedings from its Digital Printing Technologies, Digital Fabrication, Archiving, and Color Imaging conferences, as well as selected books on related topics. Information on upcoming meetings and membership, and gratis copies of journals are also available.

Cash Cart: Breakfast Breads, Snacks, and Quick Lunch

San Jose Convention Center, Concourse 1 Lobby

Monday-Thursday 29 January-1 February . . . . . .7:30 am to 2:30 pm

The Cash Cart will offer breakfast breads, yogurt, fruit, coffee, juice, and other beverages each morning of the conference. Luncheon and snack service will include deli-style sandwiches, salads, snacks, pastries, and beverages.

Child Care Services

A few child sitting services available in San Jose are as follows.
1. Bay Area 2nd MOM Inc., Hotel Nanny Service, Toll Free Phone: 1-888-926-3666, or (650) 858-2469, ext. 109. Fax: (650) 493-6598, Email: oncall@2ndmom.com or parentcounselor@2ndmom.com, Website: www.2ndmom.com
2. Sitters Unlimited: Toll Free Phone: (408) 452-0225, E-mail: info@bayareasittersunlimited.com or www.bayareasittersunlimited.com
Note: SPIE does not imply an endorsement or recommendation of these services. They are provided on an "information-only" basis for your further analysis and decision. Other services may be available.

Car Rental

Hertz Car Rental has been selected as the official car rental agency for this Symposium. To reserve a car, identify yourself as an Electronic Imaging Conference attendee using the Hertz Meeting Code CV# 029B0011. Call 1-800-654-2240.

About San Jose

San Jose boasts the largest concentration of technology expertise in the world; it is not surprising that over half of the adult population holds a college degree. Innovation and creativity aren't just words-San Jose also leads the nation in patent generation. The city has 25 companies with 1,000 employees or more, including the headquarters of Adobe Systems, BEA Systems, Cisco, Xilinx, Novellus Systems, and eBay, as well as major facilities for Flextronics, Hewlett-Packard, IBM, Hitachi, Agilent Technologies, and Lockheed Martin.

For more information about San Jose sightseeing, shopping and restaurants, visit their web site at: http://www.sanjose.org

Course Daily Schedule

Sunday	Monday	Tuesday	Wednesday	Thursday
3D Imaging, Interaction, and Measurement				
SC060 **Stereoscopic Display Application Issues** *(Merritt, Woods)* 8:30 am to 5:30 pm, $500 / $595				
Imaging, Visualization, and Perception				
SC516 **Color Considerations for Liquid Crystal Displays** *(Marcu)* 8:30 am to 12:30 pm, $305 / $350	SC766 **Information Processing for Video Surveillance** *(Ebrahimi, Dufaux)* 8:30 am to 5:30 pm, $500 / $595		SC807 **Digital Camera and Scanner Performance Evaluation: Science, Standards and Software** *(Burns, Williams)* 8:30 am to 5:30 pm, $500 / $595	SC767 **Practical Implementations of Machine Vision Systems within Technical Processes** *(Niel)* 8:30 am to 12:30 pm, $305 / $350
NEW SC870 **Color Processing and its Characterisation for Digital Photography** *(Matherson, Wueller)* 8:30 am to 12:30 pm, $305 / $350	SC813 **MPEG Family of Video Compression Standards** *(Rabbani)* 8:30 am to 5:30 pm, $500 / $595		***NEW*** SC873 **Mobile Imaging and Interaction** *(Setlur)* 8:30 am to 5:30 pm, $500 / $595	
SC764 **Filter Banks and Wavelets: Design and Use in Perceptual Coding** *(Schuller)* 8:30 am to 12:30 pm, $305 / $350				
SC468 **Image Enhancement and Deblurring** *(Rabbani)* 8:30 am to 5:30 pm, $500 / $595				
SC809 **Real-Time Image and Video Processing** *(Kehtarnavaz, Gamadia)* 8:30 am to 12:30 pm, $305 / $350				
SC060 **Stereoscopic Display Application Issues** *(Merritt, Woods)* 8:30 am to 5:30 pm, $500 / $595				
SC075 **Effective Color Computing** *(Marcu)* 1:30 to 5:30 pm, $305 / $350				
NEW SC872 **Media Forensics - New Perspectives of Sensometrics and Tamper Detection** *(Dittmann, Vielhauer, Creutzburg)* 1:30 to 5:30 pm, $305 / $350				
NEW SC871 **Noise, Image Processing, and their Influence on Resolution** *(Matherson, Wueller)* 1:30 to 5:30 pm, $305 / $350				
SC812 **Perceptual Metrics for Image Quality Evaluation** *(Pappas, Hemami)* 1:30 to 5:30 pm, $305 / $350				
SC814 **Computer Vision, Image Understanding, and the Analysis of Master Drawings and Paintings** *(Stork)* 1:30 to 5:30 pm, $305 / $350				
Image Processing				
NEW SC899 **Visual Ergonomics and Aesthetics in Electronic Imaging** *(van Nes)* 8:30 am to 12:30 pm, $305 / $350	SC806 **Advanced Multivariate Statistics for Imaging** *(Bajorski)* 8:30 am to 12:30 pm, $305 / $350	SC808 **Document and Image Analysis on Mobile Devices** *(Doermann)* 8:30 am to 12:30 pm, $305 / $350	SC807 **Digital Camera and Scanner Performance Evaluation: Science, Standards and Software** *(Burns, Williams)* 8:30 am to 5:30 pm, $500 / $595	SC491 **Neural Networks Applications in Image Processing** *(Nasrabadi)* 8:30 am to 5:30 pm, $500 / $595
SC516 **Color Considerations for Liquid Crystal Displays** *(Marcu)* 8:30 am to 12:30 pm, $305 / $350	SC766 **Information Processing for Video Surveillance** *(Ebrahimi, Dufaux)* 8:30 am to 5:30 pm, $500 / $595	***NEW*** SC876 **Unified Modeling Language (UML) for Researchers and Engineers** *(Deshpande)* 8:30 am to 5:30 pm, $500 / $595	***NEW*** SC873 **Mobile Imaging and Interaction** *(Setlur)* 8:30 am to 5:30 pm, $500 / $595	SC767 **Practical Implementations of Machine Vision Systems within Technical Processes** *(Niel)* 8:30 am to 12:30 pm, $305 / $350
NEW SC870 **Color Processing and its Characterisation for Digital Photography** *(Matherson, Wueller)* 8:30 am to 12:30 pm, $305 / $350	***NEW*** SC875 **Introduction to Image and Video Compression** *(Thyagarajan)* 8:30 am to 5:30 pm, $565 / $660			
SC764 **Filter Banks and Wavelets: Design and Use in Perceptual Coding** *(Schuller)* 8:30 am to 12:30 pm, $305 / $350	SC813 **MPEG Family of Video Compression Standards** *(Rabbani)* 8:30 am to 5:30 pm, $500 / $595			
SC468 **Image Enhancement and Deblurring** *(Rabbani)* 8:30 am to 5:30 pm, $500 / $595				
NEW SC874 **Introduction to Digital Image Processing** *(Thyagarajan)* 8:30 am to 5:30 pm, $565 / $660				
SC804 **Introduction to Statistics for Imaging** *(Bajorski)* 8:30 am to 12:30 pm, $305 / $350				
SC075 **Effective Color Computing** *(Marcu)* 1:30 to 5:30 pm, $305 / $350				
NEW SC872 **Media Forensics - New Perspectives of Sensometrics and Tamper Detection** *(Dittmann, Vielhauer, Creutzburg)* 1:30 to 5:30 pm, $305 / $350				
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SC812 **Perceptual Metrics for Image Quality Evaluation** *(Pappas, Hemami)* 1:30 to 5:30 pm, $305 / $350				
SC805 **Principles of Multivariate Statistics for Imaging** *(Bajorski)* 1:30 to 5:30 pm, $305 / $350				
SC814 **Computer Vision, Image Understanding, and the Analysis of Master Drawings and Paintings** *(Stork)* 1:30 to 5:30 pm, $305 / $350				

Sunday	Monday	Tuesday	Wednesday	Thursday

Digital Image Sensors and Applications

NEW SC870 **Color Processing and its Characterisation for Digital Photography** *(Matherson, Wueller)* 8:30 am to 12:30 pm, $305 / $350		***NEW*** SC878 **Processing Pipeline for Color Imaging** *(Theuwissen)* 8:30 am to 5:30 pm, $500 / $595	SC807 **Digital Camera and Scanner Performance Evaluation: Science, Standards and Software** *(Burns, Williams)* 8:30 am to 5:30 pm, $500 / $595	SC762 **Device Simulation for Image Quality Evaluation** *(Farrell)* 8:30 am to 12:30 pm, $305 / $350
SC504 **Introduction to CCD and CMOS Imaging Sensors and Applications** *(Janesick)* 8:30 am to 5:30 pm, $610 / $715				
NEW SC872 **Media Forensics - New Perspectives of Sensometrics and Tamper Detection** *(Dittmann, Vielhauer)* 1:30 to 5:30 pm, $305 / $350				
NEW SC871 **Noise, Image Processing, and their Influence on Resolution** *(Matherson, Wueller)* 1:30 to 5:30 pm, $305 / $350				
SC812 **Perceptual Metrics for Image Quality Evaluation** *(Pappas, Hemami)* 1:30 to 5:30 pm, $305 / $350				

Multimedia Processing and Applications

SC809 **Real-Time Image and Video Processing** *(Kehtarnavaz)* 8:30 am to 12:30 pm, $305 / $350	SC766 **Information Processing for Video Surveillance** *(Ebrahimi, Dufaux)* 8:30 am to 5:30 pm, $500 / $595	SC808 **Document and Image Analysis on Mobile Devices** *(Doermann)* 8:30 am to 12:30 pm, $305 / $350	***NEW*** SC873 **Mobile Imaging and Interaction** *(Setlur)* 8:30 am to 5:30 pm, $500 / $595	
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Visual Communications and Image Processing

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SC766 **Information Processing for Video Surveillance** *(Ebrahimi, Dufaux)* 8:30 am to 5:30 pm, $500 / $595				

See Cashier to register for Courses.

Stereoscopic Displays and Applications XIX

Conference Chairs: **Andrew J. Woods,** Curtin Univ. of Technology (Australia); **Nicolas S. Holliman,** Univ. of Durham (United Kingdom); **John O. Merritt,** The Merritt Group

Program Committee: **Neil A. Dodgson,** Univ. of Cambridge (United Kingdom); **Gregg E. Favalora,** Actuality Systems, Inc.; **Janusz Konrad,** Boston Univ.; **Shojiro Nagata,** Japan 3D Forum/InterVision (Japan); **Steven L. Smith,** IN3D; **Vivian K. Walworth,** Jasper Associates; **Michael A. Weissman,** TrueVision Systems

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Projection Cosponsors:

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Veritas et Visus STEREO WORLD

Monday 28 January

SESSION 1

Conv. Ctr. Room A1/A8 . . . . . .Mon. 8:30 to 10:10 am

Stereoscopic Image Quality and Image Processing

Session Chair: **Nicolas S. Holliman,** Durham Univ. (United Kingdom)

8:30 am: **Reconstruction of stereoscopic imagery for visual comfort**, Hye Jin Kim, Jea Wan Choi, An Jin Chang, Ki Yun Yu, Seoul National Univ. (South Korea) . . . . . [6803-01]

8:50 am: **Imaging artifact precompensation for spatially multiplexed 3D displays**, Joshua Napoli, Actuality Systems, Inc.; Sourav R. Dey, Actuality Systems, Inc. and MIT Digital Signal Processing Group; Sandy Stutsman, Samuel L. Hill, Gregg E. Favalora, Actuality Systems, Inc. . . . . [6803-02]

9:10 am: **Stereoscopic image quality metrics and compression**, Paul W. Gorley, Nicolas S. Holliman, Durham Univ. (United Kingdom). . . . [6803-03]

9:30 am: **Methods for improving the quality of user-created stereoscopic content**, Lachlan D. Pockett, Sr., Marja Salmimaa, Nokia Research Ctr. (Finland). . . . . [6803-04]

9:50 am: **A novel quality metric for evaluating depth distribution of artifacts in coded still 3D images**, Roger Olsson, Mårten Sjöström, Mid Sweden Univ. (Sweden) . . . . . [6803-05]

Coffee Break . . . . . 10:10 to 10:40 am

SESSION 2

Conv. Ctr. Room A1/A8 . . . . . .Mon. 10:40 am to 12:00 pm

Volumetric Displays

Session Chair: **Gregg E. Favalora,** Actuality Systems, Inc.

10:40 am: **Hologlyphics: volumetric image synthesis performance system**, Walter Funk, Hologlyphics . . . . . [6803-51]

11:00 am: **Laser-plasma scanning 3D display for putting digital contents in free space**, Hideo Saito, Keio Univ. (Japan); Hidei Kimura, Aerio, Inc. (Japan); Satoru Shimada, National Institute of Advanced Industrial Science and Technology (Japan); Takeshi Naemura, The Univ. of Tokyo (Japan); Jun Kayahara, DENTSU INC. (Japan); Songkran Jarusirisawad, Vincent Nozick, Hiroyo Ishikawa, Toshiyuki Murakami, Jun Aoki, Keio Univ. (Japan); Akira Asano, Aerio, Inc. (Japan); Tatsumi Kimura, Masayuki Kakehata, Fumio Sasaki, Hidehiko Yashiro, Masahiko Mori, Kenji Torizuka, National Institute of Advanced Industrial Science and Technology (Japan); Kouta Ino, The Univ. of Tokyo (Japan) . . . . . [6803-07]

11:20 am: **A novel 3D display using two lens arrays and shift of element images**, Akira Takeichi, Tomohiro Yendo, Toshiaki Fujii, Masayuki Tanimoto, Nagoya Univ. (Japan) . . . . . [6803-08]

11:40 am: **Advances in passive imaging elements with micromirror array**, Satoshi Maekawa, National Institute of Information and Communications Technology (Japan); Kouichi Nitta, Osamu Matoba, Kobe Univ. (Japan). . . . . [6803-09]

Lunch Break . . . . . 12:00 to 1:30 pm

SESSION 3

Conv. Ctr. Room A1/A8 . . . . . .Mon. 1:30 to 3:10 pm

Stereoscopic Human Factors

Session Chair: **John O. Merritt,** The Merritt Group

1:30 pm: **Distortion of depth perception in virtual environments using stereoscopic displays: quantitative assessment and corrective measures**, Michael Kleiber, Carsten Winkelholz, Research Establishment for Applied Science (Germany). . . . . [6803-10]

1:50 pm: **Optical analysis on induction of focal accommodation using cylindrical lenses**, Yuichiro Mano, Tsukuba Univ. (Japan) . . . . . [6803-11]

2:10 pm: **Evaluation of the influence on the human body of the autostereoscopic display based on the integral imaging method**, Hiroyuki Nagatani, Yuzo Hirayama, Toshiba Corp. (Japan) . . . . . [6803-12]

2:30 pm: **Scalable 3D image conversion and ergonomic evaluation**, Shinsuke Kishi, Hyun S. Kim, Takashi Shibata, Takashi Kawai, Waseda Univ. (Japan); Jukka P. Häkkinen, Univ. of Helsinki (Finland) and Nokia Research Ctr. (Finland); Jari M. Takatalo, Göte S. Nyman, Univ. of Helsinki (Finland) . . . . . [6803-13]

2:50 pm: **Depth control method by use of elemental image data for integral imaging system**, Jun Arai, Hiroshi Kawai, Masahiro Kawakita, Fumio Okano, NHK Science & Technical Research Labs. (Japan) [6803-14]

Coffee Break . . . . . 3:10 to 3:40 pm

SESSION 4

Conv. Ctr. Room A1/A8 . . . . . .Mon. 3:40 to 5:00 pm

Multiview 3D Content

Session Chair: **Janusz Konrad,** Boston Univ.

3:40 pm: **Real-time interactive 3D computer stereography for recreational applications**, Atsushi Miyazawa, NAMCO BANDAI Games Inc. (Japan) . . . . . [6803-55]

4:00 pm: **Flexible pixel compositor for autostereoscopic displays**, Ruigang Yang, James R. Heath, Subhasri Krishnan, Univ. of Kentucky . . . . . [6803-16]

4:20 pm: **Adaptive filters for depth from stereo and occlusion detection**, Faysal Boughorbel, Philips Research Labs. (Netherlands) . . . . . [6803-17]

4:40 pm: GPU-based algorithms for optimized visualization and crosstalk mitigation on a multiview display, Atanas Boev, Kalle Raunio, Atanas P. Gotchev, Karen O. Egiazarian, Tampere Univ. of Technology (Finland) . . . . . [6803-18]

3D Theatre. . . . . Mon. 5:20 to 7:20 pm

Session Chair: **Andrew J. Woods,** Curtin Univ. of Technology (Australia); **Chris Ward,** Lightspeed Design, Inc.

See large-screen examples of how 3D video is being used and produced around the world. Program will be announced at the conference.

SD&A Dinner . . . . . Mon. 7:20 to 10:30 pm

A no-host informal dinner open to all SD&A attendees will be held at a local San Jose restaurant. Details will be available at the conference.

Tuesday 29 January

Awards and Plenary Presentation . . Tues. 8:15 to 9:15 am

Digital Forensics

Hany Farid, Dartmouth College

SESSION 5

Conv. Ctr. Room A1/A8 . . . . . .Tues. 9:30 to 10:30 am

Autostereoscopic Displays I

Session Chair: **Vivian K. Walworth,** Jasper Associates

9:30 am: **An autostereoscopic display with high resolution and large number of view-zones**, Wei-Liang Hsu, Wu-Li Chen, Chy-Lin Wang, Chang-Shuo Wu, Jinn-Cherng Yang, Shu-Chuan Cheng, Chao-Hsu Tsai, Industrial Technology Research Institute (Taiwan). . . . . [6803-19]

9:50 am: **Large holographic displays as an alternative to stereoscopic displays**, Armin Schwerdtner, Ralf Häussler, Norbert Leister, SeeReal Technologies GmbH (Germany) . . . . . [6803-20]

10:10 am: **Multiview multiperspective time-multiplexed autostereoscopic display**, Vladimir B. Markov, Stephen A. Kupiec, MetroLaser, Inc.; Gurdail S. Sani, Darrel G. Hopper, Air Force Research Lab. . . . . [6803-21]

Coffee Break . . . . . 10:30 to 11:00 am

SESSION 6

Conv. Ctr. Room A1/A8 . . . . . Tues. 11:00 am to 12:00 pm

Autostereoscopic Displays II

Session Chair: **Neil A. Dodgson,** Univ. of Cambridge (United Kingdom)

11:00 am: **1-inch diagonal transflective 2D and 3D LCD with HDDP arrangement**, Shin-ichi Uehara, Tsutomu Hiroya, Hidenori Kusanagi, Kouji Shigemura, Hideki Asada, NEC LCD Technologies, Ltd. (Japan) . [6803-22]

11:20 am: **Time-multiplexing display module for high-density directional display**, Tsubasa Kanebako, Tokyo Univ. of Agriculture and Technology (Japan) . . . . . [6803-23]

11:40 am: **Technical solutions for a full-resolution autostereoscopic 2D/3D display technology**, Hagen Stolle, Armin Schwerdtner, Hagen Sahm, Jean-Christophe Olaya, Steffen Buschbeck, SeeReal Technologies GmbH (Germany) . . . . . [6803-24]

Lunch/Exhibition Break . . . . . 12:00 to 1:30 pm

SESSION 7

Conv. Ctr. Room A1/A8 . . . . . Tues. 1:30 to 3:10 pm

Digital 3D Stereoscopic Entertainment I

Session Chair: **Andrew J. Woods,** Curtin Univ. of Technology (Australia)

1:30 pm: **Beowulf 3D: a case study**, Rob Engle, Sony Pictures Imageworks, Inc. . . . . [6803-25]

1:50 pm: **Color management and color perception issues in a virtual reality theater**, Davide Gadia, Cristian Bonanomi, Alberto Viale, Univ. degli Studi di Milano (Italy); Maurizio Rossi, Politecnico di Milano (Italy); Alessandro Rizzi, Daniele Marini, Univ. degli Studi di Milano (Italy) [6803-26]

2:10 pm: **Dimensionalization: converting 2D films to 3D**, Andrew P. Van Pernis, Matt DeJohn, In-Three, Inc. . . . . [6803-27]

2:30 pm: **Original and creative stereoscopic film making**, Enrique Criado, Enxebre Entertainment (Spain) . . . . . [6803-28]

2:50 pm: **A systematized WYSIWYG pipeline for digital stereoscopic 3D film-making**, Robert Mueller, Chris Ward, Michal Hu_ák, Lightspeed Design, Inc.. . . . . [6803-29]

Coffee Break . . . . . 3:10 to 3:40 pm

SESSION 8

Conv. Ctr. Room A1/A8 . . . . . Tues. 3:40 to 5:20 pm

Digital 3D Stereoscopic Entertainment II

Session Chair: **Chris Ward,** Lightspeed Design, Inc.

3:40 pm: **The digital stereoscopic cinema: the 21st Century**, Lenny Lipton, Real D. . . . . [6803-30]

4:00 pm: **The compatibility of consumer plasma displays with time-sequential stereoscopic 3D visualization**, Andrew J. Woods, Kai S. Karvinen, Curtin Univ. of Technology (Australia) . . . . . [6803-31]

4:20 pm: **Next-generation cinema: the hybrid theater**, Ron Gillen, The Walt Disney Co. . . . . [6803-32]

4:40 pm: **Development of 3D video and 3D data services for T-DMB**, Jinwoong Kim, Namho Hur, Kugjin Yun, Hyun Lee, Electronics and Telecommunications Research Institute (South Korea) . . . . . [6803-33]

5:00 pm: **Toward 3D-IPTV: design and implementation of a stereoscopic and multiple-perspective video streaming system**, Goran Petrovic, Dirk Farin, Peter H. De With, Technische Univ. Eindhoven (Netherlands) . . . . . [6803-34]

Short Break . . . . . 5:20 pm

Interactive Paper and Demonstration Session-Tuesday

Exhibit Hall 1 . . . . . Tues. 5:30 to 8:30 pm

A symposium-wide demonstration session will be open to attendees 5:30 to 8:30 pm Tuesday evening in Room Exhibit Hall 1. Demonstrators will provide interactive, hands-on demonstrations of a wide-range of products related to Electronic Imaging. There will be a special section of the demonstration hall dedicated to Stereoscopic Displays and Applications.

Last year's demonstration session is believed to be the largest ever collection of electronic stereoscopic displays with over 30 being demonstrated. This year's session is expected to be equally impressive. There's no better way to witness so many stereoscopic displays than at this one session!

Posters . . . . . 5:30 to 7:00 pm

Posters will be placed on display after 9:00 am in Exhibit Hall 1. An interactive paper session, with authors present at their posters, will be held Tuesday evening, 5:30 to 7:00 pm.

Moving up to high-resolution (dual 1920x1080): acquiring and visualizing stereoscopic non-compressed images in real-time for dentist and medical applications, Raffaello Galli, ANDXOR Corp.[6803-46]

3D visualization of electrostatic fields on a helicopter in flight, John F. Dammann, Jr., David M. Hull, Army Research Lab.. . . . . [6803-47]

Programming standards for effective S-3D game development, Neil Schneider, Neil Schneider Productions Inc. (Canada) . . . . . [6803-48]

Disparity manipulation for stereo images and video, Chiao Wang, Alexander A. Sawchuk, Univ. of Southern California . . . . . [6803-49]

Study of a viewer tracking system with multiview 3D display, Jinn-Cherng Yang, Chang-Shuo Wu, Industrial Technology Research Institute (Taiwan); Chuan-Heng Hsiao, National Taiwan Univ. (Taiwan); Ming-Chieh Yang, Industrial Technology Research Institute (Taiwan); Wen-Chieh Liu, Vanung Univ. (Taiwan); Yi-Ping Hung, National Taiwan Univ. (Taiwan) . . . . . [6803-50]

Ghosting reduction method for color anaglyphs, Ah Jin Chang, Hye Jin Kim, Jae Wan Choi, Ki Yun Yu, Seoul National Univ. (South Korea)[6803-52]

A method of fabrication micro-retarder plates by a laser system, Langchin Lin, Ying-Chi Chen, Chao-Hsu Tsai, Kuen Lee, Industrial Technology Research Institute (Taiwan) . . . . . [6803-54]

Extraction of digital elevation map from parallel-perspective stereo mosaics, Prudhvi K. Gurram, Eli Saber, Harvey Rhody, Rochester Institute of Technology. . . . . [6803-56]

Robust image, depth, and occlusion generation from uncalibrated stereo, Robert-Paul M. Berretty, Rene Klein Gunnewiek, Koninklijke Philips Electronics N.V. (Netherlands) . . . . . [6803-57]

Integral photography using hexagonal fly's eye lens and fractional view, Kazuhisa Yanaka, Kanagawa Institute of Technology (Japan)[6803-58]

Integral imaging with reduced color moire pattern by using a slanted lens array, Yunhee Kim, Gilbae Park, Seong-Woo Cho, Jae-Hyun Jung, Byoungho Lee, Seoul National Univ. (South Korea); Yoonsun Choi, Moon-Gyu Lee, SAMSUNG Advanced Institute of Technology (South Korea) . . . . . [6803-59]

Flatbed-type omnidirectional three-dimensional display system using holographic lens array, Hideya Takahashi, Manabu Chikayama, Osaka City Univ. (Japan); Kenji Yamada, Hiroshima Institute of Technology (Japan) . . . . . [6803-60]

Stereoscopic see-through retinal projection head-mounted display, Hideya Takahashi, Shun Hirooka, Osaka City Univ. (Japan) . . . . . [6803-61]

3D display using motion parallax for long depth expression, Kazutake Uehira, Masahiro Suzuki, Kanagawa Institute of Technology (Japan) . . . . . [6803-62]

Interactive tools for image-based stereoscopic artwork, Efstathios Stavrakis, Margrit Gelautz, Technische Univ. Wien (Austria) . . . . . [6803-63]

Toward a stereoscopic encoder/decoder for digital cinema, Chaker M. Larabi, Rafik Bensalma, Univ. de Poitiers (France) . . . . . [6803-64]

Robust hand tracking using a skin-tone and depth joint probability model, Corey Manders, Farzam Farbiz, Jyh Herng Chong, Ka Yin Tang, Waqas Ahmed, A*STAR Institute for Infocomm Research (Singapore) . . . . . [6803-65]

Wednesday 30 January

Plenary Presentation . . . . . .Wed. 8:30 to 9:15 am

The making of "The Inner Life of the Cell"

David Bolinsky, Medical Director/Partner XVIVO Scientific Annimation

SESSION 9

Conv. Ctr. Room A1/A8 . . . . . Wed. 9:30 to 10:30 am

Medical Applications of Stereoscopy

Session Chair: **Michael A. Weissman,** TrueVision Systems

9:30 am: **A composition tool for creating comfortable stereoscopic images**, Katharina Quintus, Michael W. Halle, Brigham and Women's Hospital . . . . . [6803-35]

9:50 am: **Radiation therapy planning using a volumetric 3D display: PerspectaRAD**, Joshua Napoli, Sandy Stutsman, Actuality Systems, Inc.; James C.Chu, Xing Gong, Rush Univ. Medical Ctr.; Mark J. Rivard, Tufts-New England Medical Ctr.; Gene A. Cardarelli, Rhode Island Hospital; Thomas P. Ryan, Gregg E. Favalora, Actuality Systems, Inc. . . . . [6803-36]

10:10 am: **Teaching microsurgery to undergraduate medical students by means of high-definition stereo video microscopy: the Aachen "skills lab" experience**, Justus F. R.Ilgner, Jonas J. H.Park, Martin Westhofen, Univ. Hospital Aachen (Germany) . . . . . [6803-37]

Coffee Break . . . . . 10:30 to 11:00 am

Discussion Forum. . . . . Wed. 11:00 am to 12:00 pm

What's so great about Stereoscopic Displays, anyway?

Each year the SD&A discussion forum provides a venue for the lively discussion of a wide range of stereoscopic topics. This year's topic explores the WOW factor of stereoscopic displays and the aspects that are driving the growing usage of stereoscopic displays. A panel of industry specialists will lead the discussion.

Panel Moderator: **Lenny Lipton,** CTO, REAL D

Panel Members: **Sue R. Barry,** Professor of Cell Biology, Mount Holyoke College ("Stereo Sue" from the "Oliver Sacks" article); **Christopher W. Tyler,** Smith-Kettlewell Eye Research Institute; **Bernice E. Rogowitz,** IBM Thomas J. Watson Research Ctr.; **Chris Chinnock,** Insight Media

Lunch/Exhibition Break . . . . . 12:00 to 1:30 pm

SESSION 10

Conv. Ctr. Room A1/A8 . . . . . Wed. 1:30 to 2:10 pm

Stereoscopic Display Applications

Session Chair: **Neil A. Dodgson,** Univ. of Cambridge (United Kingdom)

1:30 pm: **Interactive stereoscopic viewer for cultural heritage**, Nobuaki Abe, Takashi Kawai, Waseda Univ. (Japan); Mami Kawaguchi, Makoto Ando, Toppan Printing Co., Ltd. (Japan) . . . . . [6803-38]

1:50 pm: **Stereo images from Space**, Massimo Sabbatini, European Space Agency (Netherlands) . . . . . [6803-39]

Short Break . . . . . 2:10 to 2:20 pm

SESSION 11

Conv. Ctr. Room A1/A8 . . . . . Wed. 2:20 to 3:20 pm

Keynote Presentation

Session Chair: **Andrew J. Woods,** Curtin Univ. of Technology (Australia)

2:20 pm: **Stereoscopic and Volumetric 3D Displays Based on DLP(r) Technology (Keynote)**, Larry J. Hornbeck, Texas Instruments Inc. . . . . [6803-40]

Texas Instruments' DLP® technology enables both stereoscopic and volumetric 3-D imaging for a variety of markets including entertainment, medical imaging and scientific visualization. For the first time in history, stereoscopic 3-D entertainment is commercially viable and being implemented on a large scale. DLP Cinema® projectors, equipped with enhanced stereoscopic functions, support a variety of 3-D digital cinema implementations. Today, approximately 20 percent of the more than 5,000 DLP Cinema systems currently installed take advantage of this 3-D functionality. In the consumer HDTV market, DLP technology now enables 3-D display modes in DLP HDTVs, with more than 16 models entering the market in 2007. Innovators in the display industry are using DLP technology to advance displays from 2-D image planes to 3-D volumetric space. Interactive, volumetric DLP displays provide real-time 3-D information needed to perform complicated tasks, such as targeting cancer tumors in medical radiation therapy. This informative talk is designed to further the understanding of the role of DLP technology in the 3-D world. Topics include an introduction to DLP technology; the status of DLP technology in the 3-D home entertainment and theatrical markets; the primary attributes of DLP technology that uniquely enable single-projector solutions for stereoscopic 3-D entertainment and volumetric imaging applications; how systems designers are leveraging these attributes to optimize for key application-specific requirements; and some thoughts on the future of stereoscopic 3-D entertainment.

Larry J. Hornbeck is a TI Fellow in DLP Products at Texas Instruments where he has worked since 1973. He is best known as the inventor of the Digital Micromirror Device (DMD), an optical semiconductor with as many as 2 million movable, individually-controllable micromirrors. Based on microelectromechanical systems (MEMS) concepts, the DMD manipulates light digitally and forms the foundation for DLP technology, used in a broad range of all-digital display products that are virtually immune to image degradation, including large-screen DLP HDTVs, DLP projectors and DLP Cinema projectors. Hornbeck holds 33 patents and has received numerous awards including an Emmy(r) Engineering Award from the Academy of Television Arts & Sciences. He is a Fellow of the IEEE, a Fellow of SPIE, and an elected member of the National Academy of Engineering.

Coffee Break . . . . . 3:20 to 3:50 pm

SESSION 12

Conv. Ctr. Room A1/A8 . . . . . .Wed. 3:50 to 5:30 pm

Integral 3D Imaging

Session Chair: **Shojiro Nagata,** Japan 3D Forum/InterVision (Japan)

3:50 pm: **Improvements in integral 3D image quality by reducing distortion errors**, Masahiro Kawakita, Hisayuki Sasaki, Jun Arai, Fumio Okano, NHK Science & Technical Research Labs. (Japan); Koya Suehiro, Yasuyuki Haino, Makoto Yoshimura, Masahito Sato, Victor Co. of Japan, Ltd. (Japan). . . . . [6803-41]

4:10 pm: **Coarse integral imaging and its applications**, Hideki Kakeya, Univ. of Tsukuba (Japan) . . . . . [6803-42]

4:30 pm: **Integral 3D projection TV using ultrahigh-definition D-ILA device**, Koya Suehiro, Makoto Yoshimura, Yasuyuki Haino, Masahito Sato, Victor Co. of Japan, Ltd. (Japan); Jun Arai, Masahiro Kawakita, Fumio Okano, NHK Science & Technical Research Labs. (Japan) . . . . . [6803-43]

4:50 pm: **Integral videography display with field sequential LCD**, Takafumi Koike, Hitachi, Ltd. (Japan) and The Univ. of Tokyo (Japan); Michio Oikawa, Miho Kobayashi, Hitachi, Ltd. (Japan) . . . . . [6803-44]

5:10 pm: Adaptive IP imaging with variable-focus lens array, Kensuke Ueda, The Univ. of Tokyo (Japan); Takafumi Koike, The Univ. of Tokyo (Japan) and Hitachi, Ltd. (Japan); Keita Takahashi, Takeshi Naemura, The Univ. of Tokyo (Japan) . . . . . [6803-45]

Closing Remarks . . . . . .Tues. 5:30 to 5:40 pm

Visit http://www.stereoscopic.org for late changes and further information on the SD&A 2008 conference program.

The Engineering Reality of Virtual Reality 2008

Conference Chair: **Ian E. McDowall,** Fakespace Labs., Inc.; **Margaret Dolinsky,** Indiana Univ.

Thursday 31 January

SESSION 1

Conv. Ctr. Room A7 . . . . . .Thurs. 8:30 to 9:50 am

Virtual Pathology and VR Medicine

Session Chair: **Ian E. McDowall,** Fakespace Labs., Inc.

8:30 am: **Enhancing the immersive reality of virtual simulators for easily accessible laparoscopic surgical training**, Kyra McKenna, Karen R. McMenemy, Stuart R. Ferguson, Queen's Univ. Belfast (United Kingdom); Alistair Dick, Stephen Potts, Royal Belfast Hospital for Sick Children (United Kingdom) . . . . . [6804-01]

8:50 am: **A study on the usability assessment of virtual reality for panic disorder treatment**, Jaelin Lee, Takashi Kawai, Nahoko Yoshida, Shuhei Izawa, Shinobu Nomura, Waseda Univ. (Japan); Douglas Eames, Hisanobu Kaiya, Tokyo Cyber Clinic (Japan) . . . . . [6804-02]

9:10 am: **An inquiry into VR interface design for medical training: VR-augmented anatomy tutorials for breast cancer**, Vassilis Charissis, Univ. of Glasgow (United Kingdom); Ben Ward, David Rowley, The Royal College of Surgeons of Edinburgh (United Kingdom); Martin Naef, Linda Brady, Univ. of Glasgow (United Kingdom) . . . . . [6804-03]

9:30 am: Effects of stereoscopic displays on human motor behavior in rehabilitation, Shih-Ching Yeh, Cy Chang, Chiao Wang, Alexander A. Sawchuk, Albert S. Rizzo III, Univ. of Southern California . . . . . [6804-04]

Coffee Break . . . . . 10:10 to 10:40 am

SESSION 2

Conv. Ctr. Room A7 . . . . . .Thurs. 10:20 to 11:50 am

Artists on Art, Music, and VR

Session Chair: **Margaret Dolinsky,** Indiana Univ.

10:20 am: **Painting with light: the evolution of optical camera models for the past, present, and next-generation artist**, Mark J. Prusten, Optical Design Labs.. . . . . [6804-06]

10:50 am: **VR and hallucination**, Diana R. Slattery, DomeWorks. [6804-08]

11:10 am: **Ontological implications of being in immersive virtual environments**, Jacquelyn F. Morie, Univ. of Southern California . [6804-09]

Lunch Break . . . . . 11:30 am to 1:00 pm

SESSION 3

Conv. Ctr. Room A7 . . . . . .Thurs. 1:00 to 2:50 pm

Industrial Sessions: VR Design

Session Chair: **Margaret Dolinsky,** Indiana Univ.

1:00 pm: **Spatial augmented reality on industrial CNC-machines**, Alex Olwal, Jonny Gustafsson, Christoffer Lindfors, Kungliga Tekniska Högskolan (Sweden) . . . . . [6804-11]

1:20 pm: **Voluble: a space-time diagram of the solar system**, Julieta C. Aguilera, Adler Planetarium and Astronomy Museum; Mark SubbaRao, Adler Planetarium and Astronomy Museum and The Univ. of Chicago . . . . . [6804-13]

1:400 pm: **Stereoscopic volumetric workstation collaborative telepresence for remote repair applications**, Cary D. Kornfeld, ETH Zürich (Switzerland) . . . . . [6804-14]

SESSION 4

Conv. Ctr. Room A7 . . . . . .Thurs. 2:00 to 4:10 pm

Scientific Reseaoning: I Think, Therefore, I VR

Session Chair: **Ian E. McDowall,** Fakespace Labs., Inc.

2:00 pm: **A new method for combining live action and computer graphics in stereoscopic 3D**, John A. Rupkalvis, StereoScope International; Ron Gillen, The Walt Disney Co. . . . . [6804-15]

2:20 pm: **Interaction using nearby and far projection surfaces with a body worn ProCam system**, Takeshi Kurata, National Institute of Advanced Industrial Science and Technology (Japan); Nobuchika Sakata, Osaka Univ. (Japan); Masakatsu Kourogi, Takashi Okuma, National Institute of Advanced Industrial Science and Technology (Japan); Yuichi Ohta, Univ. of Tsukuba (Japan). . . . . [6804-16]

2:40 pm: **Internet virtual studio: low-cost augmented reality system for WebTV**, Robert Sitnik, Slawomir Pasko, Maciej Karaszewski, Marcin Witkowski, Politechnika Warszawska (Poland) . . . . . [6804-17]

Coffee Break . . . . . 3:00 to 3:30 pm

3:30 pm: **Accurate camera calibration method specialized for virtual studio**, Hidehiko Okubo, Yuko Yamanouchi, Hideki Mitsumine, Takashi Fukaya, Seiki Inoue, Japan Broadcasting Corp. (Japan) . . . . . [6804-18]

3:50 pm: **A transportable and easily configurable multiprojector display system for distributed virtual reality applications**, Holly Grimes, Karen R. McMenemy, Stuart R. Ferguson, Queen's Univ. Belfast (United Kingdom) . . . . . [6804-19]

Three-Dimensional Image Capture and Applications 2008

Conference Chairs: **Brian D. Corner,** U.S. Army; **Masaaki Mochimaru,** National Institute of Advanced Industrial Science and Technology (Japan); **Robert Sitnik,** Politechnika Warszawska (Poland)

Monday 28 January

SESSION 1

Conv. Ctr. Room C1 . . . . . .Mon. 9:00 to 10:00 am

Hardware I

Session Chair: **Brian D. Corner,** U.S. Army Soldier Systems Ctr.

9:00 am: **Efficient acquisition and rendering of transparent and refractive objects using quotient image**, Keiichi Ochiai, Toshiya Nakaguchi, Norimichi Tsumura, Chiba Univ. (Japan); Kimiyoshi Miyata, National Museum of Japanese History (Japan); Yoichi Miyake, Chiba Univ. (Japan) . . . . . [6805-01]

9:20 am: **Hybrid contact and no-contact measurement system for industry**, Robert Sitnik, Politechnika Warszawska (Poland); Jerzy Sladek, Magdalena Kupiec, Politechnika Krakowska (Poland); Pawel Blaszczyk, Wojciech Zaluski, Politechnika Warszawska (Poland) . . . . . [6805-02]

9:40 am: **Inspection of microchip mounting tolerances by 3D vision**, Stefan Behler, Martin von Arx, Oerlikon Assembly Equipment (Switzerland) . . . . . [6805-03]

Coffee Break . . . . . 10:00 to 10:30 am

SESSION 2

Conv. Ctr. Room C1 . . . . . .Mon. 10:30 to 11:50 am

Hardware II

Session Chair: **Robert Sitnik,** Politechnika Warszawska (Poland)

10:30 am: **A flexible 3D vision system based on structured light for in-line product inspection**, Øystein Skotheim, Jens Thielemann, Jens O. Nygaard, SINTEF ICT (Norway); Thor Vollset, Tordivel AS (Norway)[6805-04]

10:50 am: **Rapid 360-degree imaging and stitching of 3D objects using multiple precision 3D cameras**, Thomas T. Lu, Jet Propulsion Lab.; Stuart S. Yin, The Pennsylvania State Univ. . . . . [6805-05]

11:10 am: **Rangefinding system using hybrid pattern projections**, Osamu Kagiyama, Yukio Sato, Keio Univ. (Japan) . . . . . [6805-06]

11:30 am: **Threat image projection (TIP) for 3D luggage explosive detection systems (EDS) utilizing computed tomography (CT)**, Yesna O. Yildiz, Douglas Q. Abraham, Analogic Corp.; Sos S. Agaian, The Univ. of Texas at San Antonio; Karen A. Panetta, Tufts Univ. . . . . [6805-08]

Lunch Break . . . . . 11:50 am to 1:40 pm

SESSION 3

Conv. Ctr. Room C1 . . . . . .Mon. 1:40 to 3:00 pm

3D Data Processing and Algorithms I

Session Chair: **Masaaki Mochimaru,** National Institute of Advanced Industrial Science and Technology (Japan)

1:40 pm: **Using hybrid approaches to solve challenges of shape from shading**, Ryan Murphy, Zoe J. Wood, California Polytechnic State Univ. . . . . [6805-09]

2:00 pm: **An automatic alignment technique for multiple rangefinders**, Kenta Fujiwara, Koichiro Yamauchi, Yukio Sato, Keio Univ. (Japan)[6805-10]

2:20 pm: **Depth maps: faster, higher, and stronger?**, Ianir A. Ideses, Barak Fishbain, Leonid P. Yaroslavsky, Tel Aviv Univ. (Israel) . . . . [6805-11]

2:40 pm: **Tight bounding box estimation in the case of volumetric 3D reconstruction**, Rachid Guerchouche, France Télécom R&D (France) . . . . . [6805-12]

Coffee Break . . . . . 3:00 to 3:30 pm

SESSION 4

Conv. Ctr. Room C1 . . . . . .Mon. 3:30 to 4:50 pm

3D Data Processing and Algorithms II

Session Chair: **Brian D. Corner,** U.S. Army Soldier Systems Ctr.

3:30 pm: **Improved linearity using harmonic error rejection in a full-field range imaging system**, Andrew D. Payne, Adrian A. Dorrington, Michael J. Cree, The Univ. of Waikato (New Zealand); Dale A. Carnegie, Victoria Univ. of Wellington (New Zealand) . . . . . [6805-13]

3:50 pm: **Denoising techniques for raw 3D data of TOF cameras based on clustering and wavelets**, Bernhard Moser, Software Competence Ctr. Hagenberg (Austria); Frank Bauer, Betina Heise, Johannes Kepler Univ. Linz (Austria); Volkmar V. Wieser, Software Competence Ctr. Hagenberg (Austria) . . . . . [6805-14]

4:10 pm: **Locating the source of topological error in reconstructed 3D models**, Eric Firestone, Craig Povey, Zoe J. Wood, California Polytechnic State Univ. . . . . [6805-15]

4:30 pm: **Using quality metrics with laser range scanners**, David K. MacKinnon, Victor C. Aitken, Carleton Univ. (Canada); Francois Blais, National Research Council Canada (Canada) . . . . . [6805-16]

Tuesday 29 January

Awards and Plenary Presentation . . Tues. 8:15 to 9:15 am

Digital Forensics

Hany Farid, Dartmouth College

SESSION 5

Conv. Ctr. Room C1 . . . . . .Tues. 9:30 to 10:10 am

Environment Scanning

Session Chair: **Brian D. Corner,** U.S. Army Soldier Systems Ctr.

9:30 am: **Estimating building floor plans from exterior using laser scanners**, Avideh Zakhor, Univ. of California/Berkeley . . . . . [6805-17]

9:50 am: **Reconstruction of 3D indoor model by scalable sensing using mobile robot**, Keisuke Fujimoto, The Univ. of Electro-Communications (Japan); Fumiko Beniyama, Toshio Moriya, Hitachi, Ltd. (Japan); Yasuichi Nakayama, The Univ. of Electro-Communications (Japan) . . . . . [6805-18]

Coffee Break . . . . . 10:10 to 10:40 am

SESSION 6

Conv. Ctr. Room C1 . . . . . .Tues. 10:40 to 11:40 am

3D Printing and Display

Session Chair: **Robert Sitnik,** Politechnika Warszawska (Poland)

10:40 am: **Optical implementation of improved resolution with intermediate-view reconstruction technique based on integral imaging**, Eun Soo Kim, Kwangwoon Univ. (South Korea). . . . . [6805-19]

11:00 am: **3D scene and model integration from HDR images for simultaneous generation of gaming and feature film content**, Mark J. Prusten, Optical Design Labs. . . . . [6805-20]

11:20 am: **Specifying color and maintaining colr accuracy for 3D printing**, Carinna E. Parraman, Brendan Reid, David Huson, Peter Walters, Univ. of the West of England (United Kingdom). . . . . [6805-21]

Lunch/Exhibition Break . . . . . 11:40 am to 1:10 pm

SESSION 7

Conv. Ctr. Room C1 . . . . . Tues. 1:20 to 3:00 pm

Human Scanning I

Session Chair: **Masaaki Mochimaru,** National Institute of Advanced Industrial Science and Technology (Japan)

1:20 pm: **A novel sensor system for 3D face scanning based on infrared coded light**, Daniel Modrow, Claudio Laloni, Guenter Doemens, Siemens AG (Germany); Gerhard Rigoll, Technische Univ. München (Germany) . . . . . [6805-22]

1:40 pm: **Comparison of Cyberware PX and PS 3D human head scanners**, Jeremy M. Carson, Brian D. Corner, Eric Crockett, U.S. Army Soldier Systems Ctr.; Peng Li, Science Applications International Corp.; Steven Paquette, U.S. Army Soldier Systems Ctr.. . . . . [6805-23]

2:00 pm: **Three-channel dynamic photometric stereo: a new method for 4D surface reconstruction and volume recovery**, Jan Walter Schroeder, Ruprecht-Karls-Univ. Heidelberg (Germany); Chi-Hsien Chen M.D., Taipei Medical Univ. (Taiwan); Thomas Wetter, Wolfram Schulze, Ruprecht-Karls-Univ. Heidelberg (Germany) . . . . . [6805-24]

2:20 pm: **A calibration method for multiple rangefinders system**, Hideto Kameshima, Yukio Sato, Keio Univ. (Japan) . . . . . [6805-25]

2:40 pm: **3D monitoring of the intraoperative brainshift by means of photogrammetry**, Nicola D'Apuzzo, Hometrica Consulting (Switzerland); Michael Verius, Leopold-Franzens-Univ. Innsbruck (Austria) . . . . [6805-26]

Coffee Break . . . . . 3:00 pm

SESSION 8

Conv. Ctr. Room C1 . . . . . Tues. 3:30 to 4:50 pm

Human Scanning II

Session Chair: **Brian D. Corner,** U.S. Army Soldier Systems Ctr.

3:30 pm: **An efficient stochastic framework for 3D human motion tracking**, Bingbing Ni, National Univ of Singapore (Singapore); Stefan Winkler, Ashraf A. B. M.Kassim, National Univ. of Singapore (Singapore) . . . . . [6805-27]

3:50 pm: **Feature-based cartoon expression generation**, Perrine B. Monjaux, Titus B. Zaharia, Françoise Prêteux, Institut National des Télécommunications (France) . . . . . [6805-28]

4:10 pm: **Precision person tracking for security under adverse lighting with smart stereo cameras**, Ron Buck, Tyzx, Inc. . . . . [6805-29]

4:30: Intelligent noncontact surgeon-computer interface using hand gesture recognition, Michael X. Zhao, Etonnet, Inc.; Thomas T. Lu, Jet Propulsion Lab.; Daniel L. Farkas, Cedars-Sinai Medical Ctr. . . . . [6805-30]

Interactive Paper and Symposium Demonstration Session-Tuesday

Conv. Ctr. Room C1 . . . . . Tues. 5:30 to 8:30 pm

A symposium-wide demonstration session will be open to attendees 5:30 to 8:30 pm Tuesday evening in Room Exhibit Hall 1. Demonstrators will provide interactive, hands-on demonstrations of a wide-range of products related to Electronic Imaging.

Posters . . . . . 5:30 to 7:00 pm

Posters will be placed on display after 9:00 am in Exhibit Hall 1. An interactive paper session, with authors present at their posters, will be held Tuesday evening, 5:30 to 7:00 pm.

Winnek 3D imaging technology, Harold D. Birdsall, Consultant. [6805-31]

Distributed RANSAC for 3D reconstruction, Mai Xu, Maria Petrou, Imperial College London (United Kingdom) . . . . . [6805-32]

Analyzing the influence of camera temperature on the image acquisition process, Holger Handel, Univ. Mannheim (Germany) [6805-33]

3D reconstruction and spatial auralization of the anta pintada de Antelas, Paulo Dias, Guilherme Campos, Vítor Santos, Ricardo Casaleiro, Ricardo Seco, Beatriz S. Santos, Univ. de Aveiro (Portugal) . . . . . [6805-34]

A study on conversion method from a three-dimensional model to an autostereoscopic image based on integral photography, Miwa Katayama, Yuichi Iwadate, Japan Broadcasting Corp. (Japan). . . [6805-35]

Synthesis of arbitrary viewpoint image from images of multiple weakly calibrated camera images using all in-focus rendering method, Yutaka Matsumura, Yuji Sakamoto, Hokkaido Univ. (Japan). . . . . [6805-36]

High-speed depth-mapping Axi-Vision camera with compact optical system, Tahito Aida, Takeshi Uragaki, Osaka City Univ. (Japan); Masahiro Kawakita, NHK Science & Technical Research Labs. (Japan); Yutaka Tomita, Ryoji Tsunoi, NHK Engineering Service Inc. (Japan); Yutaka Yahagi, Minoru Tanaka, Fujinon Corp. (Japan); Hideyuki Mitake, Shinko Electric Co., Ltd. (Japan); Masayuki Tawara, Visual Desing Co., Ltd. (Japan) . . [6805-37]

Small 3D image capturing system by TOMBO, Kenji Yamada, Hiroshima Institute of Technology (Japan) . . . . . [6805-38]

Priority depth fusion for the 2D to 3D conversion system, Yu-Lin Chang, Jing-Ying Chang, Yi-Min Tsai, Chia-Lin Lee, Liang-Gee Chen, National Taiwan Univ. (Taiwan). . . . . [6805-39]

Spatial calibration of an illumination dome, Lindsay W. MacDonald, London College of Communication (United Kingdom); Stuart Robson, Univ. College London (United Kingdom) . . . . . [6805-40]

Human Vision and Electronic Imaging XIII

Conference Chair: **Bernice E. Rogowitz,** IBM Thomas J. Watson Research Ctr.; **Thrasyvoulos N. Pappas,** Northwestern Univ.

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

Monday 28 January

SESSION 1

Conv. Ctr. Room A3 . . . . . .Mon. 10:30 to 11:50 am

Keynote Session: Celebrating 20 Years of HVEI I

Session Chair: **Bernice E. Rogowitz,** IBM Thomas J. Watson Research Ctr.; **Thrasyvoulos N. Pappas,** Northwestern Univ.

10:30 am: **Shapes, lightness (Keynote)**, Edward H. Adelson, Massachusetts Institute of Technology . . . . . [6806-01]

11:10 am: **The perception of simulated materials (Keynote)** *(Invited Paper)*, Holly E. Rushmeier, Yale Univ.. . . . . [6806-02]

Lunch Break . . . . . 11:50 am to 1:30 pm

SESSION 2

Conv. Ctr. Room A3 . . . . . .Mon. 1:30 to 3:30 pm

Keynote Session: Celebrating 20 Years of HVEI II

Session Chair: **Bernice E. Rogowitz,** IBM Corp.; **Thrasyvoulos N. Pappas,** Northwestern Univ.

1:30 pm: **Single photon detectors inspired by human vision (Keynote)** *(Invited Paper)*, Hooman Mohseni, Northwestern Univ. . . . . [6806-03]

2:10 pm: **The appearance of images (Keynote)** *(Invited Paper)*, Karen K. De Valois, Univ. of California/Berkeley. . . . . [6806-04]

2:50 pm: **Non euclidean spaces in virtual environments (Keynote)** *(Invited Paper)*, Kerstin Schill, Christoph Zetzsche, Univ. Bremen (Germany) . . . . . [6806-05]

Coffee Break . . . . . 3:30 to 4:00 pm

SESSION 3

Conv. Ctr. Room A3 . . . . . .Mon. 4:00 to 5:00 pm

Cortical Modeling and Representation

Session Chair: **Stanley A. Klein,** Univ. of California/Berkeley

4:00 pm: **Statistics of natural scenes and the cortical representation of color**, Guillermo A. Cecchi, A. Ravishankar Rao, IBM Thomas J. Watson Research Ctr. . . . . [6806-06]

4:20 pm: **Combining MRI and VEP imaging to isolate the temporal response of visual cortical areas**, Thom Carney, Justin Ales, Stanley A. Klein, Univ. of California/Berkeley . . . . . [6806-07]

4:40 pm: Mathematical modeling and neuroscience of metaphor, Hawley K. Rising III, Consultant . . . . . [6806-08]

Human Vision and Electronic Imaging Banquet . . . . . Mon. 7:00 to 10:30 pm

Tuesday 29 January

Awards and Plenary Presentation . . Tues. 8:15 to 9:15 am

Digital Forensics

Hany Farid, Dartmouth College

SESSION 4

Conv. Ctr. Room A3 . . . . . .Tues. 9:30 to 10:30 am

Perception and High Dynamic Range Displays

Session Chair: **Thrasyvoulos N. Pappas,** Northwestern Univ.

9:30 am: **Separating the effects of glare from simultaneous contrast in HDR images**, Alessandro Rizzi, Marzia Pezzetti, Univ. degli Studi di Milano (Italy); John J. McCann, McCann Imaging . . . . . [6806-09]

9:50 am: **Extending quality metrics to full luminance range images**, Tunç O. Aydin, Rafal Mantiuk, Hans P. Seidel, Max-Planck-Institut für Informatik (Germany). . . . . [6806-10]

10:10 am: **Perception-based contrast enhancement model for complex images in high-dynamic range**, Akiko Yoshida, Grzegorz Krawczyk, Karol Myszkowski, Hans-Peter Seidel, Max-Planck-Institut für Informatik (Germany). . . . . [6806-11]

Coffee Break . . . . . 10:30 to 11:00 am

SESSION 5

Conv. Ctr. Room A3 . . . . . .Tues. 11:00 to 11:40 am

Vision and Graphics

Session Chair: **Bernice E. Rogowitz,** IBM Thomas J. Watson Research Ctr.

11:00 am: **Perceived quality assessment of polygonal meshes using observer studies: a new extended protocol**, Samuel Silva, Beatriz Sousa Santos, Joaquim Madeira, Carlos M. Ferreira, Univ. de Aveiro (Portugal) . . . . . [6806-12]

11:20 am: **Dimensionality of visual complexity in computer graphics scenes**, Ganesh Ramanarayanan, Kavita Bala, James A. Ferwerda, Bruce Walter, Cornell Univ.. . . . . [6806-13]

Lunch/Exhibition Break . . . . . 11:40 am to 1:30 pm

SESSION 6

Conv. Ctr. Room A3 . . . . . Tues. 1:30 to 4:20 pm

Next-generation Interactive Environments

Session Chair: **Huib de Ridder,** Delft Univ. of Technology (Netherlands); **Adar Pelah,** The Univ. of York (United Kingdom)

1:30 pm: **Beyond image quality: designing engaging interactions with digital products**, Huib de Ridder, Delft Univ. of Technology (Netherlands); M. C. Rozendaal, Eindhoven Univ. of Technology (Netherlands). . [6806-14]

1:50 pm: **Impact of sound on image-evoked emotions**, Rene van Egmond, Delft Univ. of Technology (Germany) . . . . . [6806-15]

2:10 pm: **The impact of interactive manipulation on the recognition of objects**, Frank Meijer, Egon van den Broek, Univ. Twente (Netherlands) . . . . . [6806-16]

2:30 pm: **Virtual hand: a novel 3D tactile interface to virtual environments**, Bernice E. Rogowitz, Paul Borrel, IBM Thomas J. Watson Research Ctr. . . . . [6806-17]

2:50 pm: **Touch, tools, and telepresence: the role of embodiment in medical environments**, Wijnand A. IJsselsteijn, Andal Haans, Eindhoven Univ. of Technology (Netherlands) . . . . . [6806-57]

Coffee Break . . . . . 3:10 to 3:40 pm

3:40 pm: **Augmented reality in physical procedures**, Eigil Samset, Univ. of Oslo (Norway) . . . . . [6806-18]

4:00 pm: **Context-based pixelization model for artificial retina using saliency map and skin color detection algorithm**, Seonmi Jin, Seoul National Univ. (South Korea); Inbum Lee, Electronics and Telecommunications Research Institute (South Korea); Jooman Han, Kwangsuk Park, Seoul National Univ. (South Korea) . . . . . [6806-19]

Coffee Break . . . . . 3:30 to 4:00 pm

Discussion Session . . . . . Tues. 4:20 to 5:30 pm

Interactive Paper and Symposium Demonstration Session

Room: Conv. Ctr. Room A3 . . . . . Tues. 5:30 to 8:30 pm

A symposium-wide demonstration session will be open to attendees 5:30 to 8:30 pm Tuesday evening in Room Exhibit Hall 1. Demonstrators will provide interactive, hands-on demonstrations of a wide-range of products related to Electronic Imaging.

Posters . . . . . 5:30 to 7:00 pm

Posters will be placed on display after 9:00 am in Exhibit Hall 1. An interactive paper session, with authors present at their posters, will be held Tuesday evening, 5:30 to 7:00 pm.

Unsupervised color image segmentation using a dynamic color gradient thresholding algorithm, Guru Prashanth Balasubramanian, Eli Saber, Vladimir Misic, Eric Peskin, Rochester Institute of Technology; Mark Q. Shaw, Ranjit Bhaskar, Hewlett-Packard Co. . . . . [6806-51]

Comparison of eye tracking devices used on printed images, Barbora Kominkova, Univ. of Pardubice (Czech Republic) and Gjøvik Univ. College (Czech Republic) . . . . . [6806-52]

Evaluation of video quality models for multimedia, Kjell E. Brunnstrom, Acreo AB (Sweden); David S. Hands, British Telecommunications plc (United Kingdom); Filippo Speranza, Communications Research Ctr. Canada (Canada); Arthur A. Webster, National Telecommunications and Information Administration . . . . . [6806-53]

Designing caption production rules based on face, text, and motion detection, Claude Chapdelaine, Mario Beaulieu, Langis Gagnon, CRIM (Canada) . . . . . [6806-54]

Human-centered content-based image retrieval, Egon L. van den Broek, Univ. Twente (Netherlands); Thijs Kok, Theo E. Schouten, Louis G. Vuurpijl, Radboud Univ. Nijmegen (Netherlands) . . . . . [6806-55]

Extension of a human visual system model for display simulation, Cédric Marchessoux, Barco N.V. (Belgium); Alexis Rombaut, Univ. Gent (Belgium); Tom R. Kimpe, Barco N.V. (Belgium); Brecht Vermeulen, Piet M. Demeester, Univ. Gent (Belgium) . . . . . [6806-56]

Wednesday 30 January

Plenary Presentation . . . . . Wed. 8:30 to 9:15 am

The making of "The Inner Life of the Cell"

David Bolinsky, Medical Director/Partner XVIVO Scientific Annimation

SESSION 7

Conv. Ctr. Room A3 . . . . . .Wed. 9:30 am to 12:00 pm

Visual Attention and Gaze

Session Chair: **Bernice E. Rogowitz,** IBM Thomas J. Watson Research Ctr.

9:30 am: **Eye movements and perception (Keynote)**, Wilson S. Geisler, The Univ. of Texas at Austin. . . . . [6806-20]

10:10 am: **Hyperspectral image visualization based on a human visual model**, Hongqin Zhang, Honghong Peng, Mark D. Fairchild, Rochester Institute of Technology; Ethan D. Montag, Leuze Lumiflex, Inc. . . [6806-21]

Coffee Break . . . . . 10:30 to 11:00 am

11:00 am: **Dynamic visual attention: motion direction versus motion magnitude**, Alexandre Bur, Univ. of Neuchâtel (Switzerland); Pascal Wurtz, Rene Muri, Univ. Bern (Switzerland); Heinz Hugli, Univ. of Neuchâtel (Switzerland) . . . . . [6806-22]

11:20 am: **Motion saliency outweighs low-level features while watching videos**, Dwarikanath Mahapatra, Stefan Winkler, Shih-Cheng Yen, National Univ. of Singapore (Singapore) . . . . . [6806-23]

11:40 am: **Automatic video summarization driven by a spatio-temporal attention model**, Remi Barland, Abdelhakim Saadane, Univ. de Nantes (France). . . . . [6806-24]

Lunch/Exhibition Break . . . . . 12:00 to 1:30 pm

SESSION 8

Conv. Ctr. Room A3 . . . . . .Wed. 1:30 to 3:10 pm

Visual Perception in the Detection and Tracking of Objects

Session Chair: **Thrasyvoulos N. Pappas,** Northwestern Univ.

1:30 pm: **Inhibitory surround and grouping effects in human and computational multiple object tracking**, Ozgur Yilmaz, Univ. of Houston; Sadiye Guler, intuVision, Inc.; Haluk Ogmen, Univ. of Houston. . . [6806-25]

1:50 pm: **Effects of size, location, blur, and contrast on the perceived interest of objects in images**, Vamsi Kadiyala, Srivani Pinneli, Eric C. Larson, Damon M. Chandler, Oklahoma State Univ. . . . . [6806-26]

2:10 pm: **The pupil dilation response to visual detection**, Claudio M. Privitera, Univ. of California/Berkeley; Laura W. Renninger, The Smith-Kettlewell Eye Research Institute; Thom Carney, Stanley A. Klein, Univ. of California/Berkeley; Mario Aguilar, Teledyne Scientific Co. . . . . [6806-27]

2:30 pm: **The influence of image compression on target acquisition**, Ofer Hadar, Einav Goldberg, Einat Topchik, Ben-Gurion Univ. of the Negev (Israel) . . . . . [6806-28]

2:50 pm: **Adapting images to observers**, Kyle McDermott, Michael A. Webster, Univ. of Nevada/Reno . . . . . [6806-29]

Discussion and Art Museum Trip Wed. 3:10 to 5:00 pm

SESSION 9

Conv. Ctr. Room A3 . . . . . .Wed. 5:00 to 6:20 pm

Art, Aesthetics, and Perception

Session Chair: **Elena A. Fedorovskaya,** Eastman Kodak Co.; **Hawley K. Rising,** Consultant

5:00 pm: **Peceptual rendering of HDR in painting and photography**, John J. McCann, McCann Imaging . . . . . [6806-30]

5:20 pm: **The art of non-photographic imaging**, Nathan Moroney, Hewlett-Packard Co. . . . . [6806-31]

5:40 pm: **Aesthetics versus utility in electronic imaging**, Floris L. van Nes, Technische Univ. Eindhoven (Netherlands) . . . . . [6806-32]

6:00 pm: On the role of artistic intent of image quality, Scott J. Daly, Sharp Labs. of America, Inc.. . . . . [6806-33]

Thursday 31 January

SESSION 10

Conv. Ctr. Room A3 . . . . . .Thurs. 8:40 to 11:50 am

Image Statistics, Quality, and Compression

Session Chair: **Bernice E. Rogowitz,** IBM Thomas J. Watson Research Ctr.

8:40 am: **On performance of human visual system based image quality assessment metric using wavelet domain**, Alexandre Ninassi, Thomson R&D France (France) and Univ. de Nantes (France); Olivier Le Meur, Thomson R&D France (France); Patrick Le Callet, Dominique Barba, Univ. de Nantes (France) . . . . . [6806-34]

9:00 am: **Using gaze information to improve image difference metrics**, Marius Pedersen, Jon Y. Hardeberg, Peter Nussbaum, Gjøvik Univ. College (Norway) . . . . . [6806-35]

9:20 am: **The effect of lightness scaling on the perceived color quality of compressed digital videos**, Chin Chye Koh, Video Products Group, Inc.; John M. Foley, Sanjit K. Mitra, Univ. of California/Santa Barbara. . . . . [6806-36]

9:40 am: **Image cluster compression using texture databases**, Matthias Kramm, Technische Univ. München (Germany). . . . . [6806-37]

Coffee Break . . . . . 10:00 to 10:30 am

10:30 am: **Image mapping using local and global statistics**, Yuanzhen Li, Edward H. Adelson, Massachusetts Institute of Technology. . . . . [6806-38]

10:50 am: **Analyzing the role of visual structure in the recognition of natural image content with multiscale SSIM**, David M. Rouse, Sheila S. Hemami, Cornell Univ. . . . . [6806-39]

11:10 am: **A psychovisual experiment on the use of Gibbs potential for the quality assessment of geometrically distorted images**, Angela D'Angelo, Mirco Pacitto, Mauro Barni, Univ. degli Studi di Siena (Italy) . . . . . [6806-40]

11:30 am: **Structure-preserving properties of bilevel image compression**, Matthew G. Reyes, Univ. of Michigan; Xiaonan Zhao, Northwestern Univ.; David L. Neuhoff, Univ. of Michigan; Thrasyvoulos N. Pappas, Northwestern Univ. . . . . [6806-41]

Lunch Break . . . . . 11:50 am to 1:40 pm

SESSION 11

Conv. Ctr. Room A3 . . . . . .Thurs. 1:40 to 3:00 pm

Higher Level Issues in Image Quality

Session Chair: **Thrasyvoulos N. Pappas,** Northwestern Univ.

1:40 pm: **Subjective responses to constant and variable quality video**, David S. Hands, British Telecommunications plc (United Kingdom)[6806-42]

2:00 pm: **Improving visual content accessibility for low vision in MPEG-21 framework**, Jongsoo Choi, Seungji Yang, Yong Man Ro, Information and Communications Univ. (South Korea); Soo-Jun Park, Electronics and Telecommunications Research Institute (South Korea) . . . . . [6806-43]

2:20 pm: **The color preference control based on two-color combinations**, Jiyoung Hong, Youngshin Kwak, DuSik Park, Chang-Yeong Kim, SAMSUNG Advanced Institute of Technology (South Korea) [6806-44]

2:40 pm: **Effect of blackness level on visual impression of color images**, Tetsuya Eda, Yoshiki Koike, Sakurako Matsushima, Miyoshi Ayama, Utsunomiya Univ. (Japan) . . . . . [6806-45]

Coffee Break . . . . . 3:00 to 3:30 pm

SESSION 12

Conv. Ctr. Room A3 . . . . . .Thurs. 3:30 to 5:10 pm

Perception, Resolution, and Display

Session Chair: **Ramin Samadani,** Hewlett-Packard Labs.; **Thrasyvoulos N. Pappas,** Northwestern Univ.

3:30 pm: **Adaptation of document images to display constraints** *(Invited Paper)*, Kathrin Berkner, Berna Erol, Ricoh Innovations, Inc.. . . . . [6806-46]

3:50 pm: **Representative image thumbnails: automatic and manual**, Ramin Samadani, Hewlett-Packard Labs.; Tim Mauer, Berfanger David, Jim H. Clark, Brett Bausk, Hewlett-Packard Co. . . . . [6806-47]

4:10 pm: **Influence of camera and in-scene motion on perceived video quality in MPEG-2 adaptive coding**, Nele N. Van den Ende, Philips Research Labs. (Netherlands) and Technische Univ. Eindhoven (Netherlands); Carmen Wijermans, Lydia Meesters, Technische Univ. Eindhoven (Germany); Jettie Hoonhout, Philips Research Labs. (Netherlands) . . . . . [6806-48]

4:30 pm: **A quality metric for use with frame-rate based bandwidth adaptation algorithms**, Matthias Krause, Michael v. Hartskamp, Emile Aarts, Koninklijke Philips Electronics N.V. (Netherlands) . . . . . [6806-49]

4:50 pm: **Digital image resolution and visual acuity,** Kenichiro Masaoka, Masayuki Sugawara, Yuji Nojiri, Japan Broadcasting Corp. (Japan); Takahiro Niida, International Univ. of Health and Welfare (Japan). [6806-50]

Discussion Session . . . . . .Thurs. 5:10 to 6:00 pm

Color Imaging XIII: Processing, Hardcopy, and Applications

Conference Chairs: **Reiner Eschbach,** Xerox Corp.; **Gabriel G. Marcu,** Apple Computer, Inc.; **Shoji Tominaga,** Chiba Univ. (Japan)

Program Committee: **A. Ufuk Agar,** Garanti Technology (Turkey); **Jan P. Allebach,** Purdue Univ.; **Jan Bares,** NexPress Solutions, LLC; **Phil J. Green,** London College of Communication (United Kingdom); **Roger David Hersch,** École Polytechnique Fédérale de Lausanne (Switzerland); **Patrick Gerald Herzog,** Color AIXperts GmbH (Germany); **Choon-Woo Kim,** Inha Univ. (South Korea); **Michael A. Kriss,** MAK Consultants; **Fritz Lebowsky,** STMicroelectronics (France); **Shaun T. Love,** Lexmark International, Inc.; **Alessandro Rizzi,** Univ. degli Studi di Milano (Italy); **Chris Tuijn,** Agfa-Gevaert Group (Belgium)

Tuesday 29 January

Awards and Plenary Presentation . . Tues. 8:15 to 9:15 am

Digital Forensics

Hany Farid, Dartmouth College

SESSION 1

Conv. Ctr. Room C4 . . . . . .Tues. 9:30 to 10:20 am

Color Appearance

Session Chair: **Reiner Eschbach,** Xerox Corp.

9:30 am: **Beyond the locus of spectrally pure colors** *(Invited Paper)*, Mark D. Fairchild, Rochester Institute of Technology . . . . . [6807-01]

10:00 am: **Color gamuts in dim illumination**, John J. McCann, McCann Imaging. . . . . [6807-02]

Coffee Break . . . . . 10:20 to 10:50 am

SESSION 2

Conv. Ctr. Room C4 . . . . . Tues. 10:50 am to 12:10 pm

High Dynamic Range Imaging

Session Chair: **John J. McCann,** McCann Imaging

10:50 am: **Multispectral high-dynamic-range imaging**, Johannes Brauers, Nils Schulte, André A. Bell, Til Aach, RWTH Aachen (Germany) . . [6807-04]

11:10 am: **Efficient HDR image acquisition using estimation of scenic dynamic range in camera images with different exposures**, Dae-Keun Park, Kee-Hyon Park, Tae-Hyoung Lee, Yeong-Ho Ha, Kyungpook National Univ. (South Korea) . . . . . [6807-05]

11:30 am: **An improved method to estimate specular reflectance parameters for high-dynamic-range imaging**, Shiying Li, Hunan Univ. (China) and Tohoku Univ. (Japan); Koichiro Deguchi, Tohoku Univ. (Japan); Renfa Li, Hunan Univ. (China); Yoshitsugu Manabe, Kunihiro Chihara, Nara Institute of Science and Technology (Japan) . . . . . [6807-06]

11:50 am: **Image selection: no longer a dilemma?**, Reiner Fageth, CeWe Color AG & Co. OHG (Germany); Susanne Boll, Carl von Ossietzky Univ. Oldenburg (Germany) . . . . . [6807-28]

Lunch/Exhibition Break . . . . . 12:10 to 1:30 pm

SESSION 3

Conv. Ctr. Room C4 . . . . . Tues. 1:30 to 3:10 pm

Displays I

Session Chair: **Choon-Woo Kim,** Inha Univ. (South Korea)

1:30 pm: **Simulating multiprimary LCDs on standard tri-stimulus LC displays**, Fritz Lebowsky, STMicroelectronics (France); Katrin Vonneilich, Thomas Bonse, Fachhochschule Düsseldorf (Germany) . . . . . [6807-07]

1:50 pm: **Perceptually optimal boundaries for wide color gamuts**, Justin L. Laird, Koninklijke Philips Electronics N.V. (Netherlands); Ingrid Heynderickx, Philips Research Labs. (Netherlands) and Delft Univ. of Technology (Netherlands). . . . . [6807-08]

2:10 pm: **An inverse display color characterization model based on an optimized geometrical structure**, Jean-Baptiste Thomas, Univ. de Bourgogne (France) and Gjøvik Univ. College (Norway); Philippe Colantoni, Ctr. de Recherche et de Restauration des Musées de France (France); Jon Y. Hardeberg, Gjøvik Univ. College (Norway); Irene Foucherot, Pierre Gouton, Univ. de Bourgogne (France) . . . . . [6807-09]

2:30 pm: **RGBW color separation for field-sequential color LCDs**, Pei-Li Sun, Shih Hsin Univ. (Taiwan) . . . . . [6807-10]

2:50 pm: **Color image coding for digital projection and D-Cinema**, David A. LeHoty, ASML MaskTools Inc.. . . . . [6807-11]

Coffee Break . . . . . 3:10 to 3:40 pm

SESSION 4

Conv. Ctr. Room C4 . . . . . Tues. 3:40 to 5:20 pm

Displays II

Session Chair: **Fritz Lebowsky,** STMicroelectronics (France)

3:40 pm: **Subjective assessment approaches for color reproduction devices**, Ludovic Quintard, Univ. de Poitiers (France) and Laboratoire Nationale d'Essai (France); Chaker M. Larabi, Univ. de Poitiers (France). . . . . [6807-12]

4:00 pm: **Modeling perceived LCD moving image representation**, Carsten Dolar, Hartmut Schröder, Univ. Dortmund (Germany) . . . [6807-13]

4:20 pm: **Color correction of projected image on color screen for mobile beam-projector**, Chang-Hwan Son, Soo-Jin Sung, Yeong-Ho Ha, Kyungpook National Univ. (South Korea). . . . . [6807-14]

4:40 pm: **Normalization factors in color space conversion**, David A. LeHoty, ASML MaskTools Inc.. . . . . [6807-15]

5:00 pm: An LCD driver with on-chip frame buffer and 3-times image compression, Star Sung, Taiwan Imaging Tek Corp. (Taiwan) and STMicroelectronics (France); Jacques Baudia, STMicroelectronics (France). . . . . [6807-16]

Interactive Paper and Symposium Demonstration Session-Tuesday

Conv. Ctr. Room C4 . . . . . Tues. 5:30 to 8:30 pm

A symposium-wide demonstration session will be open to attendees 5:30 to 8:30 pm Tuesday evening in Room Exhibit Hall 1. Demonstrators will provide interactive, hands-on demonstrations of a wide-range of products related to Electronic Imaging.

Posters . . . . . 5:30 to 7:00 pm

Posters will be placed on display after 9:00 am in Exhibit Hall 1. An interactive paper session, with authors present at their posters, will be held Tuesday evening, 5:30 to 7:00 pm.

Reflectance model for color halftone prints, Yi-Xin Zhang, Dongjuan Zang, Jinghuan Ge, Jiangnan Univ. (China) . . . . . [6807-46]

Automatic digital restoration of color faded images and motion films, Aniruddha Mandsorwale, Sumana Gupta, Indian Institute of Technology Kanpur (India) . . . . . [6807-47]

Study of watermarking algorithm based on multiscale error diffusion, Xiaoxia Wan, HanYing Wu, Chaohua Gan, Wuhan Univ. (China) . . [6807-49]

Rendering high-dynamic-range images based on image color appearance models, Xiaoxia Wan, Jie Li, Chaohua Gan, Wuhan Univ. (China) . . . . . [6807-50]

Color component prediction in multispectral space based on independent component analysis, Faqiang Xu, Xiaoxia Wan, Wuhan Univ. (China) . . . . . [6807-51]

Wednesday 30 January

Plenary Presentation . . . . . Wed. 8:30 to 9:15 am

The making of "The Inner Life of the Cell"

David Bolinsky, Medical Director/Partner XVIVO Scientific Annimation

SESSION 5

Conv. Ctr. Room C4 . . . . . .Wed. 9:30 to 10:30 am

Applications I

Session Chair: **Shoji Tominaga,** Chiba Univ. (Japan)

9:30 am: **Smoothness of color transforms**, Phil J. Green, London College of Communication (United Kingdom) . . . . . [6807-17]

9:50 am: **Digital watermarking of images using compression and color saturation processing**, Shi-Cheng Chao, Ta Hwa Institute of Technology (Taiwan); Hau-Ming Huang, Tung Nan Institute of Technology (Taiwan); Chi-Yao Chen, Institute of Nuclear Energy Research (Taiwan). . . . . [6807-18]

10:10 am: **Creating variable data UV signals for security applications**, Reiner Eschbach, Raja Bala, Shen Wang, Xerox Corp. . . . . [6807-19]

Coffee Break . . . . . 10:30 to 11:00 am

SESSION 6

Conv. Ctr. Room C4 . . . . . .Wed. 11:00 am to 12:00 pm

Applications for Art

Session Chair: **Phil J. Green,** London College of Communication (United Kingdom)

11:00 am: **An application of projection imaging systems for museum exhibitions**, Kimiyoshi Miyata, National Museum of Japanese History (Japan); Takahiro Takiguchi, Toshiya Nakaguchi, Norimichi Tsumura, Yoichi Miyake, Chiba Univ. (Japan). . . . . [6807-20]

11:20 am: **Surface reflection properties of oil paints under various conditions**, Shoji Tominaga, Chiba Univ. (Japan); Shogo Nishi, Osaka Electro-Communication Univ. (Japan) . . . . . [6807-21]

11:40 am: **Color in flux: describing color in art**, Carinna E. Parraman, Ctr. for Fine Print Research (United Kingdom) . . . . . [6807-22]

Lunch/Exhibition Break . . . . . 12:00 to 1:30 pm

SESSION 7

Conv. Ctr. Room C4 . . . . . .Wed. 1:30 to 3:10 pm

Color Vision and Image Acquisition

Session Chair: **Gabriel G. Marcu,** Apple Computer, Inc.

1:30 pm: **Color universal design**, Yasuyo G. Ichihara, Kogakuin Univ. (Japan); Masataka Okabe, Jikei Medical Univ. (Japan); Koichi Iga, Yosuke Tanaka, Kohei Musha, Color Universal Design Organization (Japan); Kei Ito, The Univ. of Tokyo (Japan). . . . . [6807-23]

1:50 pm: **Investigation on the relationship between cone sensitivities and color in context for an organic-based artificial retina**, Alessandro Rizzi, Davide Gadia, Daniele Marini, Univ. degli Studi di Milano (Italy); Maria Rosa Antognazza, Stefano Perissinotto, Guglielmo Lanzani, Politecnico di Milano (Italy) . . . . . [6807-24]

2:10 pm: **Gray-preserving color correction without exposure value information**, Jianping Zhou, Texas Instruments Inc.. . . . . [6807-25]

2:30 pm: **A raw data compression for digital cameras with a color filter array**, Masayuki Tanaka, Masatoshi Okutomi, Tokyo Institute of Technology (Japan) . . . . . [6807-26]

2:50 pm: **Convert a low-cost sensor to a colorimeter using an improved regression method**, Yifeng Wu, Hewlett-Packard Co. . . . . [6807-27]

Coffee Break . . . . . 3:10 to 3:40 pm

SESSION 8

Conv. Ctr. Room C4 . . . . . .Wed. 3:40 to 4:40 pm

Applications II

Session Chair: **Alessandro Rizzi,** Univ. degli Studi di Milano (Italy)

3:40 pm: **Improving color saturation for perceptually rendered color managed images**, Gabriel G. Marcu, Apple Computer, Inc. . . . . [6807-29]

4:00 pm: **Adaptive sharpening of photos**, Ilia V. Safonov, Michael N. Rychagov, Samsung Research Ctr. (Russia); KiMin Kang, SAMSUNG Electronics Co., Ltd. (South Korea); Sang Ho Kim, Samsung Electronics Digital Media R&D Ctr. (South Korea) . . . . . [6807-30]

4:20 pm: **A real-time error-free color-correction facility for digital consumers**, Rodney Shaw, White Rose Digital. . . . . [6807-31]

Automatic red eye correction and its quality metric, Ilia V. Safonov, Michael N. Rychagov, Samsung Research Ctr. (Russia); KiMin Kang, SAMSUNG Electronics Co., Ltd. (South Korea); Sang Ho Kim, Samsung Electronics Digital Media R&D Ctr. (South Korea) . . . . . [6807-32]

Thursday 31 January

SESSION 9

Conv. Ctr. Room C4 . . . . . .Thurs. 8:40 to 10:00 am

Printer Characterization

Session Chair: **Chris Tuijn,** Agfa-Gevaert Group (Belgium)

8:40 am: **Color characterization for inkjet copiers**, Huanzhao Zeng, Hewlett-Packard Co. . . . . [6807-33]

9:00 am: **Spatial nonuniformity correction for color printer calibration**, Shen-Ge Wang, Xerox Corp. . . . . [6807-34]

9:20 am: **Wrapping-based color measurement estimation across media for efficient printer characterization**, Pau Soler, Marti Maria, Hewlett-Packard Co. (Spain) . . . . . [6807-35]

9:40 am: **White ink measurement methods**, Johanna Kleinmann, Inca Digital Printers, Ltd. (United Kingdom); Phil Green, London College of Communication (United Kingdom) . . . . . [6807-36]

Coffee Break . . . . . 10:00 to 10:30 am

SESSION 10

Conv. Ctr. Room C4 . . . . . Thurs. 10:30 am to 12:00 pm

Printing

Session Chair: **Michael A. Kriss,** Consultant

10:30 am: **Ink and paper** *(Invited Paper)*, Jerker Wågberg, MoRe Research (Sweden). . . . . [6807-37]

11:00 am: **Dependencies between soft proofing and prepress production**, Chris Tuijn, Agfa-Gevaert Group (Belgium) . . . . . [6807-38]

11:20 am: **Laser print quality: practically continuous addressability**, Mani Fischer, Doron Shaked, Gidi Amir, Craig Breen, Dror Kella, Hewlett-Packard Labs. (Israel). . . . . [6807-39]

11:40 am: **Controlled and uncontrolled viewing conditions in the evaluation of prints**, Silvia Zuffi, Consiglio Nazionale delle Ricerche (Italy); Reiner Eschbach, Xerox Corp.; Carla Brambilla, Consiglio Nazionale delle Ricerche (Italy); Alessandro Rizzi, Univ. degli Studi di Milano (Italy)[6807-40]

Lunch Break . . . . . 12:00 to 1:30 pm

SESSION 11

Conv. Ctr. Room C4 . . . . . .Thurs. 1:30 to 2:30 pm

Printing and Halftoning

Session Chair: **Reiner Eschbach,** Xerox Corp.

1:30 pm: **Estimating printer misregistration from color shifts: a mew paradigm**, Jon S. McElvain, Vishal Monga, Charles Hains, Xerox Corp.; Manu Parmar, Stanford Univ.. . . . . [6807-41]

1:50 pm: **An efficient method for color trapping**, Haiyin Wang, Mireille Boutin, J. Trask, Jan P. Allebach, Purdue Univ.. . . . . [6807-42]

2:10 pm: **Simplified ink spreading equations for CMYK halftone prints**, Thomas Bugnon, Roger D. Hersch, Ecole Polytechnique Fédérale de Lausanne (Switzerland) . . . . . [6807-45]

Image Quality and System Performance V

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

Program Committee: **Peter D. Burns,** Eastman Kodak Co.; **Majed Chambah,** Univ. de Reims Champagne-Ardenne (France); **Luke C. Cui,** Lexmark International, Inc.; **Mark D. Fairchild,** Rochester Institute of Technology; **Dirk W. Hertel,** Sensata; **Robin Jenkin,** Rhevision Technology, Inc.; **Sang Ho Kim,** SAMSUNG Electronics Co., Ltd. (South Korea); **Lindsay William MacDonald,** London College of Communication (United Kingdom); **Yoichi Miyake,** Chiba Univ. (Japan); **Nathan Moroney,** Hewlett-Packard Co.; **Göte S. Nyman,** Univ. of Helsinki (Finland); **D. René Rasmussen,** Xerox Corp.; **Sophie Triantaphillidou,** Univ. of Westminster (United Kingdom); **Eric K. Zeise,** Eastman Kodak Co.

Monday 28 January

SESSION 1

Conv. Ctr. Room A7 . . . . . .Mon. 8:30 to 10:00 am

Image Quality Standards for Capture, Print, and Display

Session Chair: **Susan P. Farnand,** Rochester Institute of Technology

8:30 am: **W1.1 development update: appearance-based image quality standards for printers** *(Invited Paper)*, Eric K. Zeise, Eastman Kodak Co.; Edul N. Dalal, Xerox Corp.; Ann L. McCarthy, Lexmark International, Inc.; Yee S. Ng, Eastman Kodak Co.; D. René Rasmussen, Xerox Corp.; Donald R. Williams, Consultant . . . . . [6808-01]

9:00 am: **ISO SC28 WG4 characterization of reflection scanner uniformity and adjacency effects.**, Eric K. Zeise, Eastman Kodak Co.; William C. Kress, Toshiba America Information Systems, Inc.; Donald R. Williams, Consultant. . . . . [6808-02]

9:20 am: **A comparison of digital camera resolution metrology protocols proposed under ISO 12233, revision 2**, Donald R. Williams, Image Science Associates; Dietmar Wüller, Image Engineering (Germany); Hideaka Yoshida, Olympus Corp. (Japan); Kevin J. Matherson, Hewlett-Packard Co.; Paul M. Hubel, Foveon, Inc.. . . . . [6808-03]

9:40 am: **Sampling efficiency in digital camera performance standards**, Peter D. Burns, Carestream Health, Inc.; Don Williams, Image Science Associates . . . . . [6808-04]

Coffee Break . . . . . 10:00 to 10:30 am

SESSION 2

Conv. Ctr. Room A7 . . . . . .Mon. 10:30 am to 12:10 pm

Image Quality Attributes Characterization and Measurement: Printer

Session Chair: **Eric K. Zeise,** Eastman Kodak Co.

10:30 am: **Evaluation of characterization methods of printer MTF**, Nicolas Bonnier, Océ Print Logic Technologies (France). . . . . [6808-05]

10:50 am: **Printer resolution measurement based on slanted edge method**, Yousun Bang, Sang Ho Kim, Don Chul Choi, Samsung Electronics Digital Media R&D Ctr. (South Korea) . . . . . [6808-06]

11:10 am: **Robust estimation of print mottle**, Zhigang Z. Fan, Wencheng Wu, Edul N. Dalal, D, René Rasmussen, Xerox Corp. . . . . [6808-07]

11:30 am: **Characterization of mottle and low-frequency print defects**, Ahmed H. Eid, Brian E. Cooper, Ed Rippetoe, Lexmark International, Inc. . . . . [6808-09]

11:50 am: **Development of softcopy environment for primary color banding visibility assessment**, Byungseok Min, Zygmunt Pizlo, Jan P. Allebach, Purdue Univ.. . . . . [6808-10]

Lunch Break . . . . . 12:10 to 1:40 pm

SESSION 3

Conv. Ctr. Room A7 . . . . . .Mon. 1:40 to 3:00 pm

Image Quality Attributes Characterization and Measurement: Capture and Display

Session Chair: **Peter D. Burns,** Carestream Health, Inc.

1:40 pm: **Motion blur perception in various conditions of presented edge**, Shinji Nakagawa, Toshiya Nakaguchi, Norimichi Tsumura, Yoichi Miyake, Chiba Univ. (Japan). . . . . [6808-11]

2:00 pm: **Noise estimation from a single image taken by specific digital camera using a priori information**, Hitomi Ito, Kenji Kamimura, Norimichi Tsumura, Toshiya Nakaguchi, Chiba Univ. (Japan); Hideto Motomura, Matsushita Electric Industrial Co., Ltd. (Japan); Yoichi Miyake, Chiba Univ. (Japan) . . . . . [6808-12]

2:20 pm: **Matching image color from different cameras**, Mark D. Fairchild, David R. Wyble, Rochester Institute of Technology; Garrett M. Johnson, Apple, Inc. and Rochester Institute of Technology . . . . [6808-13]

2:40 pm: **Predicting compressed image quality using a modular image difference model**, Mary Orfanidou, Sophie Triantaphillidou, Elizabeth Allen, Univ. of Westminster (United Kingdom) . . . . . [6808-14]

Coffee Break . . . . . 3:00 to 3:30 pm

SESSION 4

Conv. Ctr. Room A7 . . . . . .Mon. 3:30 to 5:30 pm

Subjective Image Quality Evaluation Methodology

Session Chair: **Mark D. Fairchild,** Rochester Institute of Technology

3:30 pm: **Perceptual color difference metric based on the perception threshold**, Vincent Rosselli, Mohamed-Chaker Larabi, Univ. de Poitiers (France). . . . . [6808-15]

3:50 pm: **Anchored paired comparisons**, Edul N. Dalal, John C. Handley, Wencheng Wu, Jing Wang, Xerox Corp. . . . . [6808-16]

4:10 pm: **Online image quality surveys based on response time**, D. René Rasmussen, Xerox Corp. . . . . [6808-18]

4:30 pm: **Framework for modeling visual printed image quality from the paper perspective**, Pirkko T. Oittinen, Helsinki Univ. of Technology (Finland); Heikki A. Kälviäinen, Lappeenranta Univ. of Technology (Finland); Göte S. Nyman, Univ. of Helsinki (Finland); Risto Ritala, Tampere Univ. of Technology (Finland) . . . . . [6808-17]

4:50 pm: **Forming valid scales for subjective video quality measurement based on a hybrid qualitative/quantitative methodology**, Toni Virtanen, Jenni E. Radun, Paul Lindroos, Sini Suomi, Timo Säämänen, Univ. of Helsinki (Finland); Tero Vuori, Mikko Vaahteranoksa, Nokia Research Ctr. (Finland); Göte S. Nyman, Univ. of Helsinki (Finland). . . . . [6808-19]

5:10 pm: **Measuring multivariate subjective image quality for still and video cameras and image processing system components**, Göte S. Nyman, Tuomas M. Leisti, Paul Lindroos, Jenni E. Radun, Sini Suomi, Toni Virtanen, Univ. of Helsinki (Finland); Tero Vuori, Jean-Luc Olives, Nokia Research Ctr. (Finland). . . . . [6808-20]

Tuesday 29 January

Awards and Plenary Presentation . . Tues. 8:15 to 9:15 am

Digital Forensics

Hany Farid, Dartmouth College

SESSION 5

Conv. Ctr. Room A7 . . . . . .Tues. 9:30 to 10:20 am

Image Quality Evaluation Concepts

Session Chair: **Sophie Triantaphillidou,** Univ. of Westminster (United Kingdom)

9:30 am: **Zen and the art of image science: musings on the measurement and meaning of image quality** *(Invited Paper)*, Larry A. Scarff, Digital Imaging Solutions . . . . . [6808-21]

10:00 am: **Process perspective on image quality evaluation**, Tuomas M. Leisti, Univ. of Helsinki (Finland); Anna Kokkonen, Raisa Halonen, Helsinki Univ. of Technology (Finland); Hanna M. Weckman, Univ. of Helsinki (Finland); Marja Mettänen, Risto Ritala, Tampere Univ. of Technology (Finland); Pirkko T. Oittinen, Helsinki Univ. of Technology (Finland); Göte S. Nyman, Univ. of Helsinki (Finland) . . . . . [6808-22]

Coffee Break . . . . . 10:20 to 10:50 am

SESSION 6

Conv. Ctr. Room A7 . . . . . Tues. 10:50 am to 12:10 pm

Systems Performance: Modeling

Session Chair: **D. René Rasmussen,** Xerox Corp.

10:50 am: **Image quality evaluation using generalized natural image**, Kenji Kagitani, Ricoh Co., Ltd. (Japan). . . . . [6808-23]

11:10 am: **Toward an efficient objective metric based on perceptual criteria**, Ludovic Quintard, Chaker M. Larabi, Univ. de Poitiers (France). . . . . [6808-24]

11:30 am: **A color image quality assessment using a reduced-reference image machine learning expert**, Christophe M. Charrier, Gilles Lebrun, Olivier Lezoray, Univ. de Caen Basse-Normandie (France) . . . . . [6808-25]

11:50 am: **Design and image quality aspects of the next-generation multifunctional devices**, Marco Brassé, Sebastian de Smet, Océ Technologies B.V. (Netherlands) . . . . . [6808-26]

Lunch/Exhibition Break . . . . . 12:10 to 1:30 pm

SESSION 7

Conv. Ctr. Room A7 . . . . . Tues. 1:40 to 3:10 pm

Systems Performance: Video and Display I

Session Chair: **Robin B. Jenkin,** Rhevision Technology, Inc.

1:40 pm: **DAF differential ACE filtering: image quality assessment by automatic color equalization**, Sonia Ouni, Majed Chambah, Univ. de Reims Champagne-Ardenne (France); Christophe Saint-Jean, Univ. de La Rochelle (France); Alessandro Rizzi, Univ. degli Studi di Milano (Italy) . . . . . [6808-27]

2:00 pm: **A method for image quality evaluation by effective bandwidth estimation**, Barak Fishbain, Leonid P. Yaroslavsky, Ianir A. Ideses, Tel Aviv Univ. (Israel); Frédérique Roffet-Crété, STMicroelectronics (France)[6808-28]

2:20 pm: **Color analysis and verification of color CCTV images under different lighting conditions**, Rebecca A. Smith, Home Office Scientific Development Branch (United Kingdom) and Univ. of Westminster (United Kingdom); Neil Cohen, John Tighe, Ken MacLennan-Brown, Home Office Scientific Development Branch (United Kingdom); Sophie Triantaphillidou, Univ. of Westminster (United Kingdom); Lindsay W. MacDonald, London College of Communication (United Kingdom) . . . . . [6808-29]

2:40 pm: **The relationship between preferred luminance and TV screen size**, Fujine Toshiyuki, Yasuhiro Yoshida, Michiyuki Sugino, Sharp Corp. (Japan) . . . . . [6808-31]

Coffee Break . . . . . 3:00 to 3:30 pm

SESSION 8

Conv. Ctr. Room A7 . . . . . Tues. 3:30 to 5:10 pm

Systems Performance: Video and Display II

Session Chair: **Göte S. Nyman,** Univ. of Helsinki (Finland)

3:30 pm: **The effect of display gamma calibration on the emotional image quality**, Seung O. Park, Ye Seul Paek, Hong Suk Kim, Daejin Univ. (South Korea) . . . . . [6808-33]

3:50 pm: **Increasing display performance over a wide range of viewing angles by means of improved calibration algorithms**, Tom R. L.Kimpe, Cédric Marchessoux, Gert Van Hoey, Barco N.V. (Belgium) . . . . . [6808-34]

4:10 pm: **An image similarity measure using homogeneity regions and structure**, Eric P. Lam, Kenny C. Loo, ThalesRaytheonSystems . [6808-35]

4:30 pm: **Internet-based assessment of image sharpness enhancement**, Lindsay W. MacDonald, London College of Communication (United Kingdom); Samira Bouzit, Univ. of St. Andrews (United Kingdom) [6808-36]

4:50 pm: Autonomously detecting the defective pixels in an imaging sensor array using a robust statistical technique, Siddhartha Ghosh, Univ. of Kent (United Kingdom); Ian W. Marshall, Lancaster Univ. (United Kingdom); Alex A. Freitas, Univ. of Kent (United Kingdom). . . . . [6808-37]

Interactive Paper and Symposium Demonstration Session-Tuesday

Conv. Ctr. Room A7 . . . . . Tues. 5:30 to 8:30 pm

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Posters . . . . . 5:30 to 7:00 pm

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Are existing procedures enough? Image and video quality assessment: review of subjective and objective metrics, Sonia Ouni, Michel Herbin, Univ. de Reims Champagne-Ardenne (France); Ezzeddine Zagrouba, Institut Supérieur d'Informatique (Tunisia) . . . . . [6808-53]

Hand motion and image stabilization in hand-held devices, Etay Mar Or, Dmitry Pundik, Advasense (Israel) . . . . . [6808-44]

Super-resolve images taken from unmanned aerial vehicles (UAVs) through affine invariant interest point based motion estimation, Qiang He, Richard R. Schultz, Univ. of North Dakota . . . . . [6808-45]

Color reproducibility enhancement using TRC calibration of display, Hong Suk Kim, Ye Seul Paek, Seung O. Park, Daejin Univ. (South Korea). . . . . [6808-47]

Visual experiments on the Web: design of a web-based visual experiment management system, Silvia Zuffi, Elisa Beltrame, Paolo Scala, Consiglio Nazionale delle Ricerche (Italy). . . . . [6808-48]

Digital image improvement by adding noise: an example by a professional photographer, Takehito Kurihara, Yoshitsugu Manabe, Naokazu Aoki, Hiroyuki Kobayashi, Chiba Univ. (Japan). . . . . [6808-49]

On estimation of perceived mottling prior to printing, Albert N. Sadovnikov, Lasse T. Lensu, Heikki A. Kälviäinen, Lappeenranta Univ. of Technology (Finland) . . . . . [6808-50]

Relation between bitrate, motion, and framerate for scoring of image sequences, Chaker M. Larabi, Louise Quoirin, Univ. de Poitiers (France). . . . . [6808-51]

Visual quality metric using one-dimensional histograms of motion vectors, Ho-Sung Han, Dong-O Kim, Rae-Hong Park, Sogang Univ. (South Korea); Dong-Gyu Sim, Kwangwoon Univ. (South Korea) . . . . . [6808-52]

Wednesday 30 January

Plenary Presentation . . . . . Wed. 8:30 to 9:15 am

The making of "The Inner Life of the Cell"

David Bolinsky, Medical Director/Partner XVIVO Scientific Annimation

SESSION 9

Conv. Ctr. Room A7 . . . . . .Wed. 9:30 to 10:30 am

Context-dependent Image Evaluation

Session Chair: **Luke C. Cui,** Lexmark International, Inc.

9:30 am: **The flux: creating a large annotated image database**, Daniel Tamburrino, Patrick Schönmann, Patrick Vandewalle, Sabine Süsstrunk, Ecole Polytechnique Fédérale de Lausanne (Switzerland). . . . . [6808-38]

9:50 am: **Improving holiday pictures: winter and beach image enhancement**, Luca Marchesotti, Marco Bressan, Xerox Research Ctr. Europe (France) . . . . . [6808-39]

10:10 am: **Megapixel mythology and photospace: estimating photospace for camera phones from large image sets**, Bror O. Hultgren, Image Integration, Inc.; Dirk W. Hertel, Sensata Technologies, Inc.[6808-40]

Coffee Break. . . . . 10:30 to 11:00 am

SESSION 10

Conv. Ctr. Room A7 . . . . . .Wed. 11:00 am to 12:10 pm

Emerging Technologies: 3D Video and Print

Session Chair: **Frans Gaykema,** Océ Technologies B.V. (Netherlands)

11:00 am: **Performance evaluation of 3D-TV systems** *(Invited Paper)*, Ronald Kaptein, Ingrid E. J.Heynderickx, Philips Research Labs. (Netherlands) . . . . . [6808-41]

11:30 am: **The effect of added dimensionality on perceived image value**, Susan P. Farnand, Rochester Institute of Technology. . . . . [6808-42]

11:50 am: **Measuring stereoscopic image quality experience with interpretation-based quality methodology**, Jukka P. Häkkinen, Nokia Research Ctr. (Finland) and Univ. of Helsinki (Finland); Takashi Kawai, Waseda Univ. (Japan); Jari Takatalo, Tuomas M. Leisti, Jenni E. Radun, Anni Hirsaho, Göte S. Nyman, Univ. of Helsinki (Finland) . . . . . [6808-43]

Visualization and Data Analysis 2008

Conference Chairs: **Katy Börner,** Indiana Univ.; **Matti T. Gröhn,** Ctr. for Scientific Computing (Finland); **Jinah Park,** Information and Communications Univ. (South Korea); **Jonathan C. Roberts,** Univ. of Kent (United Kingdom)

Conference Co-Chair: **Ming C. Hao,** Hewlett-Packard Labs.; **Pak Chung Wong,** Pacific Northwest National Lab.

Program Committee: **Uwe Brinkschulte,** Univ. Karlsruhe (Germany); **Steve Eick,** Visual Insights; **Robert F. Erbacher,** Utah State Univ.; **Georges G. Grinstein,** Univ. of Massachusetts/Lowell; **Anton Heijs,** Treparel; **Ketan K. Mane,** Indiana Univ.; **Hans-Georg Pagendarm,** Deutsches Zentrum für Luft- und Raumfahrt e.V. (Germany); **Alex T. Pang,** Univ. of California/Santa Cruz; **Aaron Quigley,** National Univ. of Ireland/Dublin (Ireland); **Deborah E. Silver,** Rutgers Univ.; **Mike Sips,** Stanford Univ.; **Kalpathi R. Subramanian,** The Univ. of North Carolina at Charlotte; **Yinlong Sun,** Purdue Univ.; **J. Edward Swan,** Naval Research Lab.; **Christopher Weaver,** The Pennsylvania State Univ.; **Yingcai Xiao,** Univ. of Akron; **William J. Yurcik,** Univ. of Illinois at Urbana-Champaign

Cosponsored by: **Hewlett Packard Co.**

Monday 28 January

SESSION 1

Conv. Ctr. Room B1 . . . . . .Mon. 9:00 to 10:10 am

Information Visualization I

Session Chair: **Jonathan C. Roberts,** Univ. of Kent (United Kingdom)

9:00 am: **Visualizing extreme-scale data** *(Invited Paper)*, Kwan-Liu Ma, Univ. of California/Davis . . . . . [6809-01]

9:45 am: **Analysis of eye-tracking experiments performed on a Tobii T60**, Chris Weigle, David C. Banks, The Univ. of Tennessee. . . . . [6809-02]

Coffee Break . . . . . 10:10 to 10:40 am

SESSION 2

Conv. Ctr. Room B1 . . . . . .Mon. 10:40 am to 12:20 pm

Information Visualization II

Session Chair: **Katy Börner,** Indiana Univ.

10:40 am: **Visualizing multidimensional query results using animation**, Amit P. Sawant, Christopher G. Healey, North Carolina State Univ.[6809-03]

11:05 am: **Extending the dimensionality of flatland with attribute view probabilistic models**, Eric M. Neufeld, Mikelis Bickis, Kevin Grant, Univ. of Saskatchewan (Canada). . . . . [6809-04]

11:30 am: **Concept Relationship Editor: a visual interface to support the assertion of synonymy relationships between taxonomic classifications**, Paul Craig, Jessie Kennedy, Napier Univ. (United Kingdom) . . . . . [6809-05]

11:55 am: **Visual and analytical extensions for the table lens**, Mathias John, Christian Tominski, Heidrun Schumann, Univ. Rostock (Germany) . . . . . [6809-06]

Lunch Break . . . . . 12:20 to 2:20 pm

SESSION 3

Conv. Ctr. Room B1 . . . . . .Mon. 2:20 to 3:10 pm

Visual Analytics

Session Chair: **Pak Chung Wong,** Pacific Northwest National Lab.

2:20 pm: **Talk by NSF Representative,** Maria Zemankova, National Science Foundation . . . . . [6809-25]

2:45 pm: **Visual analytics techniques for large multi-attribute time series data**, Ming C. Hao, Umeshwar Dayal, Hewlett-Packard Labs.; Daniel A. Keim, Univ. Konstanz (Germany) . . . . . [6809-08]

Coffee Break . . . . . 3:10 to 3:40 pm

SESSION 4

Conv. Ctr. Room B1 . . . . . .Mon. 3:40 to 4:55 pm

Flow Visualization

Session Chair: **Jinah Park,** Information and Communications Univ. (South Korea)

3:40 pm: **Streamline visualization of multiple 2D vector fields**, Timothy Urness, Drake Univ.; Victoria Interrante, Univ. of Minnesota . . . . . [6809-09]

4:05 pm: **Interactive view-driven evenly spaced streamline placement**, Zhanping Liu, Robert J. Moorhead II, Mississippi State Univ. . . . . [6809-10]

4:30 pm: **Exploration of uncertainty in bidirectional vector fields**, Torre D. Zuk, Univ. of Calgary (Canada); Jon Downton, David Gray, CGGVeritas (Canada); Sheelagh Carpendale, Univ. of Calgary (Canada); Jiandong Liang, CGGVeritas (Canada) . . . . . [6809-11]

Tuesday 29 January

Awards and Plenary Presentation . . Tues. 8:15 to 9:15 am

Digital Forensics

Hany Farid, Dartmouth College

SESSION 5

Conv. Ctr. Room B1 . . . . . .Tues. 9:30 to 10:20 am

Image Analysis

Session Chair: **Matti T. Gröhn,** Ctr. for Scientific Computing (Finland)

9:30 am: **Zooming in multispectral datacubes using PCA**, Alexander Broersen, Robert van Liere, Ctr. voor Wiskunde en Informatica (Netherlands); Ron M. A.Heeren, FOM Institute for Atomic and Molecular Physics (Netherlands). . . . . [6809-12]

9:55 am: **Image analysis of hyperspectral and multispectral data using projection pursuit**, Nilofar Azizi, Julian Meng, Univ. of New Brunswick (Canada) . . . . . [6809-13]

Coffee Break . . . . . 10:20 to 10:50 am

SESSION 6

Conv. Ctr. Room B1 . . . . . Tues. 10:50 am to 12:05 pm

Information Visualization III

Session Chair: **Ming C. Hao,** Hewlett-Packard Labs.

10:50 am: **G-Space: a linear time graph layout**, Brian Wylie, Sandia National Labs.; Jeffrey Baumes, Kitware, Inc.; Timothy M. Shead, Sandia National Labs. . . . . [6809-14]

11:15 am: **Visual analysis and exploration of complex corporate shareholder networks**, Tatiana Tekusova, Fraunhofer-Institut für Graphische Datenverarbeitung (Germany); Joern Kohlhammer, Technische Univ. Darmstadt (Germany) . . . . . [6809-15]

11:40 am: **Visualizing the temporal distribution of terminologies**, Tak-eun Kim, Hodong Lee, Korea Advanced Institute of Science and Technology (South Korea); Jinah Park, Information and Communications Univ. (South Korea); Jong C. Park, Korea Advanced Institute of Science and Technology (South Korea) . . . . . [6809-16]

Lunch/Exhibition Break . . . . . 12:05 to 2:05 pm

SESSION 7

Conv. Ctr. Room B1 . . . . . Tues. 2:05 to 2:50 pm

Scientific Visualization

Session Chair: **Jonathan C. Roberts,** Univ. of Kent (United Kingdom)

2:05 pm: **The forensic validity of visual analytics** *(Invited Paper)*, Robert F. Erbacher, Utah State Univ.. . . . . [6809-17]

Coffee Break . . . . . 2:50 to 3:20 pm

SESSION 8

Conv. Ctr. Room B1 . . . . . Tues. 3:20 to 4:35 pm

Volume Visualization

Session Chair: **Jinah Park,** Information and Communications Univ. (South Korea)

3:20 pm: **Polar stratospheric cloud visualization: volume reconstruction from intersecting curvilinear cross sections**, Jessica R. Crouch, Old Dominion Univ.; Chris Weigle, The Univ. of Tennessee; Jonathan Gleason, NASA Langley Research Ctr.; Yuzhong Shen, Old Dominion Univ. [6809-18]

3:45 pm: **Integration of information and volume visualization for analysis of cell lineage and gene expression during embryogenesis**, Andrej Cedilnik, TiVo, Inc.; Jeffrey Baumes, Luis Ibanez, Kitware, Inc.; Sean Megason, California Institute of Technology; Brian Wylie, Sandia National Labs.. . . . . [6809-19]

4:10 pm: A phrase-driven grammar system for interactive data visualization, Sang Yun Lee, Univ. of Southern California. . . . . [6809-20]

Interactive Paper and Symposium Demonstration Session-Tuesday

Conv. Ctr. Room B1 . . . . . Tues. 5:30 to 8:30 pm

A symposium-wide demonstration session will be open to attendees 5:30 to 8:30 pm Tuesday evening in Room Exhibit Hall 1. Demonstrators will provide interactive, hands-on demonstrations of a wide-range of products related to Electronic Imaging.

Posters . . . . . 5:30 to 7:00 pm

Posters will be placed on display after 9:00 am in Exhibit Hall 1. An interactive paper session, with authors present at their posters, will be held Tuesday evening, 5:30 to 7:00 pm.

Efficient sequence classification by R2-Kernel, Hansheng Lei, Univ. of Texas/Brownsville . . . . . [6809-22]

Visualization of multidimensional database, Chung Lee, California State Polytechnic Univ. . . . . [6809-24]

Computer Image Analysis in the Study of Art

Conference Chair: **David G. Stork,** Stanford Univ. and Ricoh Innovations, Inc.; **Jim Coddington,** Museum of Modern Art

Program Committee: **Guidomaria Cortelazzo,** Univ. degli Studi di Padova (Italy); **Charles R. Dyer,** Univ. of Wisconsin/Madison; **Roger L. Easton,** Rochester Institute of Technology; **Irfan Essa,** Georgia Institute of Technology; **Kirk Martinez,** Univ. of Southampton (United Kingdom); **Daniel N. Rockmore,** Dartmouth College; **Anna Bentkowska-Kafel,** Courtauld Institute of Art; **Peter Paul Biro,** Forensic Studies in Art (Canada); **Katherine Jones-Smith,** Case Western Reserve Univ.; **Silvio Savarese,** Univ. of Illinois; **Stefano Soatto,** Univ. of California/Los Angeles; **Christian Lahanier,** Ctr. de Recherche et de Restauration des Musées de France (France)

Monday 28 January

SESSION 1

Invited Overview . . . . . .Mon. 8:30 to 9:00 am

Session Chair: **David G. Stork,** Ricoh Innovations, Inc.

Mathematics Made Flesh: a forty years Leonardo Journal perspective on the use of computers in art

Roger Malina, International Society for Arts, Sciences and Technology

SESSION 2

Conv. Ctr. Room C3 . . . . . .Mon. 9:00 to 10:00 am

Sensing and Imaging

Session Chair: **David G. Stork,** Stanford Univ. and Ricoh Innovations, Inc.

9:00 am: **Post-capture data analysis as an aid to the interpretation of UV-induced fluorescence imaging**, Giovanni Verri, Courtauld Institute of Art (United Kingdom) and The Getty Conservation Institute; Daniela Comelli, Politecnico di Milano (Italy); Sharon Cather, Courtauld Institute of Art (United Kingdom); David R. Saunders, The British Museum (United Kingdom); Francesca Piqué, The Getty Conservation Institute. . . . . [6810-02]

9:20 am: **Deep shadows in a shallow box**, Xiang Huang, Jack E. Tumblin, Ankit Mohan, Jiang Duan, Northwestern Univ. . . . . [6810-03]

9:40 am: **Enhancement of overwritten text in the Archimedes Palimpsest**, Keith T. Knox, Boeing LTS, Inc. . . . . [6810-08]

Coffee Break . . . . . 10:00 to 10:30 am

SESSION 3

Conv. Ctr. Room C3 . . . . . .Mon. 10:30 am to 12:10 pm

Color and Multispectral

Session Chair: **R. G. Futernick,** Fine Arts Museums of San Francisco

10:30 am: **Assessment of conservation treatments of friable drawing media on paper using image analysis**, Mark Sandy, Jack Tchan, Univ. of the Arts London (United Kingdom). . . . . [6810-05]

10:50 am: **Color transplant for reverse aging of faded artworks**, Andrea Del Mastio, Vito Cappellini, Alessandro Piva, Alessia De Rosa, Mauro Barni, Univ. degli Studi di Firenze (Italy); Anna Pelagotti, Art-Test s.a.s. (Italy) . . . . . [6810-06]

11:10 am: **An investigation of multispectral imaging for the mapping of pigments in paintings**, Yonghui Zhao, Roy S. Berns, Rochester Institute of Technology. . . . . [6810-07]

11:30 am: **Color cluster analysis for pigment identification**, Kirk Martinez, Simon Goodall, Univ. of Southampton (United Kingdom)[6810-04]

11:50 am: **Dating Renaissance art prints with image analysis**, Blair Hedges, The Pennsylvania State Univ. . . . . [6810-09]

Lunch Break . . . . . 12:10 to 1:40 pm

SESSION 4

Conv. Ctr. Room C3 . . . . . .Mon. 1:40 to 3:00 pm

Stroke and Mark Analysis

Session Chair: **Jim Coddington,** Museum of Modern Art

1:40 pm: **Eigenspectrum deformation analysis of watermark shape variation using thin-plate splines: an example from the Waldseemuller Map Corpus**, John Hessler, Library of Congress; Cynthia Karnes, The Library of Congress . . . . . [6810-10]

2:00 pm: **Drawing tool recognition by stroke ending analysis**, Maria C. Vill, Robert Sablatnig, Technische Univ. Wien (Austria) . . . . . [6810-11]

2:20 pm: **Estimating the original drawing trace of painted strokes**, Martin Lettner, Robert Sablatnig, Technische Univ. Wien (Austria) [6810-12]

2:40 pm: **Properties of brushstrokes measured by multiscale harmonic analysis: an application to van Gogh's paintings**, Morteza Shahram, Stanford Univ.; David G. Stork, Stanford Univ. and Ricoh Innovations, Inc.; David L. Donoho, Stanford Univ. . . . . [6810-15]

Coffee Break . . . . . 3:00 to 3:30 pm

SESSION 5

Conv. Ctr. Room C3 . . . . . .Mon. 3:30 to 5:30 pm

Texture, Pattern, and Three-Dimensional Analysis

3:30 pm: **Pollock's paintings: are they really fractal**, Katherine A. Jones-Smith, Harsh Mathur, Case Western Reserve Univ. . . . . [6810-14]

3:50 pm: **Multifractal analysis and authentication of Jackson Pollock paintings**, Daniel N. Rockmore, Dartmouth College; Jim Coddington, The Museum of Modern Art; John Elton, Georgia Institute of Technology; Yang Wang, Michigan State Univ. . . . . [6810-13]

4:10 pm: **Reflections and praxis in Hans Memling: a computer analysis of the mirror in the diptych of Maarten van Nieuwenhove**, Silvio Savarese, Univ. of Illinois at Urbana-Champaign; Ron Spronk, Queen's Univ. (Canada); David G. Stork, Ricoh Innovations, Inc. and Stanford Univ.; Andrey DelPozo, Univ. of Illinois at Urbana-Champaign . . . . . [6810-16]

4:30 pm: **Aberration analysis of the putative projector for Lorenzo Lotto's 'Husband and wife': image analysis through computer ray-tracing**, M. Dirk Robinson, Ricoh Innovations, Inc.; David G. Stork, Ricoh Innovations, Inc. and Stanford Univ. . . . . [6810-17]

4:50 pm: **Inferring illumination direction estimated from disparate sources in paintings: an investigation into Jan Vermeer's 'Girl with a pearl earring'**, Micah K. Johnson, Dartmouth College; David G. Stork, Ricoh Innovations, Inc. and Stanford Univ.; Soma Biswas, Univ. of Maryland; Yasuo Furuichi, Consultant (Japan). . . . . [6810-18]

5:10 pm: **Image analysis of paintings by computer graphics synthesis: an investigation of the illumination in Georges de la Tour's 'Christ in the carpenter's studio'**, David G. Stork, Ricoh Innovations, Inc. and Stanford Univ.; Yasuo Furuichi, Consultant (Japan) . . . . . [6810-19]

Tuesday 29 January

Awards and Plenary Presentation . . Tues. 8:15 to 9:15 am

Digital Forensics
Hany Farid, Dartmouth College

Interactive Paper and Symposium Demonstration Session-Tuesday

Conv. Ctr. Room C3 . . . . . Tues. 5:30 to 8:30 pm

A symposium-wide demonstration session will be open to attendees 5:30 to 8:30 pm Tuesday evening in Room Exhibit Hall 1. Demonstrators will provide interactive, hands-on demonstrations of a wide-range of products related to Electronic Imaging.

Posters . . . . . 5:30 to 7:00 pm

Posters will be placed on display after 9:00 am in Exhibit Hall 1. An interactive paper session, with authors present at their posters, will be held Tuesday evening, 5:30 to 7:00 pm.

Multispectral processing of combined visible and x-ray fluorescence imagery in the Archimedes Palimpsest, Roger L. Easton, Jr., Allison Bright, Rochester Institute of Technology . . . . . [6810-20]

Global nonlinear compression of natural luminances in painted art, Daniel J. Graham, Cornell Univ.; Daniel N. Rockmore, Dartmouth College; David J. Field, Cornell Univ. . . . . [6810-22]

Real-Time Image Processing 2008

Conference Chair: **Nasser Kehtarnavaz,** The Univ. of Texas at Dallas; **Matthias F. Carlsohn,** Computer Vision and Image Communication (Germany)

Program Committee: **Mohamed Akil,** École Supérieure d'Ingénieurs en Électronique et Électrotechnique (France); **Aishy Amer,** Concordia Univ. (Canada); **Madhukar Budagavi,** Texas Instruments Inc.; **Philip P. Dang,** STMicroelectronics; **Edward R. Dougherty,** Texas A&M Univ.; **Giancarlo Iannizzotto,** Univ. degli Studi di Messina (Italy); **Lucia LoBello,** Univ. degli Studi di Catania; **Antonio Núñez Ordóñez,** Univ. de Las Palmas de Gran Canaria (Spain); **Volodymyr I. Ponomaryov,** Instituto Politécnico Nacional (Mexico); **Fatih M. Porikli,** Mitsubishi Electric Research Labs.; **Mukul V. Shirvaikar,** The Univ. of Texas at Tyler; **Athanasios N. Skodras,** Univ. of Patras (Greece); **Stephan Stilkerich,** EADS Astrium GmbH (Germany); **Shan Suthaharan,** The Univ. of North Carolina System; **Leonid P. Yaroslavsky,** Tel Aviv Univ. (Israel); **Rastislav Lukac,** Univ. of Toronto (Canada)

Monday 28 January

SESSION 1

Conv. Ctr. Room A6 . . . . . .Mon. 9:00 to 10:00 am

Algorithms I

Session Chair: **Nasser Kehtarnavaz,** The Univ. of Texas at Dallas

9:00 am: **Improving the SNR during color image processing while preserving the appearance of clipped pixels** *(Invited Paper)*, Sergio R. Goma, Milivoje Aleksic, ATI Technology (Canada). . . . . [6811-01]

9:30 am: **Optimization model for memory bandwidth usage in x-ray image enhancement**, Rob Albers, Technische Univ. Eindhoven (Netherlands); Eric Suijs, Philips Medical Systems Nederland (Netherlands); Peter H. N.de With, Technische Univ. Eindhoven (Netherlands) . . [6811-03]

9:50 am: **Chaos-based image encryption scheme using Galois field for fast and secure transmission**, Shan Suthaharan, The Univ. of North Carolina System . . . . . [6811-04]

Coffee Break . . . . . 10:10 to 10:40 am

SESSION 2

Conv. Ctr. Room A6 . . . . . .Mon. 10:40 am to 12:00 pm

Video Processing and Surveillance

Session Chair: **Philip P. Dang,** STMicroelectronics

10:40 am: **Real-time turbulent video super-resolution using MPEG-4**, Barak Fishbain, Leonid P. Yaroslavsky, Ianir A. Ideses, Tel Aviv Univ. (Israel) . . . . . [6811-05]

11:00 am: **Fast multiclass distance transforms for video surveillance**, Theo E. Schouten, Radboud Univ. Nijmegen (Netherlands); Egon L. van den Broek, Univ. Twente (Netherlands). . . . . [6811-06]

11:20 am: **Real-time road traffic classification using mobile video cameras**, Agnes Lapeyronnie, Christophe Parisot, Jerome Meessen, Xavier Desurmont, Jean-François Delaigle, Multitel (Belgium) . . . . . [6811-07]

11:40 am: **Real-time people counting system using a single video camera**, Damien Lefloch, Univ. de Bourgogne (France); Faouzi A. Cheikh, Jon Y. Hardeberg, Univ. de Bourgogne (France) and Gjøvik Univ. College (Norway); Pierre Goutton, Romain Picot-Clemente, Univ. de Bourgogne (France). . . . . [6811-08]

Lunch Break . . . . . 12:00 pm to 1:40 pm

SESSION 3

Conv. Ctr. Room A6 . . . . . .Mon. 1:40 to 3:10 pm

Video Compression

Session Chair: **Mukul V. Shirvaikar,** The Univ. of Texas at Tyler

1:40 pm: **Fast adaptive early termination for mode selection in H.264 video coding of high-definition sequences** *(Invited Paper)*, Jianfeng Ren, Nasser Kehtarnavaz, The Univ. of Texas at Dallas. . . . . [6811-10]

2:10 pm: **A resource constrained MPEG-7 driven rate control scheme for the H.64/AVC**, Christos Grecos, Mingyuan Yang, Univ. of Central Lancashire (United Kingdom) . . . . . [6811-11]

2:30 pm: **A high-performance parallel architecture H.264 intra-motion compensation**, Philip P. Dang, STMicroelectronics . . . . . [6811-12]

2:50 pm: **A real-time wavelet-based video decoder using SIMD technology**, Robert Klepko, Demin Wang, Communications Research Ctr. Canada (Canada) . . . . . [6811-13]

Coffee Break . . . . . 3:10 to 3:40 pm

SESSION 4

Conv. Ctr. Room A6 . . . . . .Mon. 3:40 to 5:50 pm

FPGA and Hardware I

Session Chair: **Matthias F. Carlsohn,** Computer Vision and Image Communication (Germany)

3:40 pm: **Real-time implementation of visual detection on FPGA-based architecture** *(Invited Paper)*, Mohamed Akil, Ecole Supérieure d'Ingénieurs en Electronique et Electrotechnique (France); Ngang Nicolas, Ecole Supérieure d'Ingénieurs en Electronique et Electrotechnique (France). . . . . [6811-14]

4:10 pm: **A real-time bit-serial rank filter implementation using Xilinx FPGA**, Chang Y. Choo, Punam Verma, San José State Univ. . . . . [6811-15]

4:30 pm: **An implementation of a multiplierless Hough transfrom on an FPGA platform using hybrid-log arithmetic**, Peter Lee, Evangelos Alexiadis, Univ. of Kent (United Kingdom) . . . . . [6811-16]

4:50 pm: **Streaming warper for rectification of distorted images on FPGAs**, Johannes Fuertler, Konrad J. Mayer, Michael Rubik, Joerg Brodersen, Austrian Research Ctrs. Seibersdorf Research GmbH (Austria); Christian Gemeiner, Christian Eckel, Oregano Systems Design & Consulting GesmbH (Austria); Herbert Nachtnebel, Technische Univ. Wien (Austria) . . . . . [6811-17]

5:10 pm: **Architecture-template for massively parallel statistical image processing models**, Stephan C. Stilkerich, EADS Deutschland GmbH (Germany). . . . . [6811-18]

5:30 pm: **FPGA-based segmentation of ultrasound prostate image using asymmetric sticks and support vector machines**, Kristians Diaz Rojas, Gonzalo Cucho-Padín, Pontificia Univ. Catolica del Peru (Peru) . . . . . [6811-19]

Tuesday 29 January

Awards and Plenary Presentation . . Tues. 8:15 to 9:15 am

Digital Forensics

Hany Farid, Dartmouth College

SESSION 5

Conv. Ctr. Room A6 . . . . . .Tues. 9:30 to 10:20 am

FPGA and Hardware II

Session Chair: **Fatih M. Porikli,** Mitsubishi Electric Research Labs.

9:30 am: **A memory and MHZ efficient EDMA transfer scheme for video encoding algorithms on TI TMS320DM642** *(Invited Paper)*, Noha A. El-Yamany, Southern Methodist Univ. . . . . [6811-20]

10:00 am: **Fast approximate level set evolution**, James Malcolm, Georgia Institute of Technology; Yogesh Rathi, Harvard Medical School; Anthony J. Yezzi, Allen Tannenbaum, Georgia Institute of Technology. . . . . [6811-21]

Coffee Break . . . . . 10:20 to 10:50 am

SESSION 6

Conv. Ctr. Room A6 . . . . . .Tues. 10:50 to 11:40 am

Algorithms II

Session Chair: **Aishy Amer,** Concordia Univ. (Canada)

10:50 am: **Reshuffling: A Fast Algorithm for Filtering with Arbitrary Kernels** *(Invited Paper)*, Fatih M. Porikli, Mitsubishi Electric Research Labs.. . . . . [6811-22]

11:20 am: Motion estimation through efficient matching of a reduced number of reliable singular points, Carlos R. del Blanco-Adan, Fernando F. Jaureguizar, Luis L. Salgado, Narciso N. García, Grupo de Tratamiento de Imágenes (Spain) . . . . . [6811-24]

Interactive Paper and Symposium Demonstration Session-Tuesday

Conv. Ctr. Room A6 . . . . . Tues. 5:30 to 8:30 pm

A symposium-wide demonstration session will be open to attendees 5:30 to 8:30 pm Tuesday evening in Room Exhibit Hall 1. Demonstrators will provide interactive, hands-on demonstrations of a wide-range of products related to Electronic Imaging.

Posters . . . . . 5:30 to 7:00 pm

Posters will be placed on display after 9:00 am in Exhibit Hall 1. An interactive paper session, with authors present at their posters, will be held Tuesday evening, 5:30 to 7:00 pm.

A novel real-time system for driving an infrared focal plane array based on FPGA, Ehsan Koohestani, Ali Homaei, Rayan-Electronics (Iran)[6811-25]

Noise suppression in video sequences applying fuzzy vectorial directional algorithms, Volodymyr I. Ponomaryov, Alberto Rosales-Silva, Francisco J. Gallegos-Funes, Instituto Politécnico Nacional (Mexico) . . . . . [6811-26]

Optimization of tone-mapping functions in video cameras for high-dynamic-range images, Sascha Cvetkovic, Jan Klijn, Bosch Security Systems B.V. (Netherlands); Peter H.de With, Technische Univ. Eindhoven (Netherlands) . . . . . [6811-28]

Rapid object candidates detection using increment sign correlation, Masato Kazui, Masaya Ito, Shoji Muramatsu, Hitachi, Ltd. (Japan) [6811-29]

Normal map compression based on BTC and wavelet coding, Jerzy Stachera, Przemyslaw Rokita, Politechnika Warszawska (Poland) [6811-30]

VHDL implementation of wavelet packet transforms using SIMULINK tools, Mukul V. Shirvaikar, Tariq Bushnaq, The Univ. of Texas at Tyler . . . . . [6811-31]

Generic algorithms for motion compensation and transformation, Henryk Richter, Univ. Rostock (Germany); Benno Stabernack, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany); Erika Müller, Univ. Rostock (Germany) . . . . . [6811-32]

Real-time structure from motion for mid-range perception and planning, Minbo Shim, General Dynamics Robotic Systems . . . . [6811-33]

FPGA implementation of a Wiener filter for image processing, Chang Y. Choo, Gordon Wong, Henry Leung, San José State Univ. . . . . [6811-34]

An architecture for on-the-fly correction of radial distortion using FPGA, Sungchan Oh, Gyeonghwan Kim, Sogang Univ. (South Korea) . . . . . [6811-35]

Robust object detection based on radial reach correlation and adaptive background estimation for real-time video surveillance systems, Masaya Itoh, Masato Kazui, Hiromasa Fujii, Hitachi, Ltd. (Japan) . [6811-36]

Vehicle tracking in traffic video, Mehrübe Mehrübeoglu, Texas A&M Univ.-Corpus Christi; Lifford McLauchlan, Texas A&M Univ.-Kingsville; Barak Fishbain, Tel Aviv Univ. (Israel) . . . . . [6811-37]

Using all-zero block detection to increase computational efficiency of H.264 video coding, Jianfeng Ren, Nasser Kehtarnavaz, The Univ. of Texas at Dallas . . . . . [6811-38]

A new strategy based on adaptive mixture of Gaussians for real-time moving objects segmentation, Carlos Cuevas, Narciso García, Luis Salgado, Univ. Politécnica de Madrid (Spain) . . . . . [6811-39]

Tracking multiple objects off-frame using an input from global motion estimation, Shawn M. Lankton, Allen Tannenbaum, Georgia Institute of Technology. . . . . [6811-40]

A real-time infrared imaging system based on DSP and FPGA, Babak Zamanloo, Vahid Hamiatti Vaghef, Sattar Mirzakuchaki, Ali Shojaee Bakhtiari, Iran Univ. of Science and Technology (Iran) . . . . . [6811-41]

Image Processing: Algorithms and Systems VI

Conference Chairs: **Jaakko T. Astola,** Tampere Univ. of Technology (Finland); **Karen O. Egiazarian,** Tampere Univ. of Technology (Finland); **Edward R. Dougherty,** Texas A&M Univ.

Program Committee: **Til Aach,** RWTH Aachen (Germany); **Sos S. Agaian,** The Univ. of Texas at San Antonio; **Junior Barrera,** Univ. de São Paulo (Brazil); **Reiner Creutzburg,** Fachhochschule Brandenburg (Germany); **Paul D. Gader,** Univ. of Florida; **Atanas P. Gotchev,** Tampere Univ. of Technology (Finland); **John C. Handley,** Xerox Corp.; **Vladimir Vasilyevich Lukin,** National Aerospace Univ. (Ukraine); **Stephen Marshall,** Univ. of Strathclyde (United Kingdom); **Françoise Prêteux,** Institut National des Télécommunications (France); **Giovanni Ramponi,** Univ. degli Studi di Trieste (Italy); **Jagath K. Samarabandu,** The Univ. of Western Ontario (Canada); **Akira Taguchi,** Musashi Institute of Technology (Japan)

Monday 28 January

SESSION 1

Conv. Ctr. Room C2 . . . . . .Mon. 9:00 to 10:00 am

Image Filtering Algorithms

9:00 am: **Filtering and luminance correction of aged photographs**, Alfredo Restrepo, Giovanni Ramponi, Univ. degli Studi di Trieste (Italy) . . . . . [6812-01]

9:20 am: **Multivariate mathematical morphology and Bayesian classifier**, Arnaud Garcia, Corinne Vachier, Ecole Normale Supérieure de Cachan (France) . . . . . [6812-02]

9:40 am: **A new efficient detection technique for removing random-valued impulse noise**, Ali S. Awad, Hong Man, Stevens Institute of Technology . . . . . [6812-03]

Coffee Break . . . . . 10:00 to 10:30 am

SESSION 2

Conv. Ctr. Room C2 . . . . . .Mon. 10:30 am to 12:10 pm

Image Restoration Algorithms

10:30 am: **Super-resolution of turbulent video: potentials and limitations**, Leonid P. Yaroslavsky, Gil Shabat, Barak Fishbain, Ianir A. Ideses, Tel Aviv Univ. (Israel) . . . . . [6812-04]

10:50 am: **On the detection of cracks in photographic prints**, Alfredo Restrepo, Giovanni Ramponi, Erika Fogar, Univ. degli Studi di Trieste (Italy) . . . . . [6812-05]

11:10 am: **Image restoration by sparse 3D transform-domain collaborative filtering**, Kostadin N. Dabov, Alessandro Foi, Vladimir Katkovnik, Karen Egiazarian, Tampere Univ. of Technology (Finland) . . . . . [6812-06]

11:30 am: **Projection image enhancement for luggage explosive detection systems (EDS) utilizing computed tomography (CT)**, Yesna O. Yildiz, Douglas Q. Abraham, Analogic Corp.; Sos Agaian, The Univ. of Texas at San Antonio; Karen A. Panetta, Tufts Univ. . . . . [6812-07]

11:50 am: **Bayesian anisotropic denoising in the Laguerre Gauss domain**, Chiara Ercole, Patrizio Campisi, Alessandro Neri, Univ. degli Studi di Roma Tre (Italy) . . . . . [6812-08]

Lunch Break . . . . . 12:10 to 1:40 pm

SESSION 3

Conv. Ctr. Room C2 . . . . . .Mon. 1:40 to 3:00 pm

Image Processing Systems

1:40 pm: **Uncertainty analysis of an evolutionary algorithm to develop remote sensing spectral indices**, Henrique G. Momm, Greg Easson, Univ. of Mississippi . . . . . [6812-09]

2:00 pm: **Automatic determination of runway edges in poor visibility conditions**, Sri Satya V. Gogineni, Zia-ur Rahman, Old Dominion Univ. . . . . [6812-10]

2:20 pm: **Latent fingerprint system performance modeling**, Vladimir N. Dvornychenko, National Institute of Standards and Technology. . [6812-11]

2:40 pm: **Measurement of annual ring width of log ends in forest machinery**, Kalle Marjanen, Petteri Ojala, Heimo Ihalainen, Tampere Univ. of Technology (Finland) . . . . . [6812-12]

Coffee Break . . . . . 3:00 to 3:30 pm

SESSION 4

Conv. Ctr. Room C2 . . . . . .Mon. 3:30 to 4:50 pm

Medical Imaging

3:30 pm: **Real-time computed tomography on the cell broadband engine processor**, Olivier Bockenbach, Mercury Computer Systems GmbH (Germany); Michael Knaup, Marc Kachelriess, Medical Physics Institute (Germany) . . . . . [6812-13]

3:50 pm: **Implementing real-time adaptive filtering for medical applications on the cell processor using a generic multicore framework**, Olivier Bockenbach, Sebastian Schuberth, Hauke Bartsch, Mercury Computer Systems GmbH (Germany) . . . . . [6812-14]

4:10 pm: **Completely automated estimation of prostate volume for 3D side-fire transrectal ultrasound using shape prior approach**, Lu Li, Ramakrishnan Narayanan, Steve Miller, Feimo Shen, Eigen; Al B. Barqawi, E. David Crawford, Univ. of Colorado Health Sciences Ctr.; Jasjit S. Suri, Eigen. . . . . [6812-15]

4:30 pm: **Automated analysis of label-free spinning-disc microarray images**, Ganapathy Krishnamurthi, Timothy Norwood, Manoj Varma, Quadraspec, Inc. . . . . [6812-16]

Tuesday 29 January

Awards and Plenary Presentation . . Tues. 8:15 to 9:15 am

Digital Forensics

Hany Farid, Dartmouth College

SESSION 5

Conv. Ctr. Room C2 . . . . . .Tues. 9:30 to 11:40 am

Image Analysis Algorithms

9:30 am: **Identification and ranking of relevant image content**, Mustafa Jaber, Eli Saber, Sohail Dianat, Rochester Institute of Technology; Mark Shaw, Ranjit Bhaskar, Hewlett-Packard Co. . . . . [6812-17]

9:50 am: **Anisotropic local high-confidence voting for accurate stereo correspondence**, Jiangbo Lu, Gauthier Lafruit, Francky Catthoor, IMEC (Belgium). . . . . [6812-18]

Coffee Break . . . . . 10:10 to 10:40 am

10:40 am: **An algorithm for motion and change detection in image sequences based on chaos and information theory**, Michael E. Farmer, Yuan Cheng, Univ. of Michigan-Flint . . . . . [6812-19]

11:00 am: **Probability density function estimation for video in the DCT domain**, Octavian C. Dumitru, Mihai P. Mitrea, Françoise Preteux, Ashutosh Pathak, Institut National des Télécommunications (France) . . . . . [6812-20]

11:20 am: **Derivative operator on smoothed images**, Tieling Chen, Univ. of South Carolina . . . . . [6812-21]

Lunch/Exhibition Break . . . . . 11:40 am to 1:30 pm

SESSION 6

Conv. Ctr. Room C2 . . . . . Tues. 1:30 to 2:50 pm

Image Processing Applications

1:30 pm: **Objects recognition using SIFT and fuzzy similarity measure**, Nabil Belacel, National Research Council Canada (Canada) and Univ. de Moncton (Canada); Mustapha Kardouchi, Univ. de Moncton (Canada) . . . . . [6812-22]

1:50 pm: **An image restoration approach for artificial compound eyes**, Raul Tudela, Andreas Brückner, Jacques Duparré, Andreas Bräuer, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany) . . . . . [6812-23]

2:10 pm: **The watermarking attacks in the MPEG-4 AVC domain**, Sorin Duta, Mihai P. Mitrea, Françoise Prêteux, Louis-Arnaud Riffaud, Institut National des Télécommunications (France) . . . . . [6812-24]

2:30 pm: **A fuzzy patches construction method based on the travel depth for protein active site prediction**, Joachim Giard, Patrice Rondao Alface, Benoît Macq, Univ. Catholique de Louvain (Belgium) . . . . [6812-25]

Coffee Break . . . . . 2:50 to 3:20 pm

SESSION 7

Conv. Ctr. Room C2 . . . . . Tues. 3:20 to 4:40 pm

Pattern Recognition

Session Chair: **Nasser M. Nasrabadi,** Army Research Lab.

3:20 pm: **Topological pattern recognition and reconstruction from noise affected boundary patterns**, Chia-Lun J. Hu, Univ. of Colorado at Boulder. . . . . [6812-26]

3:40 pm: **An artificial neural network based matching metric for iris identification**, Randy P. Broussard, Lauren R. Kennell, Robert W. Ives, U.S. Naval Academy . . . . . [6812-27]

4:00 pm: **Toward automatic diagnosis of dermatoscopy images**, Teresa F. Mendonca, André R. S.Marçal, Hugo Alonso, Univ. do Porto (Portugal); Paula Rocha, Univ. de Aveiro (Portugal) . . . . . [6812-28]

4:20 pm: Joint fusion and detection of mines using hyperspectral and SAR data, Nasser M. Nasrabadi, Army Research Lab. . . . . [6812-29]

Interactive Paper and Symposium Demonstration Session-Tuesday

Conv. Ctr. Room C2. . . . . Tues. 5:30 to 8;30 pm

A symposium-wide demonstration session will be open to attendees 5:30 to 8:30 pm Tuesday evening in Room Exhibit Hall 1. Demonstrators will provide interactive, hands-on demonstrations of a wide-range of products related to Electronic Imaging.

Posters. . . . . 5:30 to 7:00 pm

Posters will be placed on display after 9:00 am in Exhibit Hall 1. An interactive paper session, with authors present at their posters, will be held Tuesday evening, 5:30 to 7:00 pm.

High-quality image interpolation via nonlinear image decomposition, Takahiro Saito, Yuki Ishii, Haruya Aizawa, Takashi Komatsu, Kanagawa Univ. (Japan). . . . . [6812-30]

Adaptive DCT-based filtering of images corrupted by spatially correlated noise, Vladimir V. Lukin, Nikolay N. Ponomarenko, Aleksandr A. Zelensky, National Aerospace Univ. (Ukraine); Jaakko T. Astola, Karen O. Egiazarian, Tampere Univ. of Technology (Finland) . . . . . [6812-31]

Toward hyperspectral face recognition, Stefan A. Robila, Montclair State Univ. . . . . [6812-32]

Statistical motion vector analysis for tracking in compressed video streams, Marc Leny, Thales Communications (France) and Institut National des Télécommunications (France); Françoise Prêteux, Institut National des Télécommunications (France); Didier Nicholson, Thales Communications (France). . . . . [6812-33]

Effect of hierarchical deformable motion compensation on image enhancement for DSA acquired via C-ARM, Liyang Wei, Eigen; Dinggang Shen, Univ. of Pennsylvania; Dinesh Kumar, Eigen; Ram Turlapati, Univ. of Wisconsin; Jasjit S. Suri, Eigen . . . . . [6812-34]

A fast nonlocal image denoising algorithm, Antoon Dauwe, Bart Goossens, Hiêp Q. Luong, Wilfried Philips, Univ. Gent (Belgium) . [6812-35]

Precise differentiation can significantly improve the accuracy of optical flow measurements, Leonid P. Yaroslavsky, Alex Agranovich, Barak Fishbain, Ianir A. Ideses, Tel Aviv Univ. (Israel) . . . . . [6812-36]

Block artifact reduction in BMA-based super-resolution video processing, Young Wook Sohn, Moon-Gi Kang, Yonsei Univ. (South Korea) . . . . . [6812-37]

Adaptive directional sharpening with overshoot control, Antonio Buemi, Arcangelo Bruna, Mirko Guarnera, Gaetano Santoro, STMicroelectronics (Italy) . . . . . [6812-38]

Image Processing: Machine Vision Applications

Conference Chair: **Kurt S. Niel,** Fachhochschule Wels (Austria); **David Fofi,** Univ. de Bourgogne (France)

Program Committee: **Pierrick T. Bourgeat,** Commonwealth Scientific and Industrial Research Organisation (Australia); **Michael J. Cree,** Univ. of Waikato (New Zealand); **Marc M. Ellenrieder,** Carl Zeiss AG (Germany); **Steven P. Floeder,** 3M Co.; **Luciano F. da Fontoura Costa,** Univ. de São Paulo (Brazil); **Ralph M. Ford,** The Pennsylvania State Univ.; **Edmund Yin-Mun Lam,** The Univ. of Hong Kong (Hong Kong China); **Fabrice Meriaudeau,** Institut Univ. de Technologie (France); **Dinesh Nair,** National Instruments Corp.; **Paul L. O'Leary,** Montan Univ. Leoben (Austria); **A. Ravishankar Rao,** IBM Thomas J. Watson Research Ctr.; **Jeffery R. Price,** Oak Ridge National Lab.; **Joaquim Salvi,** Univ. de Girona (Spain); **Hamed Sari-Sarraf,** Texas Tech Univ.; **Ralph Seulin,** Univ. de Bourgogne (France); **Kenneth W. Tobin,** Oak Ridge National Lab.; **Yvon Voisin,** Univ. de Bourgogne (France)

Tuesday 29 January

Awards and Plenary Presentation . . Tues. 8:15 to 9:15 am

Digital Forensics

Hany Farid, Dartmouth College

Interactive Paper and Symposium Demonstration Session-Tuesday

Conv. Ctr. Room C3 . . . . . Tues. 5:30 to 8:30 pm

A symposium-wide demonstration session will be open to attendees 5:30 to 8:30 pm Tuesday evening in Room Exhibit Hall 1. Demonstrators will provide interactive, hands-on demonstrations of a wide-range of products related to Electronic Imaging.

Posters . . . . . 5:30 to 7:00 pm

Posters will be placed on display after 9:00 am in Exhibit Hall 1. An interactive paper session, with authors present at their posters, will be held Tuesday evening, 5:30 to 7:00 pm.

Human body segmentation based on adaptive feature selection in complex situation, Sheng Bi, Dalian Maritime Univ. (China); Baolin Shao, Huazhong Univ. of Science and Technology (China); Dequn Liang, Xiaoyan Shen, Dalian Maritime Univ. (China). . . . . [6813-33]

Real-time human body posture imitation system using a stereo vision system, Young-Keun Kim, Ho-Chul Shin, Jae-Il Cho, Electronics and Telecommunications Research Institute (South Korea). . . . . [6813-34]

Unusual behavior detection in the entry gate scenes of subway station using Bayesian networks and inference, Sooyeong Kwak, Guntae Bae, Hyeran Byun, Yonsei Univ. (South Korea) . . . . . [6813-36]

Human face detection using motion and color information, Kyoung-Ho Choi, Yang-Gyoun Kim, Mokpo National Univ. (South Korea). . . . [6813-37]

Research of online automatism identification algorithm based on image character sequence look-up table, Yueping Han, North Univ. of China (China) . . . . . [6813-38]

Camera calibration and near-view vehicle speed estimation, Futang Peng, Changsong Liu, Xiaoqing Ding, Tsinghua Univ. (China) . . . [6813-35]

HMAX model for palmprint recognition, Mahboubeh Yaqubi, Islamic Azad Univ. (Iran) . . . . . [6813-39]

Wednesday 30 January

Plenary Presentation . . . . . Wed. 8:30 to 9:15 am

The making of "The Inner Life of the Cell"

David Bolinsky, Medical Director/Partner XVIVO Scientific Annimation

SESSION 1

Conv. Ctr. Room C3 . . . . . .Wed. 9:30 to 10:30 am

Machine Vision and Robotics

Session Chair: **Kurt S. Niel,** Fachhochschule Wels (Austria)

9:30 am: **Vision robot with rotational camera for searching ID tags**, Nobutaka Kimura, Toshio Moriya, Hitachi, Ltd. (Japan). . . . . [6813-01]

9:50 am: **A unifying software architecture for nodel-based visual tracking**, Giorgio Panin, Technische Univ. München (Germany). . [6813-43]

10:10 am: **Video object tracking using improved chamfer matching and condensation particle filter**, Tao Wu, Xiaoqing Ding, Shengjin Wang, Tsinghua Univ. (China); Kongqiao Wang, Nokia Research Ctr. (China) . . . . . [6813-03]

Coffee Break . . . . . 10:30 to 11:00 am

SESSION 2

Conv. Ctr. Room C3 . . . . . .Wed. 11:00 am to 12:20 pm

HW Equipment

Session Chair: **David Fofi,** Univ. de Bourgogne (France)

11:00 am: **Compact and thin multi-lens system for machine vision applications**, Edmund Y. Lam, The Univ. of Hong Kong (Hong Kong China) . . . . . [6813-04]

11:20 am: **Feasibility study for a catadioptric bispectral imaging system**, Christelle Gée, Ludovic Berret, Jéremie Bossu, Claire Chardon, Gawain Jones, Etablissement National d'Enseignement Supérieur Agronomique de Dijon (France); Frédéric Truchetet, Univ. de Bourgogne (France) . [6813-05]

11:40 am: **Video-rate or high-precision: a flexible range imaging camera**, Adrian A. Dorrington, Michael J. Cree, The Univ. of Waikato (New Zealand); Dale A. Carnegie, Victoria Univ. of Wellington (New Zealand); Andrew D. Payne, Richard M. Conroy, The Univ. of Waikato (New Zealand); Adrian P. Jongenelen, Victoria Univ. of Wellington (New Zealand) [6813-06]

12:00 pm: **Polarization imaging for industrial inspection**, Fabrice Meriaudeau, Olivier Morel, Mathias Ferraton, Christophe Stolz, Univ. de Bourgogne (France); Laurent Bigué, Univ. de Haute Alsace (France). . . . . [6813-07]

Lunch/Exhibition Break . . . . . 12:20 to 2:00 pm

SESSION 3

Conv. Ctr. Room C3 . . . . . Wed. 2:00 to 3:00 pm

3D Applications and CT/MR

Session Chair: **Jeffery R. Price,** Oak Ridge National Lab.

2:00 pm: **Machine vision approach for improving accuracy of focus-based depth measurements**, Robert Bryll, Micro Encoder Inc. . [6813-09]

2:20 pm: **New solutions and applications of 3D computer tomography image processing**, Ira M. Effenberger, Julia W. Kroll, Fraunhofer-Institut für Produktionstechnik und Automatisierung (Germany). . . . . [6813-10]

2:40 pm: **3D geometric modeling of hand-woven textile**, H. Shidanshidy, Fazel Naghdy, Golshah A. Naghdy, D. Wood Conroy, Univ. of Wollongong (Australia) . . . . . [6813-42]

Coffee Break . . . . . 3:00 to 3:30 pm

SESSION 4

Conv. Ctr. Room C3 . . . . . Wed. 3:30 to 5:30 pm

Multiresolution and Mathematical Fitting I

Session Chair: **Edmund Yin-Mun Lam,** The Univ. of Hong Kong (Hong Kong China)

3:30 pm: **A modular non-negative matrix factorization for parts-based object recognition using subspace representation**, Ivan Bajla, Daniel Soukup, ARC Seibersdorf Research GmbH (Austria) . . . . . [6813-12]

3:50 pm: **A new approach to facial expression recognition**, Samuel C. Lee, Jordan D. Kuehn, Univ. of Oklahoma. . . . . [6813-13]

4:10 pm: **A novel circle detection method using radon transform**, Honghong Peng, Raghuveer M. Rao, Rochester Institute of Technology. . . . . [6813-14]

4:30 pm: **An algorithm for automated registration of maps and images based on feature detection and mutual information**, Xiaofeng Fan, Harvey E. Rhody, Eli S. Saber, Rochester Institute of Technology [6813-15]

4:50 pm: **Automatic cell segmentation and classification using morphological features and Bayesian network**, Mi-Ra Jung, Jeong-Hee Shim, Byoung-Chul Ko, Jae-Yeal Nam, Keimyung Univ. (South Korea). . . . . [6813-16]

5:10 pm: **Multi-model geometrical fitting for generic image matching**, Lixin Fan, Timo Pylvänäinen, Nokia Research Ctr. (Finland) . . . . . [6813-40]

Thursday 31 January

SESSION 5

Conv. Ctr. Room C3 . . . . . Thurs. 9:00 to 9:40 am

Multiresolution and Mathematical Fitting II

Session Chair: **Edmund Yin-Mun Lam,** The Univ. of Hong Kong (Hong Kong China)

9:00 am: **Constraint optimization method for line fitting**, Bing Li, Lockheed Martin Co. . . . . [6813-17]

9:20 am: A digital topology based method for topological filtering of a reconstructed surface, Donglei Li, Madjid Allili, Bishop's Univ. (Canada) . . . . . [6813-18]

SESSION 6

Conv. Ctr. Room C3 . . . . . Thurs. 9:40 to 11:50 am

Computer Vision Algorithms for Industrial and Medical Applications

Session Chair: **Michael J. Cree,** The Univ. of Waikato (New Zealand)

9:40 am: **Edge noise removal in multimodal background modeling techniques**, Jee W. Choi, Senyo Apewokin, Brian E. Valentine, D. Scott Wills, Linda M. Wills, Georgia Institute of Technology. . . . . [6813-19]

10:00 am: **Robust edge-detection algorithm for runway-edge detection**, Swathi Tandra, Zia-ur Rahman, Old Dominion Univ. . . . . [6813-20]

Coffee Break . . . . . 10:20 to 10:50 am

10:50 am: **The effect of JPEG compression on automated detection of microaneurysms in retinal images**, Michael J. Cree, The Univ. of Waikato (New Zealand); Herbert F. Jelinek, Charles Sturt Univ. (Australia) . [6813-21]

11:10 am: **Tracking deformable objects with the Georgiou metric in a particle filtering framework**, Romeil S. Sandhu, Yogesh Rathi, James Malcolm, Allen Tannenbaum, Georgia Institute of Technology . . . [6813-22]

11:30 am: **Methods of statistical uncertainty analysis applied to evaluation algorithms of a video-extensometer system**, Ewald Fauster, Hotvision Research GmbH (Austria); Paul L. O'Leary, Montan Univ. Leoben (Austria) . . . . . [6813-23]

Lunch Break . . . . . 11:50 am to 1:10 pm

SESSION 7

Conv. Ctr. Room C3 . . . . . Thurs. 1:10 to 2:10 pm

Multispectral Imaging

Session Chair: **Fabrice Meriaudeau,** Univ. de Bourgogne (France)

1:10 pm: **Color/gray image in color cover hiding using modification**, Kamel A. Moursy, Menoufia Univ. (Egypt) . . . . . [6813-24]

1:30 pm: **2D virtual texture on 3D real object with color structured light**, Thierry Molinier, David Fofi, Univ. de Bourgogne (France); Joaquim Salvi, Univ. de Girona (Spain); Patrick Gorria, Univ. de Bourgogne (France). . . . . [6813-25]

1:50 pm: Real-time line-scan extraction from infrared images using the wedge method in industrial environments, Rubén Usamentiaga, Daniel F. Garcia, Julio Molleda, Univ. de Oviedo (Spain) . . . . . [6813-26]

SESSION 8

Conv. Ctr. Room C3 . . . . . Thurs. 2:10 to 5:00 pm

Industrial Applications

Session Chair: **Kurt S. Niel,** Fachhochschule Wels (Austria)

2:10 pm: **Automatic fire detection system using CCD camera and Bayesian network**, Kwang-Ho Cheong, Byoung-Chul Ko, Jae-Yeal Nam, Keimyung Univ. (South Korea) . . . . . [6813-27]

2:30 pm: **Characterizing of surface defects on plastic specimens with an optical measurement system**, Robert Gahleitner, Kurt S. Niel, Fachhochschule Wels (Austria); Sybille Frank, Borealis Polyolefine GmbH (Austria) . . . . . [6813-28]

2:50 pm: **Directional filter banks for detecting unpatterned LCD defect**, No Kap Park, Suk In Yoo, Seoul National Univ. (South Korea) . . . [6813-29]

Coffee Break . . . . . 3:10 to 3:40 pm

3:40 pm: **Non-referential method for detects inspection of TFT-LCD pad**, Hye Won Kim, Suk In Yoo, Seoul National Univ. (South Korea). . . . . [6813-30]

4:00 pm: **Statistical methods for texture analysis applied to agronomical images**, Frédéric Cointault, Etablissement National d'Enseignement Superieur Agronomique de Dijon (France); Pierre Gouton, Univ. de Bourgogne (France) . . . . . [6813-31]

4:20 pm: **Curvelet-based moving object tracking**, Gaurav Tripathi, Indian Institute of Information Technology (India). . . . . [6813-32]

4:40 pm: **Geometric in-line inspection of profiled strips and welding seams**, Johann Reisinger, voestalpine Mechatronics GmbH (Austria); Kurt S. Niel, Fachhochschule Wels (Austria); Mark Tratnig, voestalpine mechatronics GmbH (Austria) . . . . . [6813-41]

Computational Imaging VI

Conference Chairs: **Charles A. Bouman,** Purdue Univ.; **Eric L. Miller,** Tufts Univ.; **Ilya Pollak,** Purdue Univ.

Program Committee: **Samit Basu,** GE Global Research; **Thomas S. Denney,** Auburn Univ.; **Peter C. Doerschuk,** Purdue Univ.; **Peyman Milanfar,** Univ. of California/Santa Cruz; **Joseph A. O'Sullivan,** Washington Univ. in St. Louis; **Zygmunt Pizlo,** Purdue Univ.; **Stanley J. Reeves,** Auburn Univ.; **Yongyi Yang,** Illinois Institute of Technology

Cosponsored by: **GE Healthcare**

Monday 28 January

SESSION 1

Conv. Ctr. Room A4 . . . . . .Mon. 8:30 to 9:00 am

Keynote Presentation I

Session Chair: **Charles A. Bouman,** Purdue Univ.

8:30 am: Fast acquisition and reconstruction in imaging enabled by sampling theory (Invited Paper), Yoram Bresler, Univ. of Illinois at Urbana-Champaign . . . . . [6814-01]

SESSION 2

Conv. Ctr. Room A4 . . . . . .Mon. 9:00 to 10:20 am

Image Reconstruction I

Session Chair: **Eric L. Miller,** Tufts Univ.

9:00 am: **Regularized estimation of Stokes images from polarimetric measurements**, John R. Valenzuela, Jeffrey A. Fessler, Univ. of Michigan . . . . . [6814-02]

9:20 am: **Nonhomogeneous ICD optimization for targeted reconstruction of volumetric CT**, Zhou Yu, Purdue Univ.; Jean-Baptiste Thibault, GE Healthcare; Ken D. Sauer, Univ. of Notre Dame; Charles A. Bouman, Purdue Univ.; Jiang Hsieh, GE Healthcare . . . . . [6814-03]

9:40 am: **Statistical reconstruction for muon tomography**, Jinyi Qi, Univ. of California/Davis . . . . . [6814-04]

10:00 am: **Fast and accurate scatter estimation**, Samit Basu, GE Global Research . . . . . [6814-05]

Coffee Break . . . . . 10:20 to 10:50 am

SESSION 3

Conv. Ctr. Room A4 . . . . . .Mon. 10:50 am to 12:10 pm

Geometry-based Techniques in Image Analysis

Session Chair: **Mary L. Comer,** Purdue Univ.

10:50 am: **MCMC curve sampling and geometric conditional simulation**, Ayres Fan, John W. Fisher III, Jonathan A. Kane, Alan S. Willsky, Massachusetts Institute of Technology . . . . . [6814-06]

11:10 am: **Mixing geometric and radiometric features for change classification**, Alexandre M. Fournier, Xavier Descombes, Josiane B. Zerubia, INRIA Sophia Antipolis (France) . . . . . [6814-07]

11:30 am: **3D object recognition using fully intrinsic skeletal models**, Djamila Aouada, A. Hamid Krim, North Carolina State Univ. . . . . [6814-08]

11:50 am: **Looking at snake initialization as an inverse problem**, Bing Li, Scott T. Acton, Univ. of Virginia . . . . . [6814-09]

Lunch Break . . . . . 12:10 to 1:30 pm

SESSION 4

Conv. Ctr. Room A4 . . . . . .Mon. 1:30 to 3:10 pm

Segmentation

Session Chair: **Charles A. Bouman,** Purdue Univ.

1:30 pm: **Segmentation of digital microscopy data for the analysis of defects and grain structure of materials**, Landis M. Huffman, Purdue Univ.; Jeff Simmons, Air Force Research Lab.; Ilya Pollak, Purdue Univ. . . . . [6814-10]

1:50 pm: **A new approach for joint estimation of magnitude, decay, and frequency from a single-shot MRI signal**, Weidong Tang, Stanley J. Reeves, Auburn Univ.; Donald B. Twieg, The Univ. of Alabama at Birmingham . . . . . [6814-11]

2:10 pm: **A novel image analysis method based on Bayesian segmentation for event-related functional MRI**, Lejian Huang, Mary L. Comer, Thomas M. Talavage, Purdue Univ. . . . . [6814-12]

2:30 pm: **Volumetric fMRI data analysis using an iterative classification method**, Liang Liu, Kihwan Han, Thomas M. Talavage, Purdue Univ. . . . . [6814-13]

2:50 pm: **Rule-based fuzzy vector median filtering for 3D PCMRI segmentation**, Kartik Sundareswaran, Georgia Institute of Technology; David H. Frakes, 4-D Imaging, Inc.; Ajit P. Yoganathan, Georgia Institute of Technology . . . . . [6814-14]

Coffee Break . . . . . 3:10 to 3:30 pm

SESSION 5

Conv. Ctr. Room A4 . . . . . .Mon. 3:30 to 5:50 pm

Sparse Recovery and Compressed Sensing

Session Chair: **Ilya Pollak,** Purdue Univ.

3:30 pm: **Compressive imaging architectures**, Justin K. Romberg, California Institute of Technology . . . . . [6814-15]

3:50 pm: **Manifold models for compressive imaging**, Michael B. Wakin, Rice Univ. . . . . [6814-16]

4:10 pm: **Fundamental limits in the detection of sparse signals**, Jose A. Costa, California Institute of Technology . . . . . [6814-17]

4:30 pm: **Greedy signal recovery and uncertainty principles**, Roman Vershynin, Deanna Needell, Univ. of California/Davis . . . . . [6814-18]

4:50 pm: **Blind reconstruction of sparse images with unknown point spread function**, Raviv Raich, Oregon State Univ.; Alfred O. Hero III, Kyle Herrity, Univ. of Michigan . . . . . [6814-19]

5:10 pm: **Results in non-iterative MAP reconstruction for optical tomography**, Guangzhi Cao, Charles A. Bouman, Kevin J. Webb, Purdue Univ. . . . . [6814-40]

5:30 pm: **Sparse spectral unmixing**, Mark Davenport, Marco F. Duarte, Rice Univ.; Rebecca M. Willett, Duke Univ.; Richard G. Baraniuk, Rice Univ. . . . . [6814-20]

Tuesday 29 January

Awards and Plenary Presentation . . Tues. 8:15 to 9:15 am

Digital Forensics
Hany Farid, Dartmouth College

SESSION 6

Conv. Ctr. Room A4 . . . . . .Tues. 9:30 to 10:00 am

Keynote Presentation II

9:30 am: Stationary features and cat detection (Invited Paper, Presentation Only), Donald Geman, Johns Hopkins Univ. . . . . [6814-21]

SESSION 7

Conv. Ctr. Room A4 . . . . . Tues. 10:00 am to 12:20 pm

Image Analysis I

Session Chair: **Paul Salama,** Indiana Univ.-Purdue Univ. at Indianapolis

10:00 am: **Learning image-fragment templates by maximum likelihood**, Wei Zhang, Stuart Geman, Brown Univ. . . . . [6814-22]

Coffee Break . . . . . 10:20 to 10:40 am

10:40 am: **A generalization of non-local means via kernel regression**, Peyman Milanfar, Priyam Chatterjee, Univ. of California/Santa Cruz . . . . . [6814-23]

11:00 am: **Functional minimization problems in image processing**, Luminita A. Vese, Univ. of California/Los Angeles . . . . . [6814-24]

11:20 am: **Clustering of target LADAR data on information manifold and by locality preserving projection**, Ping-Feng Chen, Hamid Krim, North Carolina State Univ. . . . . [6814-25]

11:40 am: **An new eigenvalue formulation of the problem of depth-from-motion**, Ji Zhang, Mireille Boutin, Daniel G. Aliaga, Purdue Univ. [6814-26]

12:00 pm: **3D shape: its unique place in visual perception**, Zygmunt Pizlo, Purdue Univ. . . . . [6814-43]

Lunch/Exhibition Break . . . . . 12:20 to 1:40 pm

SESSION 8

Conv. Ctr. Room A4 . . . . . Tues. 1:40 to 3:20 pm

Image Reconstruction II

Session Chair: **Edward J. Delp,** Purdue Univ.

1:40 pm: **A least squares approach to estimating the probability distribution of unobserved data in multiphoton microscopy**, Paul Salama, Indiana Univ.-Purdue Univ. at Indianapolis . . . . . [6814-27]

2:00 pm: **Progress in mesh based spatio-temporal reconstruction**, Jovan G. Brankov, Ricard Delgado, Yongyi Yang, Mingwu Jin, Miles N. Wernick, Illinois Institute of Technology . . . . . [6814-28]

2:20 pm: **Diode laser absorption tomography using data compression techniques**, Chad Lindstrom, Air Force Research Lab.; Ryan Givens, Air Force Institute of Technology; Chung-Jen Tam, Doug Davis, Skip Williams, Air Force Research Lab. . . . . [6814-29]

2:40 pm: **3D macromolecule structure reconstruction from a single view electron micrograph by exploiting symmetry and sparsity**, Min Woo Kim, Jiyoung Choi, Jong Chul Ye, Korea Advanced Institute of Science and Technology (South Korea) . . . . . [6814-30]

3:00 pm: **Alternating minimization algorithm for quantitative differential-interference contrast (DIC) microscopy**, Joseph A. O'Sullivan, Washington Univ. in St. Louis; Chrysanthe Preza, The Univ. of Memphis . . . . . [6814-42]

Coffee Break . . . . . 3:20 to 3:50 pm

SESSION 9

Conv. Ctr. Room A4 . . . . . Tues. 3:50 to 5:30 pm

Image Analysis II

Session Chair: **Mireille Boutin,** Purdue Univ.

3:50 pm: **Image filter effectiveness characterization with taking into account HVS**, Vladimir V. Lukin, Nikolay N. Ponomarenko, Sergey S. Krivenko, National Aerospace Univ. (Ukraine); Jaakko T. Astola, Karen O. Egiazarian, Tampere Univ. of Technology (Finland) . . . . . [6814-31]

4:10 pm: **Mutual information based multimodal unbiased large deformation image registration**, Igor Yanovsky, Paul M. Thompson, Alex D. Leow, Univ. of California/Los Angeles . . . . . [6814-32]

4:30 pm: **Technology-assisted dietary assessment**, Edward J. Delp III, David S. Ebert, Carol J. Boushey, Purdue Univ. . . . . [6814-33]

4:50 pm: **New methods for fMRI data processing based on locally near embeddings**, Imam Samil Yetik, Illinois Institute of Technology. . [6814-34]

5:10 pm: Online consistency checking for AM-FM target tracks, Chuong T. Nguyen, Nick Mould, Ngao D. Mamuya, Joseph P. Havlicek, Univ. of Oklahoma . . . . . [6814-35]

Interactive Paper and Symposium Demonstration Session

Conv. Ctr. Room A4 . . . . . Tues. 5:30 to 8:30 pm

A symposium-wide demonstration session will be open to attendees 5:30 to 8:30 pm Tuesday evening in Room Exhibit Hall 1. Demonstrators will provide interactive, hands-on demonstrations of a wide-range of products related to Electronic Imaging.

Posters . . . . . 5:30 to 7:00 pm

Posters will be placed on display after 9:00 am in Exhibit Hall 1. An interactive paper session, with authors present at their posters, will be held Tuesday evening, 5:30 to 7:00 pm.

Image mosaicking using local descriptor based on color invariants, Dong-Chang Lee, Oh-Seol Kwon, Kyung-Woo Woo, Yeong-Ho Ha, Kyungpook National Univ. (South Korea). . . . . [6814-36]

Inverse perspective transformation for video surveillance, Theo E. Schouten, Radboud Univ. Nijmegen (Netherlands); Egon L. van den Broek, Univ. Twente (Netherlands) . . . . . [6814-37]

Illumination normalization for face recognition, Ji Hoon Kim, Jong Geun Park, Chulhee Lee, Yonsei Univ. (South Korea) . . . . . [6814-38]

Audio-video synchronization management in embedded multimedia applications, Hamood-Ur Rehman, The Univ. of Texas at Austin; Taehyun Kim, Freescale Semiconductor, Inc.; Niranjan Avadhanam, Novafora Inc.; Sridharan Subramanian, Freescale Semiconductor, Inc.. . . . . [6814-41]

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Document Recognition and Retrieval XV

Conference Chair: **Berrin Yanikoglu,** Sabanci Univ. (Turkey); **Kathrin Berkner,** Ricoh Innovations, Inc.

Program Committee: **Tim L. Andersen,** Boise State Univ.; **Apostolos Antonacopoulos,** Univ. of Salford (United Kingdom); **Elisa H. Barney-Smith,** Boise State Univ.; **Xiaoqing Ding,** Tsinghua Univ. (China); **David Scott Doermann,** Univ. of Maryland/College Park; **Jianying Hu,** IBM Thomas J. Watson Research Ctr.; **Matthew F. Hurst,** Intelliseek, Inc.; **Hisashi Ikeda,** Hitachi, Ltd. (Japan); **Tapas Kanungo,** Yahoo! Inc.; **Laurence Likforman-Sulem,** École Nationale Supérieure des Télécommunications (France); **Xiaofan Lin,** Riya Inc.; **Daniel P. Lopresti,** Lehigh Univ.; **Lambert Schomaker,** Univ. of Groningen (Netherlands); **Sargur N. Srihari,** Univ. at Buffalo; **Venkata Subramaniam,** IBM India Research Lab. (India); **Kazem Taghva,** Univ. of Nevada/Las Vegas; **George R. Thoma,** National Library of Medicine

Cosponsored by: RICOH

Tuesday 29 January

Awards and Plenary Presentation . . Tues. 8:15 to 9:15 am

Digital Forensics
Hany Farid, Dartmouth College

Interactive Paper and Symposium Demonstration Session-Tuesday

Conv. Ctr. Room A2 . . . . . Tues. 5:30 to 8:30 pm

A symposium-wide demonstration session will be open to attendees 5:30 to 8:30 pm Tuesday evening in Room Exhibit Hall 1. Demonstrators will provide interactive, hands-on demonstrations of a wide-range of products related to Electronic Imaging.

Posters . . . . . 5:30 to 7:00 pm

Posters will be placed on display after 9:00 am in Exhibit Hall 1. An interactive paper session, with authors present at their posters, will be held Tuesday evening, 5:30 to 7:00 pm.

Model-based document categorization employing semantic pattern analysis and local structure clustering, Kosei Fume, Yasuto Ishitani, Toshiba Corp. (Japan) . . . . . [6815-37]

Large-scale parallel document image processing, Tijn van der Zant, Lambert R. B.Schomaker, Rijksuniv. Groningen (Netherlands) . . . [6815-28]

A mixed approach to auto-detection of page body, Liangcai Gao, Zhi Tang, Ruiheng Qiu, Peking Univ. (China) . . . . . [6815-29]

Extracting curved text lines using the chain composition and the expanded grouping method, Bai Noi Nguyen, Nam Kim, Youngjun Song, Chungbuk National Univ. (South Korea). . . . . [6815-30]

Achieving high-recognition reliability using decision trees and AdaBoost, Jianying Xiang, Xiao Tu, Yue Lu, East China Normal Univ. (China); Patrick S. P.Wang, Northeastern Univ. . . . . [6815-31]

A generic method for structure recognition of handwritten mail documents, Aurélie Lemaitre, Jean Camillerapp, Bertrand Coüasnon, Institut National des Sciences Appliquées de Rennes (France). . . [6815-32]

Hybrid approach combining contextual and statistical information for identifying MEDLINE citation terms, In Cheol Kim, Daniel X. Le, George R. Thoma, National Library of Medicine . . . . . [6815-33]

Form classification, Umamaheswara R. Konda Venkata, Venu Govindaraju, Univ. at Buffalo. . . . . [6815-34]

Interactive degraded document enhancement and ground truth generation, Gulsher Bal, Gady Agam, Ophir Frieder, Illinois Institute of Technology; Gideon Frieder, The George Washington Univ.. . . . . [6815-35]

Efficient implementation of local adaptive thresholding techniques using integral images, Faisal Shafait, Daniel Keysers, Deutsches Forschungszentrum für Künstliche Intelligenz GmbH (Germany); Thomas M. Breuel, Technische Univ. Kaiserslautern (Germany) . . . . . [6815-36]

Wednesday 30 January

Plenary Presentation . . . . . Wed. 8:30 to 9:15 am

The making of "The Inner Life of the Cell"
David Bolinsky, Medical Director/Partner XVIVO Scientific Annimation

SESSION 1

Conv. Ctr. Room A2 . . . . . .Wed. 9:30 to 10:10 am

Invited Presentation

9:30 am: **DRR is a teenager** *(Invited Paper)*, George Nagy, Rensselaer Polytechnic Institute. . . . . [6815-01]

Coffee Break . . . . . 10:10 to 10:40 am

SESSION 2

Conv. Ctr. Room A2 . . . . . .Wed. 10:40 am to 12:00 pm

Classification and Recognition I

10:40 am: **Recognition of Arabic handwritten words using contextual character models**, Rami Al Hajj Mohamed, Ecole Nationale Supérieure des Télécommunications (France) and Univ. of Balamand (Lebanon); Chafic Mokbel, Univ. of Balamand (Lebanon); Laurence Likforman-Sulem, Ecole Nationale Supérieure des Télécommunications (France). . . . . [6815-02]

11:00 am: **Combining different classification approaches to improve offline Arabic handwritten word recognition**, Ilya Zavorin, Eugene Borovikov, Ericson Davis, Anna Borovikov, CACI International Inc.[6815-03]

11:20 am: **Writer adaptation in offline Arabic handwriting recognition**, Gregory R. Ball, Sargur N. Srihari, Univ. at Buffalo . . . . . [6815-04]

11:40 am: **Information-theoretic whole-book recognition**, Pingping Xiu, Henry S. Baird, Lehigh Univ. . . . . [6815-05]

Lunch/Exhibition Break . . . . . 12:00 to 1:40 pm

SESSION 3

Conv. Ctr. Room A2 . . . . . .Wed. 1:40 to 3:00 pm

Image Processing and Enhancement

1:40 pm: **Interactive evolutionary computing for cleaning dirty old documents**, Tijn van der Zant, Axel A. Brink, Rijksuniv. Groningen (Netherlands) . . . . . [6815-06]

2:00 pm: **Correlating degradation models and image quality metrics**, Darrin K. Reed, Elisa H. Barney Smith, Boise State Univ. . . . . [6815-27]

2:20 pm: **Ensemble LUT classification for degraded document enhancement**, Tayo Obafemi-Ajayi, Gady Agam, Ophir Frieder, Illinois Institute of Technology. . . . . [6815-08]

2:40 pm: **Automatic removal of crossed-out handwritten text and the effect on writer verification and identification**, Axel A. Brink, Harro van der Klauw, Lambert R. B.Schomaker, Rijksuniv. Groningen (Netherlands) . . . . . [6815-10]

Coffee Break . . . . . 3:00 to 3:30 pm

SESSION 4

Conv. Ctr. Room A2 . . . . . .Wed. 3:30 to 4:50 pm

Segmentation I

3:30 pm: **A mixed approach to book splitting**, Liangcai Gao, Zhi Tang, Peking Univ. (China) . . . . . [6815-11]

3:50 pm: **Robust line segmentation for handwritten documents**, Kamal Kuzhinjedathu, Harish Srinivasan, Sargur Srihari, Univ. at Buffalo [6815-12]

4:10 pm: **Line-touching character recognition based on dynamic reference feature synthesis**, Yoshinobu Hotta, Katsuhito Fujimoto, Fujitsu Labs., Ltd. (Japan) . . . . . [6815-13]

4:30 pm: **Word segmentation of offline handwritten documents**, Chen Huang, Sargur N. Srihari, Univ. at Buffalo . . . . . [6815-14]

Thursday 31 January

SESSION 5

Conv. Ctr. Room A2 . . . . . .Thurs. 8:30 to 9:10 am

Invited Presentation

8:30 am: The OCRopus open source OCR system (Invited Paper), Thomas M. Breuel, Deutsches Forschungszentrum für Künstliche Intelligenz GmbH (Germany) and Technische Univ. Kaiserslautern (Germany) . . . . . [6815-15]

SESSION 6

Conv. Ctr. Room A2 . . . . . .Thurs. 9:10 to 10:10 am

Classification and Recognition II

9:10 am: **Measuring the impact of character recognition errors on downstream text analysis**, Daniel P. Lopresti, Lehigh Univ. . . . . [6815-16]

9:30 am: **Online writer identification using character prototype distributions**, Siew K. Chan, Univ. Tunku Abdul Rahman (Malaysia); Christian Viard-Gaudin, Univ. de Nantes (France); Yong H. Tay, Univ. Tunku Abdul Rahman (Malaysia). . . . . [6815-17]

9:50 am: **Stroke frequency descriptors for handwriting-based writer identification**, Bart Dolega, Gady Agam, Shlomo Argamon, Illinois Institute of Technology. . . . . [6815-18]

Coffee Break . . . . . 10:10 to 10:40 am

SESSION 7

Conv. Ctr. Room A2 . . . . . Thurs. 10:40 am to 12:00 pm

Segmentation II

10:40 am: **Address block localization approach based on the graph theory**, Djamel Gaceb, Véronique Eglin, Frank Lebourgeois, Hubert Emptoz, Institut National des Sciences Appliquées de Lyon (France). . . . . [6815-19]

11:00 am: **Versatile page numbering analysis**, Jean-Luc Meunier, Herve Dejean, Xerox Research Ctr. Europe (France) . . . . . [6815-20]

11:20 am: **Retrieval of document images from diverse collections**, Michael A. Moll, Henry S. Baird, Lehigh Univ. . . . . [6815-21]

11:40 am: **Transcript mapping for handwritten English documents**, Damien S. Jose, Anurag Bhardwaj, Venu Govindaraju, Univ. at Buffalo . . . . . [6815-22]

Lunch Break . . . . . 12:00 to 1:40 pm

SESSION 8

Conv. Ctr. Room A2 . . . . . .Thurs. 1:40 to 3:00 pm

Information Extraction and Document Retrieval

1:40 pm: **Word mining in a sparsely labeled handwritten collection**, Lambert R. B.Schomaker, Rijksuniv. Groningen (Netherlands) . . . [6815-23]

2:00 pm: **An OCR-based approach for word spotting in Devanagari documents**, Suryaprakash Kompalli, Venu Govindaraju, Srirangaraj Setlur, Anurag Bhardwaj, Univ. at Buffalo . . . . . [6815-24]

2:20 pm: **Extracting a sparsely located named entity from online HTML medical articles using support vector machine**, Jie Zou, Daniel X. Le, George R. Thoma, National Library of Medicine . . . . . [6815-25]

2:40 pm: **Exploring use of images in clinical articles for decision support in evidence-based medicine**, Sameer K. Antani, Dina Demner-Fushman M.D., National Library of Medicine; Jiang Li, Univ. at Buffalo; Balaji Srinivasan, Univ. of Maryland/College Park; George R. Thoma, National Library of Medicine . . . . . [6815-26]

Coffee Break . . . . . 3:00 to 3:30 pm

Panel Discussion . . . . . Thurs. 3:30 to 5:00 pm

Sensors, Cameras, and Systems for Industrial/Scientific Applications IX

Conference Chair: **Morley M. Blouke,** Ball Aerospace & Technologies Corp.

Program Committee: **Erik Bodegom,** Portland State Univ.; **Terrence S. Lomheim,** The Aerospace Corp.; **Kevin J. Matherson,** Hewlett-Packard Co.; **Gloria G. Putnam,** Eastman Kodak Co.; **Valérie Nguyen,** Commissariat à l'Energie Atomique (France); **Alice L. Reinheimer,** e2v; **Nobukazu Teranishi,** Matsushita Electric Industrial Co., Ltd. (Japan); **Penny G. Warren,** Ball Aerospace & Technologies Corp.; **Orly Yadid-Pecht,** Univ. of Calgary (Canada)

Tuesday 29 January

Awards and Plenary Presentation . . Tues. 8:15 to 9:15 am

Digital Forensics
Hany Farid, Dartmouth College

Interactive Paper and Symposium Demonstration Session-Tuesday

Conv. Ctr. Room A6 . . . . . Tues. 5:30 to 8:30 pm

A symposium-wide demonstration session will be open to attendees 5:30 to 8:30 pm Tuesday evening in Room Exhibit Hall 1. Demonstrators will provide interactive, hands-on demonstrations of a wide-range of products related to Electronic Imaging.

Posters . . . . . 5:30 to 7:00 pm

Posters will be placed on display after 9:00 am in Exhibit Hall 1. An interactive paper session, with authors present at their posters, will be held Tuesday evening, 5:30 to 7:00 pm.

Using image processing techniques to develop a new water level sensor, Reza Firoozkoohi, Sharif Univ. of Technology (Iran). . . . . [6816-26]

In vivo microscopic x-ray imaging in rat and mouse using synchrotron radiation, Keiji Umetani, Japan Synchrotron Radiation Research Institute (Japan); Takashi Sakurai, Takeshi Kondoh, Kobe Univ. (Japan) . . [6816-27]

Wednesday 30 January

Plenary Presentation . . . . . Wed. 8:30 to 9:15 am

The making of "The Inner Life of the Cell"
David Bolinsky, Medical Director/Partner XVIVO Scientific Annimation

SESSION 1

Conv. Ctr. Room A6 . . . . . .Wed. 9:30 am to 12:20 pm

Sensors I

Session Chair: **Morley M. Blouke,** Ball Aerospace & Technologies Corp.

9:30 am: **A wide dynamic range CMOS image sensor with an adjustable logarithmic response**, Hsiu-Yu Cheng, Bhaskar Choubey, Steve P. Collins, Univ. of Oxford (United Kingdom) . . . . . [6816-01]

9:50 am: **Methods to extend the dynamic range of snapshot active pixel sensors**, Arnaud Darmont, Melexis Tessenderlo N.V. (Belgium). . [6816-02]

10:10 am: **A low-noise wide dynamic range CMOS image sensor with low and high-temperatures resistance**, Koichi Mizobuchi, Satoru Adachi, Jose Tejada, Texas Instruments Japan Ltd. (Japan); Nana Akahane, Shigetoshi Sugawa, Tohoku Univ. (Japan). . . . . [6816-03]

Coffee Break . . . . . 10:30 to 11:00 am

11:00 am: **A linear response 200-dB dynamic range CMOS image sensor with multiple voltage and current readout operations**, Noriko Ide, Nana Akahane, Shigetoshi Sugawa, Tohoku Univ. (Japan) . . [6816-04]

11:20 am: **A wide dynamic range image sensor with dual charge storage in a pixel and a multiple sampling technique**, Suhaidi Bin Shafie, Kawahito Shoji, Shizuoka Univ. (Japan). . . . . [6816-05]

11:40 am: **Ionizing radiation effects on CMOS imagers manufactured in deep submicron process**, Vincent Goiffon, Pierre Magnan, Ecole Nationale Supérieure de l'Aéronautique et de l'Espace (France); Frédéric Bernard, Guy Rolland, Ctr. National d'Études Spatiales (France); Olivier Saint-Pé, EADS Astrium (France); Nicolas Huger, Franck Corbière, Ecole Nationale Supérieure de l'Aéronautique et de l'Espace (France). . . . . [6816-06]

12:00 pm: **Influence of terrestrial cosmic rays on the reliability of CCD image sensors**, Albert Theuwissen, Harvest Imaging (Belgium). . [6816-07]

Lunch/Exhibition Break . . . . . 12:20 to 1:50 pm

SESSION 2

Conv. Ctr. Room A6 . . . . . .Wed. 1:50 to 3:30 pm

Modeling

Session Chair: **Alice L. Reinheimer,** e2v

1:50 pm: **FDTD-based optical simulations methodology for CMOS image sensors pixels architecture and process optimization**, Flavien Hirigoyen, Axel Crocherie, Jérôme M. Vaillant, Yvon Cazaux, STMicroelectronics (France). . . . . [6816-08]

2:10 pm: **Characterization of pixel defect development during digital imager lifetime**, Jenny Leung, Glenn H. Chapman, Jozsef Dudas, Simon Fraser Univ. (Canada); Israel Koren, Zahava Koren, Univ. of Massachusetts/ Amherst . . . . . [6816-09]

2:30 pm: **Measurements of dark current in a CCD imager during light exposures**, Ralf Widenhorn, Ines Hartwig, Erik Bodegom, Portland State Univ. . . . . [6816-10]

2:50 pm: **Dark current measurements in a CMOS imager**, Erik Bodegom, Bradley Kopp, William Porter, Ralf Widenhorn, Portland State Univ. . . . . [6816-11]

3:10 pm: **Noise calculation model and analysis of high-gain readout circuits for CMOS image sensors**, Shoji Kawahito, Shinya Itoh, Shizuoka Univ. (Japan). . . . . [6816-12]

Coffee Break . . . . . 3:30 to 4:00 pm

SESSION 3

Conv. Ctr. Room A6 . . . . . .Wed. 4:00 to 5:20 pm

Applications I

Session Chair: **Morley M. Blouke,** Ball Aerospace & Technologies Corp.

4:00 pm: **An automated system for performance assessment of airport lighting**, James H. Niblock, Jian-Xun Peng, Holly Grimes, Karen R. McMenemy, Queen's Univ. Belfast (United Kingdom). . . . . [6816-13]

4:20 pm: **Integrated daylight harvesting and occupancy detection using digital imaging**, Abhijit Sarkar, Mark D. Fairchild, Carl Salvaggio, Rochester Institute of Technology. . . . . [6816-14]

4:40 pm: **New application of scintillator ZnSe(Te) for medical imaging, explosive detection, and NDT**, Oleksandr D. Opolonin, Volodymyr D. Ryzhikov, Institute of Scintillating Materials (Ukraine) and Institute for Single Crystals (Ukraine); Alexander G. Fedorov, Olena K. Lysetska, Institute of Scintillating Materials (Ukraine); Sergey A. Kostioukevitch, Institute of Semiconductor Physics (Ukraine) . . . . . [6816-15]

5:00: **Image formation in metamirror channel structures**, Eugene Y. Glushko, Institute of Semiconductor Physics (Ukraine). . . . . [6816-16]

Thursday 31 January

SESSION 4

Conv. Ctr. Room A6 . . . . . .Thurs. 8:50 to 10:30 am

Applications II

Session Chair: **Erik Bodegom,** Portland State Univ.

8:50 am: **Reference beam method for source modulated Hadamard multiplexing**, Lee V. Streeter, The Univ. of Waikato (New Zealand) and AgResearch (New Zealand); Robert Burling-Claridge, AgResearch (New Zealand); Michael J. Cree, Rainer Kunnemeyer, The Univ. of Waikato (New Zealand) . . . . . [6816-17]

9:10 am: **Continuously trackable PIV (particle image velocimetry) with correlation image sensor**, Toru Kurihara, Shigeru Ando, The Univ. of Tokyo (Japan). . . . . [6816-19]

9:30 am: **Adaptive optical flow detection using correlation image sensor and frequency-tuned complex-sinusoidal reference signals**, Dabi Wei, Paul Masurel, Toru Kurihara, Shigeru Ando, The Univ. of Tokyo (Japan) . . . . . [6816-20]

9:50 am: **A new adaptive FIHS image fusion technique for IKONOS satellite imagery**, Jae Wan Choi, Hye Jin Kim, Ki Yun Yu, Yong Il Kim, Seoul National Univ. (South Korea) . . . . . [6816-21]

10:10 am: **Dynamic displacement measurement of low-E membrane reactor by PSD based on laser-triangulation method**, Baoqiang Li, Yao Zhang, Tiegen Liu, Tianjin Univ. (China). . . . . [6816-22]

Coffee Break. . . . . 10:30 to 11:00 am

SESSION 5

Conv. Ctr. Room A6 . . . . . Thurs. 11:00 am to 12:40 pm

Sensors II

Session Chair: **Valérie Nguyen,** Commissariat à l'Energie Atomique (France)

11:00 am: **A new current mirroring integration based readout circuit design for infrared imaging sensors of MCT**, Gholamreza Akbari Zadeh, Sr., Mariam Afshin, Gholamali Rezai Rad, Iran Univ. of Science and Technology (Iran) . . . . . [6816-23]

11:20 am: **Mitigating polarization effects in on-die diffractive optics for a CMOS image sensor**, Christopher J. Thomas, Richard I. Hornsey, York Univ. (Canada) . . . . . [6816-24]

11:40 am: **A 800(H) x 600(V) high-sensitivity and high-full well capacity CMOS image sensor with active pixel readout feedback operation**, Woonghee Lee, Nana Akahane, Tohoku Univ. (Japan); Satoru Adachi, Koichi Mizobuchi, Texas Instruments Japan Ltd. (Japan); Shigetoshi Sugawa, Tohoku Univ. (Japan). . . . . [6816-25]

12:00 pm: **Auto-adaptative LSB technique for in-pixel analog to digital conversion**, Arnaud Peizerat, Amélie Martin, Michael Tchagaspanian, Valérie Nguyen, CEA/LETI Minatec (France) . . . . . [6816-28]

12:20 pm: **Diffusion dark current in CCDs and CMOS sensors**, Morley M. Blouke, Ball Aerospace & Technologies Corp. . . . . [6816-29]

Digital Photography IV

Conference Chair: **Jeffrey M. DiCarlo,** Hewlett-Packard Labs.; **Brian G. Rodricks,** Fairchild Imaging

Program Committee: **Eiji Atsumi,** Nokia Japan Co., Ltd. (Japan); **Peter B. Catrysse,** Stanford Univ.; **Ted J. Cooper,** Foveon, Inc.; **Nitin Sampat,** Rochester Institute of Technology; **Joyce E. Farrell,** Stanford Ctr. for Image Systems Engineering; **Boyd A. Fowler,** Fairchild Imaging; **Michael A. Kriss,** Consultant; **Jingqiang Li,** Qualcomm, Inc.; **Russel A. Martin,** Foveon, Inc.; **Kevin J. Matherson,** Hewlett-Packard Co.; **John R. Reinert-Nash,** Lifetouch, Inc.; **Gloria G. Putnam,** Eastman Kodak Co.; **Sabine E. Süsstrunk,** École Polytechnique Fédérale de Lausanne (Switzerland); **Dietmar Wueller,** Image Engineering (Germany); **Feng Xiao,** Motorola, Inc.

Monday 28 January

SESSION 1

Conv. Ctr. Room A2 . . . . . .Mon. 8:30 to 10:30 am

Sensor Design

Session Chair: **Boyd A. Fowler,** Fairchild Imaging

8:30 am: **An optimum design of the LOFIC CMOS image sensor for high sensitivity, low noise, and high full well capacity**, Nana Akahane, Woonghee Lee, Shigetoshi Sugawa, Tohoku Univ. (Japan) . . . . . [6817-01]

8:50 am: **Electrical characterization of CMOS 1T charge-modulation pixel in two design configurations**, Arnaud Tournier, STMicroelectronics (France) and Univ. Claude Bernard Lyon 1 (France); François Roy, STMicroelectronics (France); Guo-Neng Lu, Univ. Claude Bernard Lyon 1 (France); Benoît Deschamps, STMicroelectronics (France) . . . . . [6817-02]

9:10 am: **Classification of metallic impurities effect on CMOS image sensor**, Helene Bourdon, STMicroelectronics (France) and Institut d'Électronique du Solide et des Systèmes (France); Milan Zuvic, STMicroelectronics (France); Abdelmadjid Mesli, Institut d'Électronique du Solide et des Systèmes (France); Didier Dutartre, STMicroelectronics (France). . . . . [6817-03]

9:30 am: **CMOS image sensor with overlaid organic photoelectric conversion layers: development of layers with desirable spectral sensitivities**, Mikio Ihama, Tetsuro Mitsui, Masayuki Hayashi, Yoshiki Maehara, Shunji Takada, Fuji Photo Film Co., Ltd. (Japan) . . . . . [6817-04]

9:50 am: **Mitigation of pixel scaling effects in CMOS image sensors**, Christian C. Fesenmaier, Peter B. Catrysse, Stanford Univ. . . . . [6817-05]

10:10 am: **A versatile method for optical performances characterization of off-axis CMOS pixels with microlens radial shift**, Jerome M. Vaillant, Didier Herault, Emilie Huss, Thomas Decroux, Yvon Cazaux, Flavien Hirigoyen, Nicolas Virollet, Christine Augier, Loïc Dematteis, STMicroelectronics (France). . . . . [6817-06]

Coffee Break . . . . . 10:30 to 11:00 am

SESSION 2

Conv. Ctr. Room A2 . . . . . .Mon. 11:00 am to 12:20 pm

Noise Suppression

Session Chair: **Peter B. Catrysse,** Stanford Univ.

11:00 am: **Novel method of Euclidean distance calculation for bilateral filtering based on CMOS sensor noise profiles**, Maxim Smirnov, Radu Gheorghe, Milivoje Aleksic, Advanced Micro Devices, Inc. (Canada) . . . . . [6817-07]

11:20 am: **Noise-suppression-type image contrast enhancement with the BV-L1 nonlinear image decomposition**, Takahiro Saito, Yuki Ishii, Haruya Aizawa, Takashi Komatsu, Kanagawa Univ. (Japan) . . . . . [6817-08]

11:40 am: **Noise reduction versus spatial resolution**, Uwe Artmann, Dietmar Wueller, Image Engineering (Germany). . . . . [6817-09]

12:00 pm: **Profile-based fast noise estimation and high ISO noise reduction for digital cameras**, Young-Jin Yoo, HoCheon Wey, Seong-Deok Lee, Chang-Yong Kim, SAMSUNG Advanced Institute of Technology (South Korea) . . . . . [6817-10]

Lunch Break . . . . . 12:20 to 2:00 pm

SESSION 3

Conv. Ctr. Room A2 . . . . . .Mon. 2:00 to 3:00 pm

Demosaicking, Auto-focus, and White Balancing

Session Chair: **Joyce E. Farrell,** Stanford Univ.

2:00 pm: **Demosaicking method using the extended color total-variation regularization**, Takahiro Saito, Takashi Komatsu, Kanagawa Univ. (Japan). . . . . [6817-11]

2:20 pm: **Fast and accurate auto-focusing algorithm based on two defocused images using discrete cosine transform**, Byung-Kwan Park, Sung-Su Kim, ByoungHo Kang, Seong-Deok Lee, Chang-Yeong Kim, SAMSUNG Advanced Institute of Technology (South Korea) . . . . [6817-12]

2:40 pm: **WhitebalPR: automatic white balance by polarized reflections**, Gregor Fischer, Univ. of Cologne (Germany) . . . . . [6817-13]

Coffee Break . . . . . 3:00 to 3:30 pm

SESSION 4

Conv. Ctr. Room A2 . . . . . .Mon. 3:30 to 4:30 pm

Image Enhancement

Session Chair: **Ted J. Cooper,** Foveon, Inc.

3:30 pm: **An approach to improve cell-phone cameras dynamic range using a nonlinear lens correction**, Sergio R. Goma, Milivoje Aleksic, Advanced Micro Devices, Inc. (Canada) . . . . . [6817-14]

3:50 pm: **Characterization, measurement, and correction of color fringing**, Frederic Cao, Frédéric Guichard, Hervé Hornung, DxO Labs. (France). . . . . [6817-15]

4:10 pm: Stray light and shading reduction in digital photography: a new model and algorithm, Jianing Wei, Burak Bitlis, Alan Bernstein, Akila de Silva, Purdue Univ.; Peter Jansson, College of Optical Sciences/The Univ. of Arizona; Jan P. Allebach, Purdue Univ. . . . . [6817-16]

SESSION 5

Conv. Ctr. Room A2 . . . . . .Mon. 4:30 to 5:30 pm

Image Compression

Session Chair: **Michael A. Kriss,** Consultant

4:30 pm: **A survey on lossy compression of DSC raw data**, Gregor Fischer, Univ. of Cologne (Germany) . . . . . [6817-17]

4:50 pm: **Digital camera workflow for high-dynamic-range images using a model of retinal processing**, Daniel Tamburrino, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Laurence Meylan, GE Security (Switzerland); David Alleysson, Univ. Pierre-Mendès-France (France); Sabine E. Süsstrunk, Ecole Polytechnique Fédérale de Lausanne (Switzerland). . . . . [6817-18]

5:10 pm: **Efficient color coding for color filter arrays**, Chulhee Lee, Jongwha Lee, Yonsei Univ. (South Korea). . . . . [6817-19]

Tuesday 29 January

Awards and Plenary Presentation . . Tues. 8:15 to 9:15 am

Digital Forensics
Hany Farid, Dartmouth College

SESSION 6

Conv. Ctr. Room A2 . . . . . .Tues. 9:30 to 10:30 am

System Analysis and Design I

Session Chair: **Kevin J. Matherson,** Hewlett-Packard Co.

9:30 am: **Statistic analysis of digital photos**, Dietmar Wueller, Image Engineering (Germany); Reiner Fageth, CeWe Color AG & Co. OHG (Germany) . . . . . [6817-20]

9:50 am: **Mobile camera motion blur: not just a drunkard's walk**, Ted J. Cooper, Paul M. Hubel, Foveon, Inc. . . . . [6817-21]

10:10 am: **A database of high-dynamic-range visible and near-infrared multispectral images**, Manu Parmar, Stanford Univ.; Francisco Imai, Sung Ho Park, Samsung Information Systems America, Inc.; Joyce E. Farrell, Stanford Univ. . . . . [6817-22]

Coffee Break . . . . . 10:30 to 11:00 am

SESSION 7

Conv. Ctr. Room A2 . . . . . Tues. 11:00 am to 12:20 pm

System Analysis and Design II

Session Chair: **Feng Xiao,** Motorola, Inc.

11:00 am: **Using MTF data to simulate lens performance**, Henrik Eliasson, Sony Ericsson Mobile Communication AB (Sweden) . . . [6817-23]

11:20 am: **Spectral sensitivity optimization of color image sensor considering photon shot noise**, Hideyasu Kuniba, Nikon Corp. (Japan); Roy S. Berns, Rochester Institute of Technology . . . . . [6817-24]

11:40 am: **Does resolution really increase image quality?**, Frederic Cao, Frédéric Guichard, Hervé Hornung, DxO Labs. (France) . . . . . [6817-25]

12:00 pm: Sensor calibration and simulation, Joyce E. Farrell, Stanford Univ. . . . . [6817-26]

Interactive Paper and Symposium Demonstration Session

Conv. Ctr. Room A2 . . . . . Tues. 5:30 to 8:30 pm

A symposium-wide demonstration session will be open to attendees 5:30 to 8:30 pm Tuesday evening in Room Exhibit Hall 1. Demonstrators will provide interactive, hands-on demonstrations of a wide-range of products related to Electronic Imaging.

Posters . . . . . 5:30 to 7:00 pm

Posters will be placed on display after 9:00 am in Exhibit Hall 1. An interactive paper session, with authors present at their posters, will be held Tuesday evening, 5:30 to 7:00 pm.

Robust local restoration of space-variant blur image, Jaeguyn Lim, Jooyoung Kang, Hyunwook Ok, SAMSUNG Advanced Institute of Technology (South Korea) . . . . . [6817-27]

Sensor spectral sensitivities, noise measurements, and color sensitivity, Frederic Cao, Frédéric Guichard, Hervé Hornung, DxO Labs. (France). . . . . [6817-28]

Exposure preference for digital still imaging: a psychophysical study, Jingqiang Li, Hau Hwang, Ruben Velarde, Kalin Atanassov, Xiaoyun Jiang, Ruby Hsiu, Qualcomm, Inc. . . . . [6817-30]

Optical design of the computationally adaptive virtual environment motion picture camera, Mark J. Prusten, Optical Design Labs. . [6817-31]

Chromatic coordinates in HDR image encoding, Sergey N. Bezryadin, KWE International, Inc. . . . . [6817-32]

Auto-focus system in cell phone cameras using liquid crystal and related technologies, Sang Hwa Kim, Suk Ho Jung, Baik Kyu Lee, Kyung Mi Moon, SAMSUNG Electro-Mechanics Co., Ltd. (South Korea) [6817-33]

Dynamic code block size for JPEG 2000, Ping-Sing Tsai, The Univ. of Texas-Pan American and Sigma Designs, Inc.; Yann LeCornec, Sigma Designs, Inc. . . . . [6817-34]

Depth map from focus for cell-phone cameras, Reza Safaee-Rad, Milivoje Aleksic, Advanced Micro Devices, Inc. (Canada) . . . . . [6817-35]

Multimedia Computing and Networking 2008

Conference Chair: **Reza Rejaie,** Univ. of Oregon; **Roger Zimmermann,** National Univ. of Singapore (Singapore)

Program Committee: **Tarek F. Abdelzaher,** Univ. of Illinois at Urbana-Champaign; **Kevin C. Almeroth,** Univ. of California/Santa Barbara; **Surendar Chandra,** Univ. of Notre Dame; **Mark Claypool,** Worcester Polytechnic Institute; **David Hung-Chang Du,** Univ. of Minnesota; **Wu-chi Feng,** Portland State Univ.; **Pascal Frossard,** École Polytechnique Fédérale de Lausanne (Switzerland); **Christos Gkantsidis,** Microsoft Ltd.; **Carsten Griwodz,** Univ. of Oslo (Norway); **Yang Guo,** Thomson Lab.; **Ahsan Habib,** Univ. of California/Berkeley; **Pål Halvorsen,** Simula Research Lab. (Norway); **Mohamed M. Hefeeda,** Simon Fraser Univ. (Canada); **Seon Ho Kim,** Univ. of Denver; **Baochun Li,** Univ. of Toronto (Canada); **Kang Li,** The Univ. of Georgia; **Andreas U. Mauthe,** Lancaster Univ. (United Kingdom); **Ketan D. Mayer-Patel,** The Univ. of North Carolina at Chapel Hill; **Klara Nahrstedt,** Univ. of Illinois at Urbana-Champaign; **Wei-Tsang Ooi,** National Univ. of Singapore (Singapore); **Karsten Schwan,** Georgia Institute of Technology; **Subhabrata Sen,** AT&T Research Labs.; **Nalini Venkatasubramanian,** Univ. of California/Irvine; **Dongyan Xu,** Purdue Univ.; **Zhi-Li Zhang,** Univ. of Minnesota; **Michael Zink,** Univ. of Massachusetts/Amherst

In cooperation with: **ACM Sigmultimedia**

An award will be presented for Best Paper. Details will be available during the conference.

Wednesday 30 January

Plenary Presentation . . . . . Wed. 8:30 to 9:15 am

The making of "The Inner Life of the Cell"

David Bolinsky, Medical Director/Partner XVIVO Scientific Animation

SESSION 1

Conv. Ctr. Room C1 . . . . . Wed. 9:30 to 10:30 am

P2P Streaming I

9:30 am: **Toward modeling the long-tail for a P2P community streaming system in DSL networks**, Ahsan Habib, Stuart Goose, Siemens TTB Ctr. . . . . [6818-01]

9:50 am: **The impact of playout policy on the performance of P2P live streaming, or how not to kill your P2P advantage**, Constantinos Vassilakis, Univ. of Athens (Greece); Nikolaos Laoutaris, Harvard Univ.; Ioannis Stavrakakis, Univ. of Athens (Greece) . . . . . [6818-02]

10:10 am: **Give-to-Get: free-riding resilient video-on-demand in P2P systems**, J. J. D.Mol, J. A. Poulwelse, M. Meulpolder, D. H. J.Epema, H. J. Sips, Delft Univ. of Technology (Netherlands) . . . . . [6818-03]

Coffee Break . . . . . 10:30 to 11:00 am

Panel Discussion . . . . . Wed. 11:00 am to 12:00 pm

Content Distribution (P2P vs. Infrastructure) and the Mobile Age

Lunch/Exhibition Break . . . . . 12:00 to 1:30 pm

SESSION 2

Conv. Ctr. Room C1 . . . . . Wed. 1:30 to 3:20 pm

Empirical Studies

1:30 pm: **Watch global, cache local: YouTube network traffic at a campus network: measurements and implications**, Michael Zink, Kyoungwon Suh, Yu Gu, James F. Kurose, Univ. of Massachusetts/Amherst . . . . . [6818-04]

2:00 pm: **Characterizing user sessions on YouTube**, Phillipa Gill, Univ. of Calgary (Canada); Martin Arlitt, Hewlett-Packard Labs. and Univ. of Calgary (Canada); Zongpeng Li, Univ. of Calgary (Canada); Anirban Mahanti, Indian Institute of Technology (India) . . . . . [6818-05]

2:30 pm: **Understanding the practical limits of the Gnutella P2P system: an analysis of query terms and object name distributions**, William Acosta, Surendar Chandra, Univ. of Notre Dame . . . . . [6818-06]

3:00 pm: **Network characteristics for server selection in online games**, Mark Claypool, Worcester Polytechnic Institute . . . . . [6818-07]

Coffee Break . . . . . 3:20 to 3:50 pm

SESSION 3

Conv. Ctr. Room C1 . . . . . Wed. 3:50 to 5:10 pm

Coding

3:50 pm: **ECHO: a community video streaming system with interactive visual overlays**, Gene Cheung, Hewlett-Packard Labs. Japan (Japan); Wai-tian Tan, Bo Shen, Hewlett-Packard Labs.; Antonio Ortega, Univ. of Southern California. . . . . [6818-08]

4:20 pm: **Joint scheduling and resource allocation for multiple video decoding tasks**, Brian Foo, Mihaela van der Schaar, Univ. of California/Los Angeles. . . . . [6818-09]

4:50 pm: **An analytic comparison of RPS video repair**, Yubing Wang, EMC Corp.; Mark Claypool, Robert Kinicki, Worcester Polytechnic Institute. . . . . [6818-10]

Thursday 31 January

SESSION 4

Conv. Ctr. Room C1 . . . . . .Thurs. 8:30 to 10:00 am

P2P Streaming II

8:30 am: **On meeting P2P streaming bandwidth demand with limited supplies**, Chuan Wu, Baochun Li, Univ. of Toronto (Canada). . . . [6818-11]

9:00 am: **Dynamic bi-overlay rotation for streaming with heterogeneous devices**, Dongyu Liu, Songqing Chen, George Mason Univ.; Bo Shen, Hewlett-Packard Labs.. . . . . [6818-12]

9:30 am: **Enforcing fairness in a live-streaming system**, Maya Haridasan, Cornell Univ.; Ingrid Jansch-Porto, Federal Univ. of Rio Grande do Sul (Brazil); Kenneth P. Birman, Robbert van Renesse, Cornell Univ. . [6818-13]

Coffee Break. . . . . 10:00 to 10:30 am

SESSION 5

Conv. Ctr. Room C1 . . . . . Thurs. 10:30 am to 12:10 pm

Deployment Issues

10:30 am: **Toward digital rights protection in BitTorrent-like P2P systems**, Xinwen Zhang, Samsung Information Systems America, Inc.; Dongyu Liu, Songqing Chen, George Mason Univ.; Zhao Zhang, Iowa State Univ.; Ravi Sandhu, George Mason Univ. . . . . [6818-14]

11:00 am: **A scalable delivery framework and a pricing model for streaming media with advertisements**, Musab Al-Hadrusi, Nabil J. Sarhan, Wayne State Univ.. . . . . [6818-15]

11:30 am: **A method for computing the reputation of multimedia services through selection and composition**, Pradeep K. Atrey, M. Anwar Hossain, Abdulmotaleb E. Saddik, Univ. of Ottawa (Canada) . . . . [6818-16]

11:50 am: **Adaptive client to mirrored-server assignment for massively multiplayer online games**, Steven D. Webb, Sietong Soh, Curtin Univ. of Technology (Australia) . . . . . [6818-17]

Lunch Break . . . . . 12:10 to 1:40 pm

SESSION 6

Conv. Ctr. Room C1 . . . . . .Thurs. 1:40 to 3:20 pm

Wireless Networking

1:40 pm: **Comparison of QoS guarantee techniques for VoIP over IEEE802.11 wireless LAN**, Fanglu Guo, Tzi-cker Chiueh, Stony Brook Univ.. . . . . [6818-18]

2:10 pm: **Where-Fi: a dynamic energy-efficient multimedia distribution framework for MANETs**, Shivajit Mohapatra, Bogdan Carbunar, Michael Pearce, Rohit Chaudhri, Venu Vasudevan, Motorola, Inc.. . . . . [6818-19]

2:40 pm: **An improved adaptive ACO meta heuristic for scheduling multimedia traffic across the 802.11 EDCA**, Michael Ditze, Markus Becker, Univ. Paderborn (Germany). . . . . [6818-20]

3:00 pm: **Campus-wide asynchronous lecture distribution using wireless laptops**, Xuwen Yu, Surendar Chandra, Univ. of Notre Dame . . . . . [6818-21]

Coffee Break. . . . . 3:20 to 3:50 pm

SESSION 7

Conv. Ctr. Room C1 . . . . . .Thurs. 3:50 to 5:20 pm

System Issues

3:50 pm: **VMedia: enhanced multimedia services in virtualized systems**, Himanshu Raj, Balasubramanian Seshasayee, Karsten Schwan, Georgia Institute of Technology. . . . . [6818-22]

4:20 pm: **Graphic engine resource management**, Mikhail Bautin, Tzi-cker Chiueh, Stony Brook Univ.. . . . . [6818-23]

4:50 pm: **Exploiting semantics for sensor recalibration in event detection systems**, Ronen Vaisenberg, Shengyue Ji, Bijit Hore, Sharad Mehrotra, Nalini Venkatasubramanian, Univ. of California/Irvine. . [6818-24]

Monday-Wednesday 28-30 January 2008 • Proceedings of SPIE Vol. 6819

Security, Forensics, Steganography, and Watermarking of Multimedia Contents X

Conference Chairs: **Edward J. Delp,** Purdue Univ.; **Ping Wah Wong,** IDzap LLC; **Jana Dittmann,** Otto-von-Guericke-Univ. Magdeburg (Germany); **Nasir D. Memon,** Polytechnic Univ.

Program Committee: **Adnan M. Alattar,** Digimarc Corp.; **Oscar Chi Lim Au,** Hong Kong Univ. of Science and Technology (Hong Kong China); **Mauro Barni,** Univ. of Siena (Italy); **Jeffrey A. Bloom,** THOMSON Corporate Research; **Gordon W. Braudaway,** IBM Corp.; **Ee-Chien Chang,** National Univ. of Singapore (Singapore); **Jessica Fridrich,** Binghamton Univ.; **Teddy Furon,** IRISA (France); **Ton Kalker,** Hewlett-Packard Co.; **Reginald L. Lagendijk,** Technische Univ. Delft (Netherlands); **Benoît Macq,** Univ. Catholique de Louvain (Belgium); **Bangalore S. Manjunath,** Univ. of California/Santa Barbara; **Pierre Moulin,** Univ. of Illinois at Urbana-Champaign; **Fernando Pérez-González,** Univ. de Vigo (Spain); **Reihaneh Safavi-Naini,** Univ. of Wollongong (Australia); **Bülent Sankur,** Bogaziçi Univ. (Turkey); **Gaurav Sharma,** Univ. of Rochester; **Claus Vielhauer,** Fachhochschule Brandenburg (Germany); **Sviatoslav V. Voloshynovskiy,** Univ. de Genève (Switzerland); **Min Wu,** Univ. of Maryland/College Park

Monday 28 January

SESSION 1

Conv. Ctr. Room A5 . . . . . .Mon. 8:30 to 9:50 am

Steganography I

Session Chair: **Jessica Fridrich,** Binghamton Univ.

8:30 am: **Influence of embedding strategies on security of steganographic methods**, Jessica Fridrich, Jan Kodovsky, Binghamton Univ. . . . . [6819-01]

8:50 am: **WLAN steganography revisited**, Christian Kraetzer, Jana Dittmann, Ronny Merkel, Otto-von-Guericke-Univ. Magdeburg (Germany) . . . . . [6819-02]

9:10 am: **Steganographic strategies for a square distortion function**, Andrew D. Ker, Univ. of Oxford (United Kingdom). . . . . [6819-03]

9:30 am: **Revisiting weighted stego-image steganalysis**, Andrew D. Ker, Univ. of Oxford (United Kingdom); Rainer Böhme, Technische Univ. Dresden (Germany). . . . . [6819-04]

Coffee Break . . . . . 9:50 to 10:20 pm

SESSION 2

Conv. Ctr. Room A5 . . . . . .Mon. 10:20 am to 12:00 pm

Theoretical Methods

Session Chair: **Sviatoslav V. Voloshynovskiy,** Univ. de Genève (Switzerland)

10:20 am: **Security analysis of robust perceptual hashing**, Oleksiy J. Koval, Sviatoslav V. Voloshynovskiy, Fokko P. Beekhof, Thierry Pun, Univ. de Genève (Switzerland). . . . . [6819-05]

10:40 am: **A low-rate fingerprinting code and its application to blind image fingerprinting**, Jean-Francois Jourdas, Pierre Moulin, Univ. of Illinois at Urbana-Champaign . . . . . [6819-06]

11:00 am: **Improved lower bounds on embedding distortion in information hiding**, Younhee Kim, Zoran Duric, Dana Richards, George Mason Univ. . . . . [6819-07]

11:20 am: **On the error exponents of one-bit watermarking under AWGN for limited detection resources**, Pedro Comesaña-Alfaro, Univ. de Vigo (Spain); Mauro Barni, Univ. degli Studi di Siena (Italy); Neri Merhav, Technion-Israel Institute of Technology (Israel) . . . . . [6819-08]

11:40 am: **A high-rate fingerprinting code**, Jean-Francois Jourdas, Pierre Moulin, Univ. of Illinois at Urbana-Champaign. . . . . [6819-09]

Coffee Break . . . . . 12:00 to 1:30 pm

SESSION 3

Conv. Ctr. Room A5 . . . . . .Mon. 1:30 to 2:30 pm

Physical Media

Session Chair: **Gaurav Sharma,** Univ. of Rochester

1:30 pm: **Analysis of physical unclonable identification based on reference list decoding**, Oleksiy J. Koval, Sviatoslav V. Voloshynovskiy, Fokko P. Beekhof, Thierry Pun, Univ. de Genève (Switzerland) . . [6819-10]

1:50 pm: **Data embedding in hardcopy images via halftone dot orientation modulation**, Orhan Bulan, Univ. of Rochester; Vishal Monga, Xerox Corp.; Gaurav Sharma, Basak Oztan, Univ. of Rochester. . [6819-12]

2:10 pm: **Secure surface identification codes**, Fokko P. Beekhof, Sviatoslav V. Voloshynovskiy, Oleksiy J. Koval, Renato Villan, Thierry Pun, Univ. de Genève (Switzerland) . . . . . [6819-13]

SESSION 4

Conv. Ctr. Room A5 . . . . . .Mon. 2:30 to 5:00 pm

Forensics

2:30 pm: **Camera identification from scaled and cropped images**, Miroslav Goljan, Jessica Fridrich, Binghamton Univ.. . . . . [6819-14]

2:50 pm: **Covering local resampling in images by re-interpolation**, Matthias Kirchner, Technische Univ. Dresden (Germany) . . . . . [6819-15]

Coffee Break . . . . . 3:10 to 3:40 pm

3:40 pm: **Scanner identification with extension to forgery detection**, Nitin Khanna, George T.Chiu, Jan P. Allebach, Edward J. Delp III, Purdue Univ. . . . . [6819-16]

4:00 pm: **Individuality evaluation for paper-based artifact metrics using transmitted light image**, Manabu Yamakoshi, Junichi Tanaka, Makoto Furuie, Masashi Hirabayashi, National Printing Bureau of Japan (Japan); Tsutomu Matsumoto, Yokohama National Univ. (Japan). . . . . [6819-17]

4:20 pm: **Camera identification from printed images,** Jan Lukás, Miroslav Goljan, Jessica Fridrich, Binghamton Univ. . . . . [6819-18]

SESSION 5

Conv. Ctr. Room A5 . . . . . .Mon. 4:40 to 5:40 pm

Audio and Video I

4:40 pm: **Toward robust watermarking of scalable video**, Peter Meerwald, Paris-Lodron-Univ. Salzburg (Austria) . . . . . [6819-19]

5:00 pm: **The video watermarking container: efficient real-time transaction watermarking**, Martin Steinebach, Patrick Wolf, Enrico Hauer, Fraunhofer-Institut für Sichere Informations-Technologie (Germany). . . . . [6819-20]

5:20 pm: **Robust audio hashing for audio authentication watermarking**, Sascha Zmudzinski, Martin Steinebach, Fraunhofer-Institut für Sichere Informations-Technologie (Germany). . . . . [6819-21]

Tuesday 29 January

Awards and Plenary Presentation . . Tues. 8:15 to 9:15 am

Digital Forensics

Hany Farid, Dartmouth College

SESSION 6

Conv. Ctr. Room A5 . . . . . Tues. 9:30 am to 12:00 pm

Biometrics

9:30 am: **Comparison of compression algorithms' impact on iris recognition accuracy II: revisiting JPEG**, Andreas Uhl, Stefan Jenisch, Stefan Lukesch, Univ. Salzburg (Austria) . . . . . [6819-22]

9:50 am: **Biometric hashing for handwriting: entropy-based feature selection and semantic fusion**, Tobias Scheidat, Claus Vielhauer, Otto-von-Guericke-Univ. Magdeburg (Germany) . . . . . [6819-23]

Coffee Break . . . . . 10:10 to 10:40 am

10:40 am: **Realization of correlation attack against fuzzy vault scheme**, Alisher A. Kholmatov, Berrin A. Yanikoglu, Sabanci Univ. (Turkey) [6819-24]

11:00 am: **Error exponent analysis of person identification based on fusion of dependent/independent modalities: multiple hypothesis testing case**, Oleksiy J. Koval, Sviatoslav V. Voloshynovskiy, Renato Villan, Thierry Pun, Univ. de Genève (Switzerland) . . . . . [6819-25]

11:20 am: **Bridging biometrics and forensics**, Yanjun Yan, Syracuse Univ. . . . . [6819-26]

11:40 am: **Security issues of Internet-based biometric authentication systems: risks of Man-in-the-Middle and BioPhishing on the example of BioWebAuth**, Carmen García Mateo, Univ. de Vigo (Spain); Christian Zeitz, Tobias Scheidat, Otto-von-Guericke-Univ. Magdeburg (Germany); Elisardo González Agulla, Enrique Otero Muras, José L. Alba Castro, Univ. de Vigo (Spain) . . . . . [6819-27]

Lunch/Exhibition Break . . . . . 12:00 to 1:30 pm

SESSION 7

Conv. Ctr. Room A5 . . . . . Tues. 1:30 to 2:50 pm

Applications

1:30 pm: **Anticollusion watermarking of 3D meshes by prewarping**, Francesca Uccheddu, Univ. degli Studi di Firenze (Italy); Mauro Barni, Univ. degli Studi di Siena (Italy); C.-C. J. Kuo, Univ. of Southern California . . . . . [6819-28]

1:50 pm: **In-theater piracy: finding where the pirate was**, Bertrand Chupeau, Thomson R&D France (France) . . . . . [6819-29]

2:10 pm: **A theoretical analysis of spatial/temporal modulation-based systems for prevention of illegal recordings in movie theaters**, Pascal Bourdon, Sylvain Thiebaud, Didier Doyen, Thomson R&D France (France). . . . . [6819-30]

2:30 pm: **Toward DRM for 3D geometry data**, Andreas Uhl, Michael Gschwandtner, Univ. Salzburg (Austria). . . . . [6819-31]

Coffee Break . . . . . 2:50 to 3:20 pm

SESSION 8

Conv. Ctr. Room A5 . . . . . Tues. 3:20 to 5:00 pm

Audio and Video II

3:20 pm: **Establishing target track history by digital watermarking**, Bijan G. Mobasseri, Preethi Krishnamurthy, Villanova Univ.. . . . . [6819-32]

3:40 pm: **MPEG recompression detection based on block artifacts**, Weiqi Luo, Sun Yat-Sen Univ. (China); Min Wu, Univ. of Maryland/College Park; Jiwu Huang, Sun Yat-Sen Univ. (China) . . . . . [6819-33]

4:00 pm: **Cover signal specific steganalysis: the impact of training on the example of two selected audio steganalysis approaches**, Christian Kraetzer, Jana Dittmann, Otto-von-Guericke-Univ. Magdeburg (Germany) . . . . . [6819-34]

4:20 pm: **Evaluation of robustness and transparency of multiple audio watermark embedding**, Martin Steinebach, Fraunhofer-Institut für Sichere Informations-Technologie (Germany) . . . . . [6819-35]

4:40 pm: **Forensic watermarking and bit-rate conversion of partially encrypted AAC bitstreams**, Aweke N. Lemma, Stefan Katzenbeisser, Mehmet U. Celik, Philips Research Labs. (Netherlands); Serap Kirbiz, Istanbul Teknik Üniv. (Turkey) . . . . . [6819-36]

Wednesday 30 January

Plenary Presentation . . . . . Wed. 8:30 to 9:15 am

The making of "The Inner Life of the Cell"

David Bolinsky, Medical Director/Partner XVIVO Scientific Annimation

SESSION 9

Conv. Ctr. Room A5 . . . . . .Wed. 9:30 am to 12:20 pm

Steganalysis

9:30 am: **Estimation of primary quantization matrix for steganalysis of double-compressed JPEG images**, Tomas Pevny, Jessica Fridrich, Binghamton Univ.. . . . . [6819-37]

9:50 am: **Textural features based universal steganalysis**, Bin Li, Jiwu Huang, Sun Yat-Sen Univ. (China); Yun-Qing Shi, New Jersey Institute of Technology. . . . . [6819-38]

Coffee Break . . . . . 10:10 to 10:40 am

10:40 am: **Isotropy-based steganalysis in multiple least significant bits**, Xiaoyi Yu, Noboru Babaguchi, Osaka Univ. (Japan); Yunhong Wang, Beihang Univ. (China). . . . . [6819-39]

11:00 am: **Nonparametric steganalysis of QIM data hiding using approximate entropy**, Hafiz M. A.Malik, Stevens Institute of Technology and Univ. of Michigan /Dearborn; Rajarathnam Chandramouli, Koduvayur P. Subbalakshmi, Stevens Institute of Technology . . . . . [6819-40]

11:20 am: **Steganalysis-aware steganography: statistical indistinguishability despite high distortion**, Adem Orsdemir, Huseyin O. Altun, Gaurav Sharma, Mark F. Bocko, Univ. of Rochester. . . . . [6819-41]

11:40 am: **Steganographic capacity estimation for the statistical restoration framework**, Anindya Sarkar, Univ. of California/Santa Barbara; Kenneth Sullivan, Mayachitra, Inc.; Bangalore S. Manjunath, Univ. of California/Santa Barbara . . . . . [6819-42]

12:00 pm: **Further study on YASS: steganography based on randomized embedding to resist blind steganalysis**, Anindya Sarkar, Univ. of California/Santa Barbara; Kaushal Solanki, Mayachitra, Inc.; Bangalore S. Manjunath, Univ. of California/Santa Barbara . . . . . [6819-43]

Lunch/Exhibition Break . . . . . 12:20 to 1:50 pm

SESSION 10

Conv. Ctr. Room A5 . . . . . Wed. 1:50 to 5:20 pm

Embedding

1:50 pm: **Nested object watermarking: spatial annotation accuracy and approaches to content feature based synchronization**, Claus Vielhauer, Maik Schott, Christian Kraetzer, Jana Dittmann, Otto-von-Guericke-Univ. Magdeburg (Germany) . . . . . [6819-44]

2:10 pm: **Reduced embedding complexity using BP message passing for LDGM codes**, Peter Günther, Dagmar Schönfeld, Antje Winkler, Technische Univ. Dresden (Germany) . . . . . [6819-45]

2:30 pm: **A joint asymmetric watermarking and image encryption scheme**, Giulia Boato, Francesco G. B.De Natale, Univ. degli Studi di Trento (Italy); Claudio Fontanari, Politecnico di Torino (Italy) . . . . . [6819-46]

2:50 pm: **Roboust digital image watermarking in curvelet domain**, Peining Tao, Ahmet M. Eskicioglu, The City Univ. of New York . . [6819-47]

Coffee Break . . . . . 3:10 to 3:40 pm

3:40 pm: **A joint digital watermarking and encryption method**, Michela Cancellaro, Marco Carli, Federica Battisti, Alessandro Neri, Univ. degli Studi di Roma Tre (Italy); Giulia Boato, Francesco G. B.De Natale, Univ. degli Studi di Trento (Italy) . . . . . [6819-48]

4:00 pm: **Embedding considering dependencies between pixels**, Elke Franz, Technische Univ. Dresden (Germany) . . . . . [6819-49]

4:20 pm: **A reversible data hiding method for encrypted images**, William Puech, Univ. Montpellier II (France); Marc Chaumont, Lab. d'Informatique de Robotique et de Microelectronique de Montpellier (France); Olivier Strauss, Univ. Montpellier II (France) . . . . . [6819-50]

4:40 pm: **Improved embedding efficiency and AWGN robustness for SS watermarks via pre-coding**, Huseyin O. Altun, Gaurav Sharma, Orhan Bulan, Mark F. Bocko, Univ. of Rochester . . . . . [6819-51]

5:00 pm: **Perceptual hash based blind geometric synchronization of images for watermarking**, Baris Coskun, Polytechnic Univ. (Turkey); M. Kivanc Mihcak, Bogaziçi Univ. (Turkey) . . . . . [6819-52]

Multimedia Content Access: Algorithms and Systems II

Conference Chairs: **Theo Gevers,** Univ. van Amsterdam (Netherlands); **Ramesh C. Jain,** Univ. of California/Irvine; **Simone Santini,** Univ. Autónoma de Madrid (Spain)

Conference Co-Chairs: **Alan Hanjalic,** Technische Univ. Delft (Netherlands); **Raimondo Schettini,** Univ. degli Studi di Milano-Bicocca (Italy); **Nicu Sebe,** Univ. van Amsterdam (Netherlands); **Edward Y. Chang,** Google, Inc.

Program Committee: **Kiyoharu Aizawa,** The Univ. of Tokyo (Japan); **Noboru Babaguchi,** Osaka Univ. (Japan); **Nozha Boujemaa,** INRIA Rocquencourt (France); **Tsuhan Chen,** Carnegie Mellon Univ.; **Tat-Seng Chua,** National Univ. of Singapore (Singapore); **Rita Cucchiara,** Univ. degli Studi di Modena e Reggio Emilia (Italy); **Alberto Del Bimbo,** Univ. degli Studi di Firenze (Italy); **Ajay Divakaran,** Mitsubishi Electric Research Labs.; **Chitra Dorai,** IBM Thomas J. Watson Research Ctr.; **Arun Hampapur,** IBM Thomas J. Watson Research Ctr.; **Alexander G. Hauptmann,** Carnegie Mellon Univ.; **Alejandro Jaimes,** IDIAP (Switzerland); **Mohan S. Kankanhalli,** National Univ. of Singapore (Singapore); **John R. Kender,** Columbia Univ.; **Josef Kittler,** Univ. of Surrey (United Kingdom); **Anil Christopher Kokaram,** The Univ. of Dublin, Trinity College (Ireland); **Clement H. C. Leung,** Victoria Univ. of Technology (Australia); **Michael S. Lew,** Univ. Leiden (Netherlands); **Rainer W. Lienhart,** Univ. Augsburg (Germany); **Alan F. Smeaton,** Dublin City Univ. (Ireland); **John R. Smith,** IBM Thomas J. Watson Research Ctr.; **Hari Sundaram,** Arizona State Univ.; **Ahmet Murat Tekalp,** Univ. of Rochester; **Qi Tian,** The Univ. of Texas at San Antonio; **Alain Trémeau,** Univ. Jean Monnet Saint-Etienne (France); **Luc J. Van Gool,** ETH Zürich (Switzerland) and Katholieke Univ. Leuven (Switzerland); **Joost van de Weijer,** GRAVIR-INRIA (France); **Svetha Venkatesh,** Curtin Univ. of Technology (Australia); **Marcel Worring,** Univ. van Amsterdam (Netherlands); **Lei Zhang,** Microsoft Research Asia (China)

Wednesday 30 January

Plenary Presentation . . . . . Wed. 8:30 to 9:15 am

The making of "The Inner Life of the Cell"

David Bolinsky, Medical Director/Partner XVIVO Scientific Annimation

SESSION 1

Conv. Ctr. Room B1 . . . . . .Wed. 9:30 to 10:20 am

Image Analysis and Retrieval I

Session Chair: **Simone Santini,** Univ. Autónoma de Madrid (Spain)

9:30 am: **Logical unit and scene detection: a comparative survey** *(Invited Paper)*, Christian Petersohn, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany) . . . . . [6820-01]

10:00 am: **Photo stream segmentation using context**, Bo Gong, Ramesh C. Jain, Univ. of California/Irvine . . . . . [6820-02]

Coffee Break . . . . . 10:20 to 10:50 am

SESSION 2

Conv. Ctr. Room B1 . . . . . .Wed. 10:50 am to 12:00 pm

Text and Image Retrieval

Session Chair: **Theo Gevers,** Univ. van Amsterdam (Netherlands)

10:50 am: **Enriching text with images and colored light** *(Invited Paper)*, Dragan Sekulovski, Gijs Geleijnse, Bram Kater, Jan Korst, Steffen Pauws, Ramon Clout, Koninklijke Philips Electronics N.V. (Netherlands). . [6820-03]

11:20 am: **Giving order to image queries**, Jonathon S. Hare, Patrick A. S.Sinclair, Paul H. Lewis, Univ. of Southampton (United Kingdom)[6820-04]

11:40 am: **Logo detection using wavelet co-occurrence histograms**, Ali M. Hesson, Dimitrios Androutsos, Ryerson Univ. (Canada). . . . . [6820-26]

Lunch/Exhibition Break . . . . . 12:00 to 1:30 pm

SESSION 3

Conv. Ctr. Room B1 . . . . . .Wed. 1:30 to 2:50 pm

Face Analysis for Image Retrieval

Session Chair: **Raimondo Schettini,** Univ. degli Studi di Milano-Bicocca (Italy)

1:30 pm: **A novel approach to personal photo album representation and management**, Edoardo Ardizzone, Marco LaCascia, Univ. degli Studi di Palermo (Italy); Filippo Vella, Consiglio Nazionale delle Ricerche (Italy) . . . . . [6820-06]

1:50 pm: **Facial features detection using a virtual structuring element**, Roberto Valenti, Nicu Sebe, Theo Gevers, Univ. van Amsterdam (Netherlands) . . . . . [6820-07]

2:10 pm: **Picture management using person retrieval for consumer image collections**, Gabriel N. Costache, Rhys Mulryan, Alexandru F. Drimbarean, FotoNation Ireland Ltd. (Ireland); Peter Corcoran, National Univ. of Ireland/Galway (Ireland); Eran Steinberg, FotoNation Inc. [6820-08]

2:30 pm: **Distributed wireless face recognition system**, Yanjun Yan, Syracuse Univ. . . . . [6820-09]

Coffee Break . . . . . 2:50 to 3:20 pm

SESSION 4

Conv. Ctr. Room B1 . . . . . .Wed. 3:20 to 5:20 pm

Video Analysis and Retrieval I

Session Chair: **Nicu Sebe,** Univ. van Amsterdam (Netherlands)

3:20 pm: **Improving multimedia retrieval with a video OCR**, Dipanjan Das, Datong Chen, Alexander G. Hauptmann, Carnegie Mellon Univ. . . . . [6820-10]

3:40 pm: **Event-centric media management**, Ansgar Scherp, Srikanth Agaram, Ramesh C. Jain, Univ. of California/Irvine . . . . . [6820-11]

4:00 pm: **Improving scene detection by using gradual shot transitions as cues from film grammar**, Christian Petersohn, Technische Univ. Berlin (Germany) . . . . . [6820-12]

4:20 pm: **Video fingerprinting: features for duplicate and similar video detection and query-based video retrieval**, Anindya Sarkar, Pratim Ghosh, Emily Moxley, Bangalore S. Manjunath, Univ. of California/Santa Barbara. . . . . [6820-13]

4:40 pm: **Semantic video indexing using context-dependent fusion**, Dae-Jin Kim, Hichem Frigui, Aleksey S. Fadeev, Univ. of Louisville[6820-14]

5:00 pm: **Highlight summarization in golf videos using audio signals**, Hyoung-Gook Kim, Kwangwoon Univ. (South Korea) . . . . . [6820-15]

Thursday 31 January

SESSION 5

Conv. Ctr. Room B1 . . . . . .Thurs. 9:00 to 10:10 am

Image Analysis and Retrieval II

Session Chair: **Simone Santini,** Univ. Autónoma de Madrid (Spain)

9:00 am: **Concept annotation and search space decrement of digital photos using optical context information** *(Invited Paper)*, Pinaki Sinha, Ramesh C. Jain, Univ. of California/Irvine . . . . . [6820-16]

9:30 am: **A greedy routing approach for content-based image retrieval**, Anthony Don, Nicolas Hanusse, Univ. Bordeaux I (France) . . . . . [6820-17]

9:50 am: **Evaluation of content-based features for user-centered image retrieval in small media collections**, Horst Eidenberger, Technische Univ. Wien (Austria) and Univ. Católica de Moçambique (Mozambique); Maia Zaharieva, Technische Univ. Wien (Austria) . . . . . [6820-18]

Coffee Break . . . . . 10:10 to 10:40 am

SESSION 6

Conv. Ctr. Room B1 . . . . . .Thurs. 10:40 to 11:40 am

Image Retrieval Applications

Session Chair: **Theo Gevers,** Univ. van Amsterdam (Netherlands)

10:40 am: **Content-based unconstrained color logo and trademark retrieval with color edge gradient co-occurrence histograms**, Raymond Phan, Dimitrios Androutsos, Ryerson Univ. (Canada) . . . . . [6820-19]

11:00 am: **MapSnapper: engineering an efficient algorithm for matching images of maps from mobile phones**, Jonathon S. Hare, Paul H. Lewis, Layla Gordon, Glen Hart, Univ. of Southampton (United Kingdom) [6820-20]

11:20 am: **Visual search engine for product images**, Xiaofan Lin, Burak Gokturk, Baris Sumengen, Diem T. Vu, Like.com . . . . . [6820-21]

Lunch Break . . . . . 11:40 am to 1:30 pm

SESSION 7

Conv. Ctr. Room B1 . . . . . .Thurs. 1:30 to 3:00 pm

Video Analysis and Retrieval II

Session Chair: **Raimondo Schettini,** Univ. degli Studi di Milano-Bicocca (Italy)

1:30 pm: **Distributed optimization for real-time multimedia stream mining systems** *(Invited Paper)*, Brian K. Foo, Mihaela van der Schaar, Univ. of California/Los Angeles . . . . . [6820-22]

2:00 pm: **Distributed multidimensional hidden Markov model: theory and application in multiple-object trajectory classification and recognition**, Xiang Ma, Dan Schonfeld, Ashfaq A. Khokhar, Univ. of Illinois at Chicago . . . . . [6820-23]

2:20 pm: **STRG-QL: spatio-temporal region graph query language for video databases**, Jeongkyu Lee, Univ. of Bridgeport. . . . . [6820-24]

2:40 pm: **A method of shot determination in a robot camera cooperative shooting system**, Makoto Okuda, Takao Tsuda, Kazutoshi Mutou, Hitoshi Yanagisawa, Seiki Inoue, Japan Broadcasting Corp. (Japan) . . . . [6820-25]

Coffee Break . . . . . 3:00 to 3:30 pm

SESSION 8

Conv. Ctr. Room B1 . . . . . .Thurs. 3:30 to 4:10 pm

Image and Video Retrieval

Session Chair: **Theo Gevers,** Univ. van Amsterdam (Netherlands)

3:30 pm: **Color appearance descriptors**, Kirk Martinez, Aniza Othman, Univ. of Southampton (United Kingdom) . . . . . [6820-27]

3:50 pm: **Audio scene segmentation for video with generic content**, Feng Niu, Univ. of Miami; Naveen Goela, Ajay Divakaran, Mitsubishi Electric Research Labs.; Mohamed S. Abdel-Mottaleb, Univ. of Miami. . . [6820-28]

Multimedia on Mobile Devices 2008

Conference Chair: **Reiner Creutzburg,** Fachhochschule Brandenburg (Germany); **Jarmo Henrik Takala,** Tampere Univ. of Technology (Finland)

Program Committee: **David Akopian,** The Univ. of Texas at San Antonio; **Alan Chalmers,** Univ. of Bristol (United Kingdom); **Jianfei Cai,** Nanyang Technological Univ. (Singapore); **Surendar Chandra,** Univ. of Notre Dame; **Chang Wen Chen,** Florida Institute of Technology; **Kenneth J. Crisler,** Motorola, Inc.; **David Scott Doermann,** Univ. of Maryland/College Park; **Uwe Dummann,** Siemens AG (Germany); **Elizabeth Dykstra-Erickson,** Kinoma, Inc.; **Lajos Hanzo,** Univ. of Southampton (United Kingdom); **Zhihai He,** Univ. of Missouri/Columbia; **Hendrik O. Knoche,** Univ. College London (United Kingdom); **Xin Li,** West Virginia Univ.; **Manzur M. Murshed,** Monash Univ.; **Sethuraman Panchanathan,** Arizona State Univ.; **Kari A. Pulli,** Nokia Research Ctr. Cambridge; **Matthias Rauterberg,** Technische Univ. Eindhoven (Netherlands); **Phillip A. Regalia,** Institut National des Télécommunications (France); **Olli J. Silvén,** Univ. of Oulu (Finland); **Haitao Zheng,** Microsoft Research Asia (China)

Monday 28 January

SESSION 1

Conv. Ctr. Room B4 . . . . . .Mon. 9:30 to 10:30 am

Multimedia Applications

Session Chair: **Olli J. Silvén,** Univ. of Oulu (Finland)

9:30 am: **Real-time scalable visual analysis on mobile devices**, Avin Pattath, David S. Ebert, Purdue Univ. and Purdue Univ. Regional Visualization and Analytics Ctr.; Richard May, Pacific Northwest National Lab.; Timothy Collins, Purdue Homeland Security Institute and Purdue Univ. . . . . [6821-01]

9:50 am: **REST-based mobile applications**, Thomas Preuss, Mark Rambow, Jörg Berdux, Fachhochschule Brandenburg (Germany); Marc Conrad, Univ. of Bedfordshire (United Kingdom). . . . . [6821-02]

10:10 am: **Field analysis of open source OCR engines using mobile device**, ZhiYing Zhou, Syed O. Gilani, Stefan Winkler, National Univ. of Singapore (Singapore) . . . . . [6821-03]

Coffee Break . . . . . 10:30 to 11:00 am

SESSION 2

Conv. Ctr. Room B4 . . . . . .Mon. 11:00 am to 12:00 pm

Video Coding

Session Chair: **Reiner Creutzburg,** Fachhochschule Brandenburg (Germany)

11:00 am: **A high-level simulator for the H.264/AVC decoding process in multicore systems**, Florian H. Seitner, Ralf M. Schreier, Michael Bleyer, Margrit Gelautz, Vienna Univ. of Technology (Austria). . . . . [6821-04]

11:20 am: **Human visual system based adaptive inter-quantization**, Jin Li, Jari J. Koivusaari, Jarmo H. Takala, Moncef Gabbouj, Tampere Univ. of Technology (Finland); Hexin Chen, Jilin Univ. (China) . . . . . [6821-05]

11:40 am: **Wyner-Ziv video coding based on a new hierarchical block matching algorithm**, Rongke Liu, Hongbo Zhao, Zhi Yue, Beijing Univ. of Aeronautics and Astronautics (China) . . . . . [6821-06]

Lunch Break . . . . . 12:00 to 1:30 pm

SESSION 3

Conv. Ctr. Room B4 . . . . . .Mon. 1:30 to 2:10 pm

Invited Paper I

Session Chair: **Reiner Creutzburg,** Fachhochschule Brandenburg (Germany)

1:30 pm: New video based applications for mobile devices (Invited Paper), Olli J. Silvén, Jari Hannuksela, Miguel Bordallo Lopez, Univ. of Oulu (Finland); Markus Turtinen, Matti Niskanen, Visidon Ltd. (Finland) [6821-07]

SESSION 4

Conv. Ctr. Room B4 . . . . . .Mon. 2:10 to 3:10 pm

Media Processing

Session Chair: **Jarmo Henrik Takala,** Tampere Univ. of Technology (Finland)

2:10 pm: **Non-photorealistic rendering for energy conservation in portable devices**, Yamini Nimmagadda, Yung-Hsiang Lu, Edward J. Delp III, David S. Ebert, Purdue Univ.. . . . . [6821-08]

2:30 pm: **An image registration technique aimed at super resolution on mobile devices**, Mihail Georgiev, Ilian Todorov, Atanas R. Boev, Atanas P. Gotchev, Karen O. Egiazarian, Tampere Univ. of Technology (Finland) . . . . . [6821-09]

2:50 pm: Selective frame dropping based on hypothetical reference decoder buffer model for initial buffering delay reduction, Sachin G. Deshpande, Sharp Labs. of America, Inc. . . . . [6821-10]

SESSION 5

Conv. Ctr. Room B4 . . . . . .Mon. 3:10 to 3:30 pm

Multimedia Content Protection

Session Chair: **Reiner Creutzburg,** Fachhochschule Brandenburg (Germany)

3:10 pm: **Digital watermarking in parametric slant transform domain**, Jiong Xie, Tufts Univ.; Sos S. Agaian, The Univ. of Texas at San Antonio; Joseph Nooan, Tufts Univ.. . . . . [6821-11]

Tuesday 29 January

Awards and Plenary Presentation . . Tues. 8:15 to 9:15 am

Digital Forensics

Hany Farid, Dartmouth College

SESSION 6

Conv. Ctr. Room B4 . . . . . Tues. 9:30 am to 12:00 pm

Systems for Multimedia

Session Chair: **Jarmo Henrik Takala,** Tampere Univ. of Technology (Finland)

9:30 am: **Transport triggered architecture (TTA) based CABAC implementation**, Olli J. Silvén, Joona Rouvinen, Univ. of Oulu (Finland); Tero Rintaluoma, Hantro Products Oy (Finland) . . . . . [6821-14]

9:50 am: **The Rosetta Phone: a real-time system for automatic detection and translation of signs**, Syed Ali R. Jafri, Aravind K. Mikkilineni, Mireille Boutin, Edward J. Delp III, Purdue Univ. . . . . [6821-15]

10:10 am: **Software-only implementation of DBV-H**, Daniel S. Iancu, Hua Ye, John C. Glossner, Andrei Iancu, Sandbridge Technologies, Inc.; Jarmo H. Takala, Tampere Univ. of Technology (Finland). . . . . [6821-16]

Coffee Break . . . . . 10:30 to 11:00 am

11:00 am: **Energy efficiency analysis of multi MPEG-4 decoder platforms**, Sébastien Lafond, Turku Ctr. for Computer Science (Finland); Jani J. Boutellier, Olli J. Silvén, Univ. of Oulu (Finland); Johan Lilius, Åbo Akademi Univ. (Finland) . . . . . [6821-17]

11:20 am: **Semantic-based information dissemination in mobile spontaneous P2P networks**, Thomas Schwotzer, Fachhochschule Brandenburg (Germany) . . . . . [6821-18]

11:40 am: **A mobile video surveillance system with intelligent object analysis**, Yuan-Kai Wang, Yung-Hsiang Hu, Li-Ya Wang, Fu Jen Catholic Univ. (Taiwan) . . . . . [6821-19]

Lunch/Exhibition Break . . . . . 12:00 to 1:30 pm

SESSION 7

Conv. Ctr. Room B4 . . . . . Tues. 1:30 to 2:10 pm

Invited Paper II

Session Chair: **Jarmo Henrik Takala,** Tampere Univ. of Technology (Finland)

1:30 pm: A low-power platform for communications and multimedia processing (Invited Paper), John C. Glossner, Mayan Moudgill, Daniel S. Iancu, Gary Nacer, Sanjay Jinturkar, Sandbridge Technologies, Inc.; Michael J. Schulte, Univ. of Wisconsin/Madison; Jarmo H. Takala, Tampere Univ. of Technology (Finland). . . . . [6821-20]

SESSION 8

Conv. Ctr. Room B4 . . . . . Tues. 2:10 to 3:10 pm

HCI Issues on Multimedia I

Session Chair: **Olli J. Silvén,** Univ. of Oulu (Finland)

2:10 pm: **Performance analysis of visual tracking algorithms to build motion-based user interfaces for mobile devices**, Stefan Winkler, Karthik Rangaswamy, Jefry Tedjokusumo, ZhiYing Zhou, National Univ. of Singapore (Singapore) . . . . . [6821-21]

2:30 pm: **Profiles of the evaluators: impact of psychographic variables on the consumer-oriented quality assessment of mobile television**, Satu Jumisko-Pyykkö, Tampere Univ. of Technology (Finland); Jukka P. Häkkinen, Nokia Research Ctr. (Finland) . . . . . [6821-22]

2:50 pm: **An infrastructure to manage errors and originalities in mobile multimedia development**, Stefan Edlich, Technische Fachhochschule Berlin (Germany); Henrik Hörning, Reidar Hörning, Biting Bit (Germany); Daniel Oltmanns, Technische Fachhochschule Berlin (Germany); Jörg Schlapinski, Biting Bit (Germany) . . . . . [6821-23]

Coffee Break . . . . . 3:10 to 3:40 pm

SESSION 9

Conv. Ctr. Room B4 . . . . . Tues. 3:40 to 4:40 pm

HCI Issues on Multimedia II

Session Chair: **Reiner Creutzburg,** Fachhochschule Brandenburg (Germany)

3:40 pm: **Human factors of ambient media**, Artur R. Lugmayr, Jr., Tampere Univ. of Technology (Finland) . . . . . [6821-24]

4:00 pm: **3D for the masses: multimedia mobility in 3D comes good**, Ken Blakeslee, WebMobility Ventures (United Kingdom). . . . . [6821-25]

4:20 pm: Personalized summarization using user preference for m-learning, Sihyoung Lee, Seungji Yang, Yong-Man Ro, Information and Communications Univ. (South Korea); Hyoung Joong Kim, Korea Univ. (South Korea) . . . . . [6821-26]

Interactive Paper and Symposium Demonstration Session-Tuesday

Conv. Ctr. Room B4 . . . . . Tues. 5:30 to 8:30 pm

A symposium-wide demonstration session will be open to attendees 5:30 to 8:30 pm Tuesday evening in Room Exhibit Hall 1. Demonstrators will provide interactive, hands-on demonstrations of a wide-range of products related to Electronic Imaging.

Posters . . . . . 5:30 to 7:00 pm

Posters will be placed on display after 9:00 am in Exhibit Hall 1. An interactive paper session, with authors present at their posters, will be held Tuesday evening, 5:30 to 7:00 pm.

Video contents authoring system for efficient consumption on portable multimedia device, Hyun-seok Min, Sung Ho Jin, Young Bok Lee, Yong-Man Ro, Information and Communications Univ. (South Korea) . . [6821-27]

Reducing the overheads of hardware acceleration through datapath integration, Pekka Jääskeläinen, Heikki Kultala, Teemu Pitkänen, Jarmo H. Takala, Tampere Univ. of Technology (Finland) . . . . . [6821-28]

Management of shared resources on scalable multiprocessor system on chip, Antti T. Rasmus, Ari Kulmala, Erno Salminen, Timo D. Hämäläinen, Marko Hännikäinen, Tampere Univ. of Technology (Finland). . . . . [6821-29]

The evolution of ambient learning, Reiner Creutzburg, Fachhochschule Brandenburg (Germany) . . . . . [6821-30]

Future ambient learning an a mobile world, Reiner Creutzburg, Fachhochschule Brandenburg (Germany) . . . . . [6821-31]

Automatic Bluetooth testing for mobile multi-user applications, Dennis Luck, Technische Fachhochschule Berlin (Germany); Larysa Visengeriyeva, SAPERION AG (Germany); Henrik Hörning, Biting Bit (Germany) . [6821-32]

Portable personality, Volker Bruns, Simon Reymann, Artur R. Lugmayr, Jr., Tampere Univ. of Technology (Finland) . . . . . [6821-33]

Visual Communications and Image Processing 2008

Conference Chairs: **William A. Pearlman,** Rensselaer Polytechnic Institute; **John W. Woods,** Rensselaer Polytechnic Institute; **Ligang Lu,** IBM Thomas J. Watson Research Ctr.

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Tuesday 29 January

Awards and Plenary Presentation . . Tues. 8:15 to 9:15 am

Digital Forensics

Hany Farid, Dartmouth College

Sessions 1 and 3 run concurrently.

SESSION 1

Conv. Ctr. Room B2 . . . . . Tues. 9:30 am to 12:00 pm

Media over Networks

Session Chair: **Bernd Girod,** Stanford Univ.

9:30 am: **Measuring the Hurst parameter of compressed video sequences**, Mike E. Nilsson, Stephen Appleby, Barry Crabtree, British Telecommunications plc (United Kingdom) . . . . . [6822-01]

9:50 am: **Coalition-based multimedia peer matching strategies for P2P networks**, Hyunggon Park, Mihaela van der Schaar, Univ. of California/Los Angeles. . . . . [6822-02]

10:10 am: **Risk-aware scheduling for multi-user video streaming over wireless multi-hop networks**, Hsien-Po Shiang, Mihaela van der Schaar, Univ. of California/Los Angeles . . . . . [6822-03]

Coffee Break . . . . . 10:30 to 11:00 am

11:00 am: **Video multicast over wireless mesh networks using H.264 scalable video coding (SVC)**, Xiaoqing Zhu, Stanford Univ.; Thomas Schierl, Thomas Wiegand, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany); Bernd Girod, Stanford Univ. . . [6822-04]

11:20 am: **Rate-distortion optimized multimedia communication in networks** *(Invited Paper)*, Nima Sarshar, Univ. of Regina (Canada); Xiaolin Wu, McMaster Univ. (Canada) . . . . . [6822-05]

11:40 am: **Distributed fine grain adaptive-FEC scheme for scalable video streaming**, Yufeng Shan, John W. Woods, Shivkumar Kalyanaraman, Rensselaer Polytechnic Institute . . . . . [6822-06]

Lunch/Exhibition Break . . . . . 12:00 to 1:30 pm

SESSION 3

Conv. Ctr. Room B3 . . . . . .Tues. 9:30 to 11:40 am

Indexing and Retrieval

Session Chair: **Gaurav Sharma,** Univ. of Rochester

9:30 am: **Exploring interframe correlation analysis and wavelet-domain modeling for real-time caption detection in streaming video**, Jia Li, Yonghong Tian, Joint Research & Development Lab. (China) . . . . [6822-15]

9:50 am: **Exploring the relationships of regions for visual content understanding**, Ting Liu, Institute of Computing Technology (China) . . . . . [6822-16]

10:10 am: **Efficient multi-ranking based on view selection for content based image retrieval**, Fan Wang, Qionghai Dai, Guihua Er, Tsinghua Univ. (China) . . . . . [6822-17]

Coffee Break . . . . . 10:30 to 11:00 am

11:00 am: **View-based 3D object retrieval using tangent subspace analysis**, Fan Wang, Qionghai Dai, Guihua Er, Tsinghua Univ. (China) . . . . . [6822-18]

11:40 am: **A set-theoretic approach for compensated signature embedding using projections onto convex sets**, Sufyan Y. Ababneh, Rashid Ansari, Ashfaq A. Khokhar, Univ. of Illinois at Chicago . . . [6822-75]

Lunch/Exhibition Break . . . . . 11:40 am to 1:30 pm

Sessions 2 and 4 run concurrently.

SESSION 2

Conv. Ctr. Room B2 . . . . . Tues. 1:30 to 4:20 pm

Video Processing

Session Chair: **Touradj Ebrahimi,** Ecole Polytechnique Fédérale de Lausanne (Switzerland)

1:30 pm: **Motion-compensated noise estimation for effective video processing**, Byung C. Song, SAMSUNG Electronics Co., Ltd. (South Korea); Nak H. Kim, Samsung Electronics Digital Media R&D Ctr. (South Korea) . . . . . [6822-07]

1:50 pm: **Motion tracking with nonstationary camera based on area and level set weighted average of centroid shifting vectors**, Suk-Ho Lee, Moon-Gi Kang, Yonsei Univ. (South Korea) . . . . . [6822-08]

2:10 pm: **A novel approach to skip mode decision for H.264**, Dajun Wu, Keng-Pang Lim, Wei Yao, Tuan Kiang Chiew, Jo-Yew Tham, Institute for Infocomm Research (Singapore) . . . . . [6822-09]

2:30 pm: **Behavior subtraction**, Pierre-Marc Jodoin, Univ. de Sherbrooke (Canada); Venkatesh Saligrama, Janusz Konrad, Boston Univ.. . . [6822-10]

2:50 pm: **Distributed pose estimation from multiple cameras**, Chong Chen, Dan Schonfeld, Univ. of Illinois at Chicago; Magdi A. Mohamed, Motorola, Inc. . . . . [6822-11]

Coffee Break . . . . . 3:10 to 3:40 pm

3:40 pm: **Focused video estimation from defocused video sequences**, Junlan Yang, Dan Schonfeld, Univ. of Illinois at Chicago; Magdi A. Mohamed, Motorola, Inc. . . . . [6822-12]

4:00 pm: Resource management in particle filtering for multiple object tracking, Pan Pan, Dan Schonfeld, Univ. of Illinois at Chicago . . . [6822-13]

SESSION 4

Conv. Ctr. Room B3 . . . . . Tues. 1:30 to 4:20 pm

Scalable Video Coding

Session Chair: **Onur G. Guleryuz,** DoCoMo Communications Labs. USA, Inc.

1:30 pm: **Performance vs. quality in scalable video coding for embedded surveillance applications**, Marijn Loomans, VDG Security B.V. (Netherlands) and Technische Univ. Eindhoven (Netherlands); Cornelis Koeleman, VDG Security B.V. (Netherlands); Peter de With, Technische Univ. Eindhoven (Netherlands) and LogicaCMG (Netherlands) . . . [6822-20]

1:50 pm: **Error reduction in interlayer motion prediction using FGS refined motion**, Dong Su Lee, Tae Meon Bae, Yong Man Ro, Information and Communications Univ. (South Korea) . . . . . [6822-21]

2:10 pm: **An efficient mode decision scheme for temporal scalability in scalable video coding**, Bumshik Lee, Munchurl Kim, Information and Communications Univ. (South Korea); Sangjin Hahm, Changseob Park, Keunsoo Park, Korean Broadcasting System (South Korea) . . . . . [6822-22]

2:30 pm: **Fast-rate allocation based on distortion estimation modeling in scalable video coding**, Chenchen Gu, Debin Zhao, Harbin Institute of Technology (China); Xiangyang Ji, Institute of Computing Technology (China) . . . . . [6822-23]

2:50 pm: **Smooth extraction of SVC fine-granular SNR scalable videos with a virtual-GOP-based rate-distortion modeling**, Jun Sun, Wen Gao, Peking Univ. (China); Debin Zhao, Harbin Institute of Technology (China) . . . . . [6822-24]

Coffee Break . . . . . 3:10 to 3:40 pm

3:40 pm: **Bit-depth scalable coding for high-dynamic-range video**, Woo-Shik Kim, Univ. of Southern California and Mitsubishi Electric Research Labs.; Shan Liu, Anthony Vetro, Mitsubishi Electric Research Labs.. . . . . [6822-25]

4:00 pm: **A new subband/wavelet framework for AVC/H.264 intraframe coding,** Shih-Ta Hsiang, Motorola, Inc. . . . . [6822-26]

Interactive Paper and Symposium Demonstration Session-Tuesday

Conv. Ctr. Room B2 and B3 . . . . . Tues. 5:30 to 8:30 pm

A symposium-wide demonstration session will be open to attendees 5:30 to 8:30 pm Tuesday evening in Room Exhibit Hall 1. Demonstrators will provide interactive, hands-on demonstrations of a wide-range of products related to Electronic Imaging.

Posters . . . . . 5:30 to 7:00 pm

Posters will be placed on display after 9:00 am in Exhibit Hall 1. An interactive paper session, with authors present at their posters, will be held Tuesday evening, 5:30 to 7:00 pm.

Posters: Image/Video Processing

Horizon detection in digital images using a hybrid approach, Bahman Zafarifar, Technische Univ. Eindhoven (Netherlands); Hans Weda, Philips Research Labs. (Netherlands); Peter H.de With, Technische Univ. Eindhoven (Netherlands) . . . . . [6822-72]

Efficient free viewpoint image acquisition from multiple differently focused images, Xi Ou, Takayuki Hamamoto, Tokyo Univ. of Science (Japan); Akira Kubota, Tokyo Institute of Technology (Japan); Kazuya Kodama, National Institute of Informatics (Japan) . . . . . [6822-73]

Multiframe image and video super-resolution algorithm with inaccurate motion registration errors rejection, Osama A. Omer, Toshihisa Tanaka, Tokyo Univ. of Agriculture and Technology (Japan) . . . . . [6822-74]

Color transfer based on wavelet transform, Kun Li, Qionghai Dai, Wenli Xu, Tsinghua Univ. (China) . . . . . [6822-56]

Posters: Indexing and Retrieval

Semi-supervised dimensionality reduction for image retrieval, Bin Zhang, IBM China Research Lab. (China); Yangqiu Song, Tsinghua Univ. (China); Wenjun Yin, Ming Xie, Jin Dong, IBM China Research Lab. (China); Changshui Zhang, Tsinghua Univ. (China) . . . . . [6822-76]

Real-time image annotation by manifold-based biased Fisher discriminant analysis, Rongrong Ji, Hongxun Yao, Harbin Institute of Technology (China). . . . . [6822-89]

Posters: Image/Video Coding

Spectral coding of mesh geometry with a hierarchical set partitioning algorithm, Umut Konur, Bogaziçi Univ. (Turkey); Ulug Bayazit, Hasan F. Ates, Isik Univ. (Turkey) . . . . . [6822-77]

Bitrate reduction techniques for stereoscopic digital cinema distribution, Michael D. Smith, MDS Consulting; John D. Villasenor, Univ. of California/Los Angeles . . . . . [6822-78]

Gauss-mixture parametric model of image spectrum for rate-distortion analysis of image coding, Chuo-Ling Chang, Bernd Girod, Stanford Univ. . . . . [6822-79]

Unveiling relationships between regions of interest and image fidelity metrics, Eric C. Larson, Damon M. Chandler, Oklahoma State Univ. . . . . [6822-80]

H.263 to VP6 video transcoder, Hari Kalva, Chris Holder, Florida Atlantic Univ. . . . . [6822-81]

Posters: Distributed Source Coding

Photoplus: auxiliary information for printed images based on distributed source coding, Ramin Samadani, Debargha Mukherjee, Hewlett-Packard Labs.. . . . . [6822-82]

Side information generation for distributed video coding based on optimal filtering, Xiao Zhang, Jun Zhang, Univ. of Wisconsin/ Milwaukee . . . . . [6822-83]

Enabling privacy for distributed video coding by transform domain scrambling, Mourad Ouaret, Frederic Dufaux, Touradj Ebrahimi, Ecole Polytechnique Fédérale de Lausanne (Switzerland). . . . . [6822-84]

Parameter selection for Wyner-Ziv coding of Laplacian sources, Debargha Mukherjee, Hewlett-Packard Labs. . . . . [6822-85]

Wednesday 30 January

Plenary Presentation . . . . . Wed. 8:30 to 9:15 am

The making of "The Inner Life of the Cell"

David Bolinsky, Medical Director/Partner XVIVO Scientific Annimation

Sessions 5 and 7 run concurrently.

SESSION 5

Conv. Ctr. Room B2 . . . . . .Wed. 9:30 am to 12:10 pm

Image/Video Transmission

9:30 am: **Optimal joint power-rate adaptation for error resilient video coding**, Yuan Lin, Norwegian Univ. of Science and Technology (Norway) . . . . . [6822-27]

9:50 am: **Mobile video communications using a Wyner-Ziv transcoder**, Eduardo Peixoto, Ricardo L. de Queiroz, Univ. de Brasília (Brazil); Debargha Mukherjee, Hewlett-Packard Labs. . . . . [6822-28]

10:10 am: **Macroblock selection algorithms for error resilient H.264 video wireless transmission using redundant slices**, Pierre L. Ferre, Dimitris Agrafiotis, David R. Bull, Univ. of Bristol (United Kingdom)[6822-29]

Coffee Break . . . . . 10:30 to 10:50 am

10:50 am: **Feedback-aided error resilience technique based on Wyner-Ziv coding**, Liang Liang, Purdue Univ.; Paul Salama, Indiana Univ.-Purdue Univ. at Indianapolis; Edward J. Delp III, Purdue Univ. . . . . [6822-30]

11:10 am: **Real-time joint source-channel coding of multiple correlated substream progressive sources for multiple-antenna Rayleigh channels**, Masoud Farshchian, William A. Pearlman, Rensselaer Polytechnic Institute . . . . . [6822-31]

11:30 am: **Combating error bursts for enhanced video transmission using cross-packet FEC and description interleaving**, Milos Tesanovic, David Bull, Angela Doufexi, Univ. of Bristol (United Kingdom) . . . [6822-32]

11:50 am: **Server-driven progressive image transmission of JPEG 2000**, Derek Schwenke, Anthony Vetro, Mitsubishi Electric Research Labs.; Toshihiko Hata, Mitsubishi Electric Corp. (Japan) . . . . . [6822-33]

Lunch/Exhibition Break . . . . . 12:10 to 1:30 pm

SESSION 7

Conv. Ctr. Room B3 . . . . . .Wed. 9:30 to 11:40 am

Special Session: VLSI Architectures

Session Chair: **Tinku Acharya,** Avisere, Inc.

9:30 am: **Optical, analog, and digital domain architectural considerations for visual communications** *(Invited Paper)*, Werner A. Metz, Texas Instruments Inc. . . . . [6822-43]

9:50 am: **A fast on-chip mean filter requiring only integer operations** *(Invited Paper)*, Bhargab B. Bhattacharya, A. Biswas, Indian Statistical Institute (India); Partha Bhowmick, Bengal Engineering and Science Univ. (India); Tinku Acharya, Avisere, Inc. . . . . [6822-45]

10:10 am: **Implication of variable code block size in JPEG 2000 and its VLSI implementation** *(Invited Paper)*, Ping-sing Tsai, The Univ. of Texas-Pan American; Tinku Acharya, Avisere Inc., USA . . . . . [6822-46]

Coffee Break . . . . . 10:30 to 11:00 am

11:00 am: **Parallel processing of multidimensional data with causal neighborhood dependencies**, Deepak S. Turaga, Krishna Ratakonda, IBM Thomas J. Watson Research Ctr. . . . . [6822-47]

11:20 am: **Image processing assisted voltage overscaling for energy-efficient IC realization of motion estimation** *(Invited Paper)*, Tong Zhang, Rajat Dani, John W. Woods, Rensselaer Polytechnic Institute . . . [6822-48]

Lunch/Exhibition Break . . . . . 11:40 am to 1:30 pm

Sessions 6 and 8 run concurrently.

SESSION 6

Conv. Ctr. Room B2 . . . . . .Wed. 1:30 to 5:00 pm

Video Coding

Session Chair: **Amir Said,** Hewlett-Packard Labs.

1:30 pm: **Stochastic texture synthesis for video compression**, Stijn De Waele, Koninklijke Philips Electronics N.V. (Netherlands); Fei Zuo, Technische Univ. Eindhoven (Netherlands) . . . . . [6822-34]

1:50 pm: **Decision trees for denoising in H.264/AVC video sequences**, Grégory Huchet, Jean-Yves Chouinard, Univ. Laval (Canada); Demin Wang, André Vincent, Communications Research Ctr. Canada (Canada) [6822-35]

2:10 pm: **Spatio-temporal fuzzy filtering for coding artifacts reduction**, Dung T. Vo, Univ. of California/San Diego; Sehoon Yea, Anthony Vetro, Mitsubishi Electric Research Labs. . . . . [6822-36]

2:30 pm: **Modeling quantization matrices for perceptual image/video encoding**, Huipin Zhang, WebEx Communications, Inc.. . . . . [6822-37]

2:50 pm: **Determining optimal configuration of video encoding parameters using numerical search algorithms**, Huipin Zhang, WebEx Communications, Inc. . . . . [6822-38]

Coffee Break . . . . . 3:10 to 3:40 pm

3:40 pm: **Video compression with tunable complexity via flexible syntax design**, Yuxin Liu, Debargha Mukherjee, Hewlett-Packard Labs.. [6822-39]

4:00 pm: **Complexity constrained rate-distortion optimization of sign language video using an objective intelligibility metric**, Frank Ciaramello, Sheila Hemami, Cornell Univ.. . . . . [6822-40]

4:20 pm: **Computationally efficient adaptive reference filtering for interview prediction in multiview video coding**, Polin Lai, Antonio Ortega, Univ. of Southern California; Purvin Pandit, Peng Yin, Cristina Gomila, THOMSON Corporate Research . . . . . [6822-41]

4:40 pm: **Fast H.264 mode selection using depth information for distributed game viewing,** Gene Cheung, Hewlett-Packard Labs. Japan (Japan); Antonio Ortega, Univ. of Southern California . . . . . [6822-42]

SESSION 8

Conv. Ctr. Room B3 . . . . . .Wed. 1:30 to 4:40 pm

Image Processing

Session Chair: **Dan Schonfeld,** Univ. of Illinois at Chicago

1:30 pm: **A new image denoising framework based on bilateral filter**, Bahadir Gunturk, Louisiana State Univ. . . . . [6822-49]

1:50 pm: **Multiband locally adaptive contrast enhancement algorithm with build-in noise and artifact supression mechanisms**, Sascha Cvetkovic, Johan Schirris, Bosch Security Systems B.V. (Netherlands); Peter H.de With, Technische Univ. Eindhoven (Netherlands) . . . . [6822-50]

2:10 pm: **An adaptive M-estimation framework for robust image super-resolution without regularization**, Noha A. El-Yamany, Panos Papamichalis, Southern Methodist Univ. . . . . [6822-51]

2:30 pm: **Attraction-repulsion expectation maximization algorithm**, Hunsop Hong, Dan Schonfeld, Univ. of Illinois at Chicago . . . . . [6822-52]

2:50 pm: **Image segmentation and classification based on a 2D distributed hidden Markov model**, Xiang Ma, Dan Schonfeld, Ashfaq Khokhar, Univ. of Illinois at Chicago . . . . . [6822-53]

Coffee Break . . . . . 3:10 to 3:40 pm

3:40 pm: **Robust hand tracking using a skin-tone and depth joint probability model**, Corey Manders, Farzam Farbiz, Jyh H. Chong, Ka Y. Tang, Waqas Ahmed, A*STAR Institute for Infocomm Research (Singapore) . . . . . [6822-54]

4:00 pm: **Line segment based image registration**, Yong Li, Robert Stevenson, Jiading Gai, Univ. of Notre Dame . . . . . [6822-55]

Thursday 31 January

Conv. Ctr. Room B2 and B3 . . . . . .Thurs. 9:00 to 9:50 am

Keynote and Awards Presentations

Presentation of Best Paper and Best Student Paper Awards

8:30 am: Perspectives in distributed source coding (Keynote), Kannan Ramchandran, Univ. of California/Berkeley . . . . . [6822-86]

Sessions 9 and 11 run concurrently.

SESSION 9

Conv. Ctr. Room B2 . . . . . .Thurs. 9:30 to 11:30 am

Special Session: Color Demosaicking I

Session Chair: **Xin Li,** West Virginia Univ.

9:30 am: **Image demosaicking: an overview and roadmap** *(Invited Paper)*, Xin Li, West Virginia Univ.; Lei Zhang, The Hong Kong Polytechnic Univ. (Hong Kong China); Bahadir Gunturk, Louisiana State Univ.. . . . . [6822-57]

9:50 am: **Denoising and interpolation of noisy Bayer data with adaptive cross-color filters** *(Invited Paper)*, Dmitriy V. Paliy, Alessandro Foi, Tampere Univ. of Technology (Finland); Radu Bilcu, Nokia Research Ctr. (Finland); Vladimir Katkovnik, Tampere Univ. of Technology (Finland) . . . . . [6822-58]

Coffee Break . . . . . 10:10 to 10:50 am

10:50 am: **A regularization approach to demosaicking** *(Invited Paper)*, Daniele Menon, Giancarlo Calvagno, Univ. degli Studi di Padova (Italy) . . . . . [6822-59]

11:10 am: **Frequency selection demosaicking: a review and a look ahead** *(Invited Paper)*, David Alleysson, Univ. Pierre-Mendès-France (France); Brice Chaix de Lavarène, Lab. des Images et des Signaux (France). . . . . [6822-60]

Lunch Break . . . . . 11:30 am to 1:30 pm

SESSION 11

Conv. Ctr. Room B3 . . . . . .Thurs. 9:30 to 11:50 am

Special Session: Distributed Source Coding I

Session Organizers: **Ligang Lu,** IBM Thomas J. Watson Research Ctr.; **Dake He,** IBM Thomas J. Watson Research Ctr.; **Ashish Jagmohan,** IBM Thomas J. Watson Research Ctr.; **Zixiang Xiong,** Texas A&M Univ.

9:30 am: **Balanced distributed coding of omnidirectional images** *(Invited Paper)*, Vijayaraghavan Thirumalai, Ivana Tosic, Pascal Frossard, Ecole Polytechnique Fédérale de Lausanne (Switzerland). . . . . [6822-64]

9:50 am: **A rate-efficient approach for establishing visual correspondences via distributed source coding** *(Invited Paper)*, Chuohao Yeo, Parvez Ahammad, Kannan Ramchandran, Univ. of California/ Berkeley . . . . . [6822-65]

Coffee Break . . . . . 10:10 to 10:50 am

10:50 am: **Compression algorithms for flexible video decoding** *(Invited Paper)*, Ngai-Man Cheung, Antonio Ortega, Univ. of Southern California . . . . . [6822-66]

11:10 am: **Rate control algorithm for pixel-domain Wyner-Ziv video coding** *(Invited Paper)*, Antoni Roca, Univ. Politècnica de València (Spain); Marleen Morbée, Univ. Gent (Belgium); Josep Prades-Nebot, Univ. Politècnica de València (Spain); Edward J. Delp III, Purdue Univ. . [6822-69]

11:30 am: **Wyner-Ziv video compression using rateless LDPC codes** *(Invited Paper)*, Da-Ke He, Ashish Jagmohan, Ligang Lu, Vadim Sheinin, IBM Thomas J. Watson Research Ctr.. . . . . [6822-70]

Lunch Break . . . . . 11:50 am to 1:30 pm

Sessions 10 and 12 run concurrently.

SESSION 10

Conv. Ctr. Room B2 . . . . . .Thurs. 1:30 to 2:30 pm

Color Demosaicking II

Session Chair: **Xin Li,** West Virginia Univ.

1:30 pm: **Improved color demosaicking in weak spectral correlation** *(Invited Paper)*, Xiaolin Wu, McMaster Univ. (Canada); Fan Zhang, Xiaokang Yang, Wenjun Zhang, Shanghai Jiao Tong Univ. (China). . . . . [6822-61]

1:50 pm: **Improved demosaicking in the frequency domain by restoration filtering of the LCC bands** *(Invited Paper)*, Markus Beermann, Eric Dubois, Univ. of Ottawa (Canada). . . . . [6822-62]

2:10 pm: Second-generation CFA and demosaicking designs (Invited Paper), Keigo Hirakawa, Patrick J. Wolfe, Harvard Univ.. . . . . [6822-63]

SESSION 12

Conv. Ctr. Room B3 . . . . . .Thurs. 1:30 to 3:10 pm

Special Session: Distributed Source Coding II

Session Organizers: **Ligang Lu,** IBM Thomas J. Watson Research Ctr.; **Dake He,** IBM Thomas J. Watson Research Ctr.; **Ashish Jagmohan,** IBM Thomas J. Watson Research Ctr.; **Zixiang Xiong,** Texas A&M Univ.

1:30 pm: **Wyner-Ziv coding of 3D dynamic meshes** *(Invited Paper)*, Chao Chen, Qifei Wang, Qionghai Dai, Xiaodong Liu, Tsinghua Univ. (China); Zixiang Xiong, Texas A&M Univ. . . . . [6822-67]

1:50 pm: **Wyner-Ziv video coding with hierarchical side information estimation** *(Invited Paper)*, Wei Liu, Lina Dong, Wenjun Zeng, Univ. of Missouri/Columbia . . . . . [6822-87]

2:10 pm: **Scalable Wyner-Ziv video coding with adaptive bit-plane representation** *(Invited Paper)*, Mei Guo, Harbin Institute of Technology (China); Yan Lu, Feng Wu, Shipeng Li, Microsoft Research Asia (China); Wen Gao, Harbin Institute of Technology (China) . . . . . [6822-88]

2:30 pm: **Region-based fusion strategy for side information generation in DMVC** *(Invited Paper)*, Yongpeng Li, Joint Research & Development Lab. (China); Xiangyang Ji, Institute of Computing Technology (China); Debin Zhao, Harbin Institute of Technology (China); Gao Wen, Institute of Computing Technology (China) . . . . . [6822-68]

2:50 pm: **New direction in Wyner-Ziv video coding** *(Invited Paper)*, Xin Li, West Virginia Univ. . . . . [6822-71]

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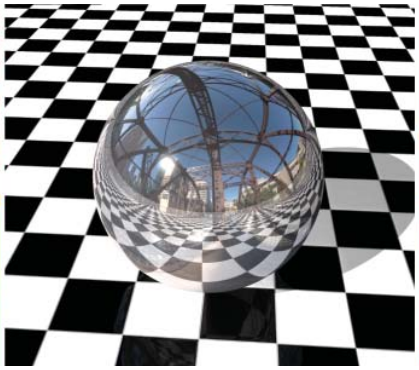


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