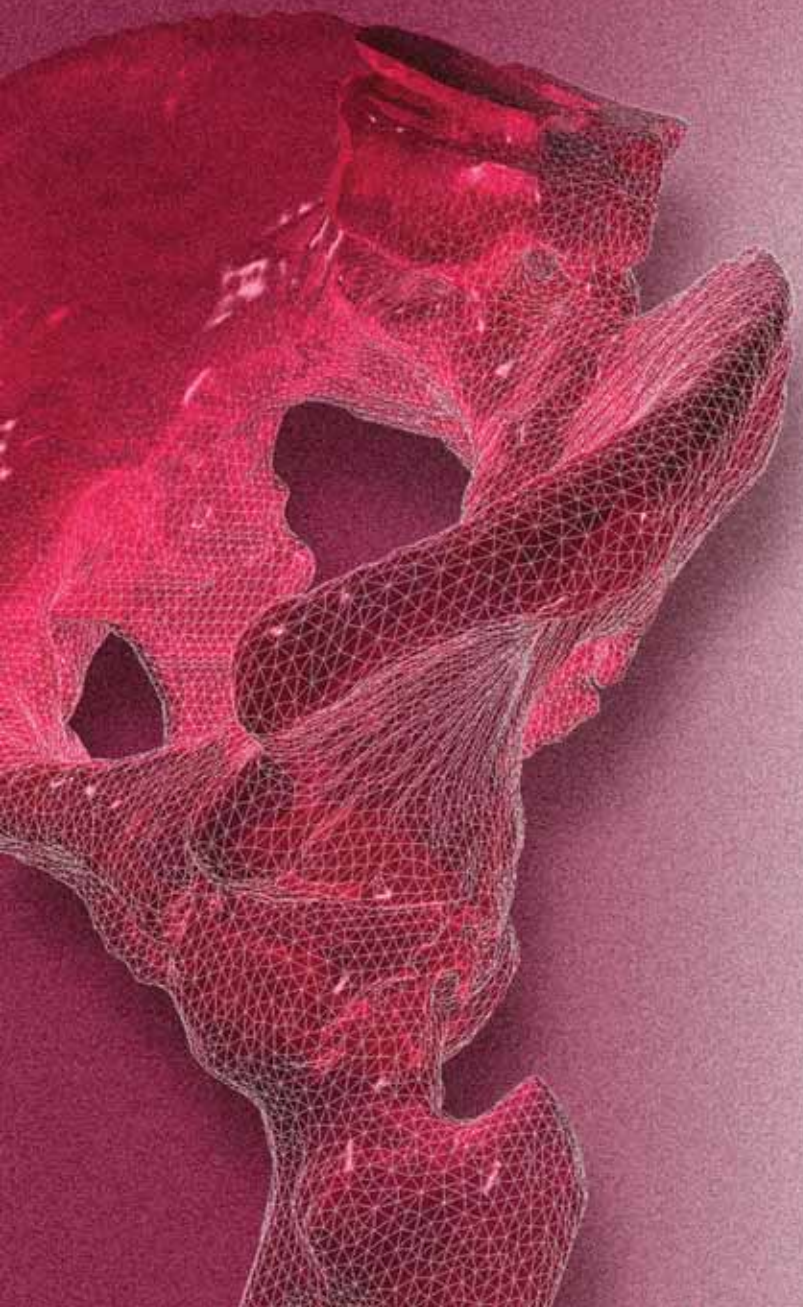


Technical Program



SPIE
**Medical
Imaging**

17–22 February 2007

*Town and Country Resort & Convention Center
San Diego, California USA*



Technical Program

SPIE Medical Imaging

17–22 February 2007

Town and Country Resort & Convention Center
San Diego, California USA

Conferences • Courses • Exhibition

Welcome!

Welcome to Medical Imaging 2007, the premier annual meeting on the scientific and technical aspects of medical imaging.

This year's meeting features technical presentations on the most up-to-date research and development in the areas of image visualization, and image-guided procedures; physics of medical imaging; physiology, function, and structure from medical images; image processing; PACS and imaging informatics; image perception, observer performance, and technology assessment; ultrasonic imaging and signal processing; and computer-aided diagnosis.

Join Dr. Maria Petrou of Imperial College (United Kingdom) who will present "Human and artificial vision systems" (see page 5) for the all symposium plenary presentation on Monday afternoon.

Learn more about the latest components and systems related to medical imaging by attending the exhibition.

Attend the many special events and workshops to enhance your conference experience. Learn, network, and enjoy your time in San Diego.

Symposium Organizers:



Elizabeth Krupinski,
The Univ. of Arizona



Milan Sonka,
The Univ. of Iowa



Amir Amini,
Univ. of Louisville
in Kentucky

Cover image: Computed tomography
image of human pelvis and femur.

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Technical Conferences

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Sun-Tues	6509	Visualization and Image-Guided Procedures <i>(Cleary, Miga)</i> 10
Sun-Thurs	6510	Physics of Medical Imaging <i>(Hsieh, Flynn)</i> 10
Sun-Tues	6511	Physiology, Function, and Structure from Medical Images <i>(Manduca, Hu)</i> 10
Sun-Tues	6512	Image Processing <i>(Pluim, Reinhardt)</i> 10
Sun-Mon	6513	Ultrasonic Imaging and Signal Processing <i>(Emelianov, McAleavey)</i> 10
Tues-Thurs	6514	Computer-Aided Diagnosis <i>(Giger, Karssemeijer)</i> 11
Weds-Thurs	6515	Image Perception, Observer Performance, and Technology Assessment <i>(Jiang, Sahiner)</i> 11
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SPIE gratefully acknowledges the following cooperating organizations:

AAPM—American Association of Physicists in Medicine

APS—American Physiological Society

CARS—Computer Assisted Radiology and Surgery

IS&T—The Society for Imaging Science and Technology

MIPS—Medical Image Perception Society

RSNA—Radiological Society of North America

SIIM—Society for Imaging Informatics in Medicine

SMI—The Society for Molecular Imaging

The DICOM Standards Committee

SPIE is a not-for-profit international society dedicated to furthering technological innovations.

SPIE

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Daily Schedule

Saturday 17 February	Sunday 18 February	Monday 19 February	Tuesday 20 February	Wednesday 21 February	Thursday 22 February
Courses		Technical Conferences			
SC086 Fundamentals of Medical Image Processing and Analysis (<i>Lehmann</i>) 8:30 am to 12:30 pm, \$280 / \$325	6509 Visualization and Image-Guided Procedures (<i>Cleary, Miga</i>) p. 10				
	6510 Physics of Medical Imaging (<i>Hsieh, Flynn</i>) p. 10				
SC356 Digital Mammography and Computer-Aided Diagnosis (<i>Karellas, Giger</i>) 1:30 to 5:30 pm, \$280 / \$325	6511 Physiology, Function, and Structure from Medical Images (<i>Manduca, Hu</i>) p. 10				
	6512 Image Processing (<i>Pluim, Reinhardt</i>) p. 10				
SC358 X-Ray Detector Performance: Principles and Measurements using a Linear Systems Approach (<i>Cunningham</i>) 1:30 to 5:30 pm, \$280 / \$325	6513 Ultrasonic Imaging and Signal Processing (<i>Emelianov, McAleavey</i>) p. 10		6514 Computer-Aided Diagnosis (<i>Giger, Karssemeijer</i>) p. 11		
			6515 Image Perception, Observer Performance, and Technology Assessment (<i>Jiang, Sahiner</i>) p. 11		
			6516 PACS and Imaging Informatics (<i>Horii, Andriole</i>) p. 11		
SC471 Principles and Advancements in X-ray Computed Tomography (<i>Hsieh</i>) 8:30 am to 12:30 pm, \$345 / \$395	WS757 Early Career Professional Development in Medical Imaging (<i>Krupinski</i>) 1:30 to 5:30 pm, \$100 / \$150		SC613 Statistical Methods in Medical Imaging and Bioengineering with Applications to Observer Performance Evaluation (<i>Krupinski, Chakraborty</i>) 8:30 am to 5:30 pm, \$460 / \$545		
SC538 Medical Image Analysis with ITK and Related Open-Source Software (<i>Ibanez, Aylward</i>) 8:30 am to 5:30 pm, \$460 / \$545					
Technical Workshops					
SC701 Fundamental Principles and Statistical Analysis of Magnetic Resonance Imaging (<i>Lei, Song</i>) 8:30 am to 5:30 pm, \$460 / \$545	Software Packages for Visualization and Image-Guided Procedures (6509), 5:45 to 7:45 pm, p. 8		Hands-On Experience with CAD (6514), 5:45 to 7:45 pm, p. 9		Theoretical and Practical Elements of Tomosynthesis Imaging (6510), 1:20 to 3:00 pm, p. 9
SC704 Image Guided Procedures and Computer Aided Surgery (<i>Wong, Cleary, Galloway</i>) 8:30 am to 12:30 pm, \$280 / \$325	Validation in Image Registration Models (6512), 5:45 to 7:45 pm, p. 8		Validation of Models used in Assessment of Medical Imaging Systems (6510, 6515), 5:45 to 7:45 pm, p. 9		
SC771 Monte Carlo Simulation of Radiation Imaging Systems (<i>Badano, Sempau, Flynn</i>) 8:30 am to 12:30 pm, \$280 / \$325	Molecular Imaging (6511), 5:45 to 7:45 pm, p. 8		DICOM (6516), 5:45 to 7:45 pm, p. 9		
WS815 Monte Carlo Simulation of Radiation Imaging Systems - Hands-on Tutorial (<i>Badano, Sempau, Flynn</i>) 1:30 to 5:00 pm, \$100 / \$150					
Special Events					
SC828 An Introduction to Finite Elements for Medical Imaging (<i>Miga</i>) 1:30 to 5:30 pm, \$345 / \$385	Recent Developments and Opportunities for Funding Support in Imaging Technology at the National Institutes of Health, 5:45 to 7:45 pm, p. 6		NIH One-on-One Forum, 9:00 to 11:30 am, p. 6		Poster Reception and Awards (Confs. 6510, 6514, 6515, 6516), 5:30 to 7:00 pm, Golden Pacific Ballroom, p. 6
SC829 MIC-GPU: High-Performance Computing for Medical Imaging on Programmable Graphics Hardware (GPU) (<i>Mueller, Xu, Neophytou</i>) 1:30 to 5:30 pm, \$280 / \$325			Michael B. Merickel Best Student Paper Award Presentation, 4:00 pm, p. 7		
WS776 Writing for Publication in Medical Imaging (<i>Hanson</i>) 8:30 am to 12:30 pm, \$100 / \$150			Plenary Presentation: Human and artificial vision systems, Maria Petrou, Imperial College (United Kingdom) p. 5		
FDA Workshop, 5:30 to 7:30 pm, p. 6			Poster Reception and Awards (Confs. 6509, 6511, 6512, 6513), 5:00 to 6:30 pm, Golden Pacific Ballroom, p. 6		
			Student Networking Reception, 6:30 to 7:30 pm, p.7		



Monday · 4:00 pm
Town & Country Room

Human and artificial vision systems

Maria Petrou, Imperial College (United Kingdom)

The talk will cover the basic description of the human vision systems, and how our understanding for each of its stages may be used to influence the development of modern vision technology. It will cover the description of some basic research in developing materials that have similar spectral responses as the cones in the eye and image processing techniques inspired from our understanding of the human vision, from basic mechanisms of attentional attraction to the organization of visual information.

Maria Petrou studied Physics at the Aristotle University of Thessaloniki, Greece, Applied Mathematics in Cambridge and she did her PhD in the Institute of Astronomy in Cambridge, UK.

Dr. Petrou has been working on image processing and computer vision since 1986. She was the Professor of Image Analysis at Surrey University from 1998-2005. She is currently the Professor of Signal Processing at Imperial College. She has published more than 300 scientific papers, on Astronomy, Remote Sensing, Computer Vision, Machine Learning, Colour analysis, Industrial Inspection, and Medical Signal and Image Processing.

She has co-authored two books “Image Processing: the fundamentals” and “Image Processing: Dealing with texture” both published by John Wiley in 1999 and 2006, respectively.

Dr. Petrou is a Fellow of the Royal Academy of Engineering, Fellow of IEE, Fellow of IAPR and senior member of IEEE. She has served as the Chairman of the Technical Committee for Remote Sensing of IAPR, the Chairman of the British Machine Vision Association (BMVA), as an Associate Editor of IEEE Transactions on Image Processing, as the Newsletter Editor of IAPR and is currently the treasurer of IAPR.

A full list of publications and other details can be found in <http://www.commsp.ee.ic.ac.uk/~mcpetrou>



NIH One-on-One Forum

Monday 9:00 to 11:30 am · Royal Palm VI Room

This session will provide an opportunity to meet with representatives of Center for Scientific Review and of at least three of the main imaging technology funding Institutes of NIH on a one on one basis to ask specific individual questions.

Meet the FDA

Saturday · 5:30 to 7:30 pm · Royal Palm II Room

William M. Sutton, CDRH/Food and Drug Administration

FDA's Center for Devices and Radiological Health (CDRH) is responsible for regulating firms who manufacture, repackage, relabel, and/or import medical devices sold in the United States. In addition, CDRH regulates radiation emitting electronic products (medical and non-medical) such as lasers, x-ray systems, ultrasound equipment, microwave ovens and color televisions. This session will cover medical device classification and the controls deemed necessary to protect public health. General controls and special controls will be outlined and will cover both premarket [510(k) and PMA] as well as postmarket [medical device reporting] requirements. In addition, establishment registration and medical device listing will be discussed.

Attendees will be provided the resource tools [Internet Links] necessary to assure better compliance with FDA's medical device and electronic product regulations.

William (Bill) Sutton has been employed by the Food and Drug Administration (FDA) for over 23 years. He has been a consumer safety officer in the Center for Devices and Radiological Health's (CDRH's) industry and international assistance program since 1995 and currently serves as the Deputy Director. Prior to joining the Division of Small Manufacturers, International and Consumer Assistance (DSMICA), he served 12 years in the Office of Device Evaluation. His primary duties were to perform preliminary reviews of medical device applications. Since 1998, Mr. Sutton has done extensive work with the International Relations Staff. This group facilitates commerce in medical devices by pursuing harmonization of regulatory requirements and by encouraging mutual recognition agreements between the U.S. and other countries.

Recent Developments and Opportunities for Funding Support in Imaging Technology at the National Institutes of Health

Sunday · 5:45 to 7:45 pm · Royal Palm I Room

Moderator: Lee A. Rosen, Ph.D., Scientific Review Administrator, Biomedical Imaging Technology Study Section, Center for Scientific Review, National Institutes of Health/HHS

This bi-annual session is devoted to informing those attendees of the SPIE Medical Imaging meeting about research support opportunities at the National Institutes of Health (NIH), particularly with respect to research and development of new ideas in medical imaging. The NIH system is basically two parts: 1.) The program part involving 26 different funding institutes and centers at NIH that provide the grant support to develop new ideas in biomedical science, and 2.) The review part that is responsible for evaluating all submitted grant applications in an effort to identify the best science to be supported. Last year in this time slot, presentations were provided on the grant application process, including how grants are prepared and how they are reviewed. This year, presentations will be offered on why you would prepare such a grant application, with information by representatives of the two major funding institutes related to imaging programs, including the National Institute of Biomedical Imaging and Bioengineering, as well as the Cancer Imaging Program of The National Cancer Institute. In addition, information is expected to be available on other institutes, such as the National Heart Lung and Blood Institute, and the National Institute of Neurological Disorders and Stroke. Each of these institutes is actively providing monetary grant support in imaging and related bioengineering to both academic and private organizations. Presentations will focus on general funding opportunities and the basic process as well as specific new imaging initiatives and programs, including recent developments in medical imaging technologies. In addition, information will be provided on the bioengineering grant applications as part of the Bioengineering Consortium (BECON) that has been responsible for several new initiatives at NIH related to improving the chances of bioengineering applications from both the public and private sectors to compete with more traditional biomedical hypothesis driven studies. Information will also be available on small business opportunities.



Poster Awards during Poster Receptions

Monday · 6:00 pm

Wednesday · 6:30 pm

Golden Pacific Ballroom Poster Area

Poster Awards

This year's poster awards will be presented during the poster receptions. Award ribbons will be displayed on the winning posters at the poster receptions on those evenings. Each conference will recognize selected poster papers of exceptional quality at either the Cum Laude or Honorable Mention level. Winners will be chosen by members of individual conference program committees. In addition, cum laude poster award recipients will be recognized in the Proceedings of SPIE volumes.

Recognition levels:

Each conference will recognize a selected poster at the cum laude level for the quality of work presented and for the presentation itself. A number of posters, limited to no more than five to ten percent of the best posters presented, will receive honorable mention.

Basis for selection:

1. Work should be of a standard of excellence as judged by the quality and quantity of results presented. It should include results that are both significant and new to the field of study. Conclusions should be well supported by the results, and relevant references should be cited.
2. Presentation should be well organized, clear, and concise. It should be self-contained, giving adequate background, concise results, and relevant references. Graphic design will be considered only to the extent that it contributes to the clarity of presentation.
3. A conference may give preference to first authors who are students or who are within five years of their terminal degrees.

Students

Save 50% on courses and workshops.

Student Events

Don't miss these unique professional development opportunities for students, sponsored by SPIE Student Services. Combine these two career-development workshops with an informal networking event for a professional development home run. Take charge of your career!

Student Membership in SPIE remains \$20, provides online access to the *Journal of Biomedical Optics*, and can be obtained at the SPIE Cashier when you sign up for workshops.

Writing for Publication in Medical Imaging

Saturday, 17 February · 8:30 am to 12:30 pm

WS776 · Course level: Intermediate · CEU 0.35
\$100 SPIE Member | \$150 USD Nonmember

This course teaches the basic skills needed to create well-written scientific articles for publication in journals or proceedings. We discuss the structure of a paper and the functionality of its various parts. You will learn the standards of good technical writing, punctuation and grammar, and how to avoid common writing mistakes.

Instructor: **Kenneth M. Hanson** has published over 140 papers and edited numerous proceedings. He was chair of the Image Processing conference for six years and chair of the Medical Imaging Symposium for three.

Early Career Professional Development in Medical Imaging

Sunday, 18 February · 1:30 to 5:30 pm

WS757 · Course level: Introductory · CEU 0.35
\$100 SPIE Member | \$150 USD Nonmember

This course provides strategies and ideas for navigating through the early years of medical imaging research in the academic environment. The course focuses on strategic career planning topics such as effective CV development, understanding the promotion and tenure process, resource negotiating tips, time management and organizational skills, and writing and winning research grants.

Instructor: **Elizabeth Krupinski, Ph.D.**, is a Research Professor of Radiology and Psychology and has been involved with medical imaging research in academic environments for over 15 years.

Dessert with the Experts

A Student Networking Event

Monday, 19 February · 6:30 to 7:30 pm
Royal Palm V and VI Room

Enjoy a tasty dessert and casual atmosphere while networking with some of the best and brightest minds in medical imaging. Exchange ideas, share experiences, and make valuable contacts at this complimentary student event. Experts include Dr. Amir Amini, Dr. Kevin Cleary, Dr. Steven Horii, Dr. Elizabeth Krupinski, Dr. Joseph Reinhardt, Prof. Milan Sonka, and more!

FREE, Advance sign-up required at Registration by Sunday 5:00 pm.

The Michael B. Merickel Best Student Paper Award

The following individuals have been selected by the conference chairs as nominees for the Best Student Paper Award. The symposium committee will announce the first and second place winners at the plenary session on Monday, 4:00 pm in the Town & Country Room.

Cristian A. Linte, Augmented reality-guided intra-cardiac intervention (6509-22)

Lena Maier-Hein, In-vitro evaluation of a novel needle-based soft tissue navigation system with a respiratory liver motion simulator (6509-41)

Indriyati Atmosukarto, An interactive 3D user interface for guided bronchoscopy (6509-51)

Erik Fredenberg, Prism array lenses as an energy filter in medical x-ray imaging (6510-27)

Andreu Badal, A novel Monte Carlo package for the simulation of radiation transport in detailed anatomical phantoms described by triangular meshes (6510-34)

Eberhard Hansis, An iterative method for the reconstruction of the coronary arteries from rotational x-ray angiography (6510-77)

Jinzi Zheng, Longitudinal vascular imaging using a novel nano-encapsulated CT and MR contrast agent (6511-48)

Abbas N. Moghaddam, Structure and function relationship of human heart from DENSE MRI (6511-56)

Honghai Zhang, Four-dimensional functional analysis of left and right ventricles using MR images and active appearance models (6511-57)

Kinda A. Saddi, Large deformation registration of contrast-enhanced images with volume-preserving constraint (6512-02)

Mona Haeker, Automated segmentation of intraretinal layers from macular optical coherence tomography images (6512-39)

Joshua H. Levy, Signaling local non-credibility in an automatic segmentation pipeline (6512-135)

Drake A. Guenther, Receive channel FIR filters for enhanced contrast in medical ultrasound (6513-2)

Keelin Murphy, Automated detection of pulmonary nodules from low-dose computed tomography scans using a two-stage classification system based on local image features (6514-35)

Weijie Chen, Joint feature selection and classification using a Bayesian neural network with automatic relevance determination" priors: potential use in CAD of medical imaging (6514-51)

Joel R. Wilkie, Imputation methods for temporal radiographic texture analysis in the detection of periprosthetic osteolysis (6514-56)

M. Dylan Tisdall, Perception of dim targets on dark backgrounds in MRI (6515-26)

Jun Miao, Perceptual difference model (PDM) for evaluation of MR images: validation and calibration (6515-28)

Dave Tahmouh, A web collaboration system for content-based image retrieval of medical images (6516-11)

Make Time to Visit the Exhibition!



Exhibition Hours

Golden Pacific Ballroom

Monday, 19 February 5:00 to 6:30 pm
Poster and Exhibition Reception

Tuesday, 20 February 9:30 am to Noon; 1:00 to 4:00 pm

Wednesday, 21 February 9:30 am to Noon; 1:00 to 4:00 pm

Coffee Breaks and Refreshments in the Exhibition Hall

Tuesday and Wednesday 9:30 am to 3:00 pm

Exhibition/Poster Reception

Golden Pacific Ballroom

Monday, 19 February 5:00 to 6:30 pm

The exhibition hall will be open Monday evening in conjunction with the poster session, to allow attendees specific exhibition and poster viewing time during the symposium. Take the opportunity to see the exhibits and talk with company representatives as well as review posters. Refreshments will be served.



Sunday

18 February

Visualization and Image-Guided Procedures

Conference 6509

San Diego Room · 5:45 to 7:45 pm

Software Packages for Visualization and Image-Guided Procedures

Organizer: **Kevin Cleary, PhD**, Georgetown University

There are many software packages available for researchers to choose from in this field. This workshop will present an overview of several different software packages to educate the research community about the available options. Each presenter will give a short summary, followed by a panel discussion and question/answer session. The current program is listed below.

Analyze: **David R. Holmes III, Richard Robb**, Mayo Clinic**CAVASS:** **Jayaram K. Udupa**, Univ. of Pennsylvania; **George J. Grevera**, St. Joseph's Univ.**ITK:** **Stephen Aylward**, Univ. of North Carolina/Chapel Hill**IGSTK:** **Patrick Cheng**, Georgetown Univ.**MITK:** **Ivo Wolf**, Deutsches Krebsforschungszentrum (Germany)**Julius:** **Erwin Keeve**, Ctr. of Advanced European Studies and Research (Germany)

Image Processing

Conference 6512

California Room · 5:45 to 7:45 pm

Validation in Image Registration Methods

Chair: **Pierre Jannin**, Univ. de Rennes I (France)Speakers: **Gary E. Christensen**, The Univ. of Iowa;**J. Michael Fitzpatrick**, Vanderbilt Univ.; **Pierre Jannin**, Univ. de Rennes I (France); **Daniel Rueckert**, Imperial College London (United Kingdom)

Image registration, embedded in larger systems and applications, is used more and more extensively in medicine from diagnosis to therapy. Image registration has an important influence on the medical decision making process and even on surgical actions. Image registration is playing a crucial role in the maturation of quantitative imaging techniques, such as in functional imaging, where visualization of the acquired images alone is insufficient. Therefore, high quality and accuracy are expected. Image registration for image fusion and surgical navigation is clinically correct and useful only if coordinates in the two images or in the image and physical space that correspond to the same anatomical point are accurately mapped to each other. Registration error is the error of this mapping. Errors are related to biological variability, to the acquisition process, or to some components of the registration process itself.

The importance of rigorous validation studies of medical image registration methods is now well established. Some issues are still present, such as standardization of validation methodology or validation for non linear registration. In this workshop, emphasis will be given on these last aspects. Practical examples and advices will be given for designing rigorous and relevant validation procedures.

Physiology, Function, and Structure from Medical Images

Conference 6511

Golden West Room · 5:45 to 7:45 pm

Molecular Imaging

Chairs: **Xiaoping P. Hu**, Emory Univ.; **Armando Manduca**, Mayo Clinic

Speakers:

Jeff Bulte, Johns Hopkins Univ. (MRI based Methods)**Mark Goodman, Ph.D.**, Emory Univ. (PET)**Erik Ritman, Ph.D., M.D.**, Mayo Clinic (CT based Methods)**Joseph P. Culver, Ph.D.**, Washington Univ. (Optical imaging)

Molecular imaging is becoming the new frontier in medical imaging, providing unprecedented ability for increased specificity and sensitivity. Currently, molecular imaging is carried with a number of imaging modalities, including MRI, PET, CT and optical imaging. This workshop will bring experts in molecular imaging with these modalities together to provide an in depth review of the current state-of-the-art in this field.

Tuesday

20 February

Computer-Aided Diagnosis

Conference 6514

San Diego Room · 5:45 to 7:45 pm

Hands-On Experience with CAD**Maryellen L. Giger**, The Univ. of Chicago;**Nico Karssemeijer**, Radboud Univ. Nijmegen (Netherlands);**Michael F. McNitt-Gray**, Univ. of California/Los Angeles

This hands-on workshop with CAD will include demonstrations from various institutions from around the world – especially from those of the new SPIE CAD program committee. The purpose of the workshop will be to demonstrate various ways to display CAD results and to present examples of integration of CAD in clinical workflow. Workstations demonstrations will include computer-aided detection and diagnosis systems for breast cancer, lung cancer, and other disease states. The format of the workshop will include a 5-minute overview of each system by each demonstrator, individual roaming time for participants to interact one-on-one with each workstation, and an ending wrap up in which critical discussions of the various systems will be reviewed.

PACS and Imaging Informatics

Conference 6516

California Room · 5:45 to 7:45 pm

DICOM

The DICOM Workshop will include a brief overview of the major new material in the DICOM Standard. Detailed discussions of the new material in the Standard as well as an explanation of some of the ongoing debates over expansion of the Standard to cover new types of images will be guided by the most recent Working Group activities.

There will be an opportunity to ask questions of the presenters and the other DICOM experts in attendance.

Attendees of the workshop should have some familiarity with the DICOM standard and may expect to learn about the newest developments and directions from the participants in the DICOM effort.

Joint Workshop

Physics of Medical Imaging

Conference 6510

Image Perception, Observer Performance, and Technology Assessment

Conference 6515

Town & Country Room · 5:45 to 7:45 pm

Validation of Models used in Assessment of Medical Imaging Systems

Chairs: **Aldo Badano** and **Kyle J. Myers**, CDRH/U.S. Food and Drug Administration and NIBIB/National Institutes of Health

Panelist: **Craig K. Abbey**, Univ. of California/Santa Barbara

Models play an extremely important role in imaging system design and optimization. We model the physics of image formation, and the objects to be imaged. Models of the observer who makes use of the resulting image data sets are also important tools used in perception studies for the purpose of evaluating imaging systems/devices and to further our understanding of human performance. The entire imaging chain can be represented using models to answer questions regarding system performance by quantifying the ability of the system to provide information relevant for a specified task.

A crucial question for the technology development and assessment communities is how do we validate the models we use? This combined workshop, bringing together the Physics of Medical Imaging and the Image Perception, Observer Performance, and Technology Assessment conferences, will host a discussion of validation approaches by a panel of expert presenters. Leaders in the fields of physics simulation, object modeling, and observer performance will address the following questions:

- 1) What is validation?
- 2) What approaches have you taken?
- 3) When is a model validated (how much is enough)?

Ample time will be allocated for audience questions to the panel.

Panelists:

Craig K. Abbey, Univ. of California/Santa Barbara

Predrag R. Bakic, Univ. of Pennsylvania

Stephen J. Glick, Univ. of Massachusetts Medical School

Matthew A. Kupinski, College of Optical Sciences/The Univ. of Arizona

W. Paul Segars, Johns Hopkins Univ.

Josep Sempau, Univ Politècnica de Catalunya (Spain)

David L. Wilson, Case Western Reserve Univ.

Thursday

22 February

Physics of Medical Imaging

Conference 6510

Town & Country Room · 1:20 to 3:00 pm

Theoretical and Practical Elements of Tomosynthesis Imaging

Presenters: **James T. Dobbins III**, Duke Univ.; **Tao Wu**, Hologic, Inc.; **Bernhard E. H. Claus**, GE Global Research; **Thomas Mertelmeier**, Siemens AG (Germany)

Tomosynthesis is rapidly becoming an imaging modality of great interest from both research and clinical perspectives. With tomosynthesis devices for chest and breast imaging on the verge of commercial release, it is important for imaging scientists to understand how the technique works, how it is optimized, and what practical steps are necessary to perform high-quality tomosynthesis reconstructions. This workshop will present both theoretical and practical aspects of tomosynthesis imaging. The mathematics behind three tomosynthesis algorithms will be covered: matrix inversion tomosynthesis, maximum likelihood expectation maximization, and filtered backprojection. Practical aspects of tomosynthesis image acquisition will be presented, including how to determine the optimum tube angle and number of projection images. Methods for optimizing image quality for specific imaging tasks will be also be given. Last, clinical examples from breast and chest imaging will be presented.

Conference 6509

Room: San Diego

Sunday-Tuesday 18-20 Feb. 2007
Proceedings of SPIE Vol. 6509

Visualization and Image-Guided Procedures

Conference Chairs: **Kevin R. Cleary**, Georgetown Univ.; **Michael I. Miga**, Vanderbilt Univ.

Program Committee: **Wolfgang Birkfellner**, Medizinische Univ. Wien (Austria); **Robert L. Galloway, Jr.**, Vanderbilt Univ.; **George J. Grevera**, St. Joseph's Univ.; **Steven L. Hartmann**, Medtronic Navigation; **David R. Haynor**, Univ. of Washington; **David R. Holmes III**, Mayo Clinic; **Pierre Jannin**, Univ. de Rennes I (France); **Terence M. Peters**, Robarts Research Institute (Canada); **Jong Beom Ra**, Korea Advanced Institute of Science and Technology (South Korea); **Frank Sauer**, Siemens Corporate Research; **Guy Shechter**, Philips Research North America; **Jayaram K. Udupa**, Univ. of Pennsylvania; **Jay B. West**, Accuray, Inc.; **Kenneth H. Wong**, Georgetown Univ.

✓Posters for this conference will be on display Sunday and Monday, 18-19 February in the Golden Pacific Ballroom. The reception for these posters, with authors in attendance at his or her poster, will be Monday evening from 5:00 to 6:30 pm. All poster awards will be presented at 6:00 pm during the reception.

6509 continues on page 12 ➡

Conference 6510

Room: Town & Country

Sunday-Thursday 18-22 Feb. 2007
Proceedings of SPIE Vol. 6510

Physics of Medical Imaging

Conference Chairs: **Jiang Hsieh**, GE Healthcare; **Michael J. Flynn**, Henry Ford Health System

Program Committee: **Aldo Badano**, U.S. Food and Drug Administration; **Jeffrey A. Fessler**, Univ. of Michigan; **Thomas Flohr**, Siemens Medical Solutions (Germany); **Christoph Hoeschen**, Forschungszentrum für Umwelt und Gesundheit, GmbH (Germany); **Robert M. Nishikawa**, The Univ. of Chicago; **Michael Overdick**, Philips Research Labs. (Germany); **John A. Rowlands**, Sunnybrook and Women's Health Sciences Ctr. (Canada); **Ehsan Samei**, Duke Univ.; **Katsuyuki Taguchi**, Johns Hopkins Univ.; **Richard L. Van Metter**, Eastman Kodak Co.; **Bruce R. Whiting**, Washington Univ. in St. Louis

✓Posters for this conference will be on display Tuesday and Wednesday, 20-21 February in the Golden Pacific Ballroom. The reception for these posters, with authors in attendance at his or her poster, will be Wednesday evening from 5:30 to 7:00 pm. All poster awards will be presented at 6:30 pm during the reception.

6510 continues on page 12 ➡

Conference 6511

Room: Royal Palm I

Sunday-Tuesday 18-20 Feb. 2007
Proceedings of SPIE Vol. 6511

Physiology, Function, and Structure from Medical Images

Conference Chairs: **Armando Manduca**, Mayo Clinic; **Xiaoping P. Hu**, Emory Univ.

Program Committee: **Amir A. Amini**, Univ. of Louisville in Kentucky; **Juan R. Cebral**, George Mason Univ.; **Anne V. Clough**, Marquette Univ.; **Alexander Hartov**, Dartmouth College; **Andreas H. Hielscher**, Columbia Univ.; **William E. Higgins**, The Pennsylvania State Univ.; **Eric A. Hoffman**, Univ. of Iowa Hospitals and Clinics; **Erik L. Ritman**, Mayo Clinic; **Ronald M. Summers**, National Institutes of Health; **Merryn H. Tawhai**, The Univ. of Auckland (New Zealand); **Felix W. Wehrli**, Univ. of Pennsylvania

✓Posters for this conference will be on display Sunday and Monday, 18-19 February in the Golden Pacific Ballroom. The reception for these posters, with authors in attendance at his or her poster, will be Monday evening from 5:00 to 6:30 pm. All poster awards will be presented at 6:00 pm during the reception.

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Conference 6512

Room: California

Sunday-Tuesday 18-20 Feb. 2007
Proceedings of SPIE Vol. 6512

Image Processing

Conference Chairs: **Josien P. W. Pluim**, Univ. Medical Ctr. Utrecht (Netherlands); **Joseph M. Reinhardt**, The Univ. of Iowa

Program Committee: **Mostafa Analoui**, Pfizer Inc.; **Kyongtae T. Bae**, Washington Univ. in St. Louis; **Christian Barillot**, IRISA (France); **Benoit M. Dawant**, Vanderbilt Univ.; **Aaron Fenster**, Robarts Research Institute (Canada); **Alejandro F. Frangi**, Univ. Pompeu Fabra (Spain); **James C. Gee**, Univ. of Pennsylvania; **David R. Haynor**, Univ. of Washington; **Tianhu Lei**, Univ. of Pennsylvania; **Boudewijn P. F. Lelieveldt**, Leids Univ. Medisch Ctr. (Netherlands); **Bostjan Likar**, Univ. of Ljubljana (Slovenia); **Shih-Chung B. Lo**, Georgetown Univ. Medical Ctr.; **Murray H. Loew**, The George Washington Univ.; **Anthony J. Maeder**, Commonwealth Scientific and Industrial Research Organisation (Australia); **Frederik Maes**, Katholieke Univ. Leuven (Belgium); **Armando Manduca**, Mayo Clinic; **Sunanda D. Mitra**, Texas Tech Univ.; **Kensaku Mori**, Nagoya Univ. (Japan); **Sébastien Ourselin**, CSIRO ICT Ctr. (Australia); **Daniel Rueckert**, Imperial College London (United Kingdom); **Punam K. Saha**, Univ. of Pennsylvania; **Julia A. Schnabel**, Univ. College London (United Kingdom); **Colin Studholme**, Univ. of California/San Francisco; **Philippe Thévenaz**, École Polytechnique Fédérale de Lausanne (Switzerland); **Jayaram K. Udupa**, Univ. of Pennsylvania; **Bram van Ginneken**, Univ. Medisch Ctr. Utrecht (Netherlands); **Andreas Wahle**, The Univ. of Iowa

✓Posters for this conference will be on display Sunday and Monday, 18-19 February in the Golden Pacific Ballroom. The reception for these posters, with authors in attendance at his or her poster, will be Monday evening from 5:00 to 6:30 pm. All poster awards will be presented at 6:00 pm during the reception.

ST = Short Talk—Presenters have been selected to prepare short ten-minute presentations.

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Conference 6513

Room: Golden West

Sunday-Monday 18-19 Feb. 2007
Proceedings of SPIE Vol. 6513

Ultrasonic Imaging and Signal Processing

Conference Chairs: **Stanislav Y. Emelianov**, The Univ. of Texas at Austin; **Stephen A. McAleavey**, Univ. of Rochester

Program Committee: **Jeffrey C. Bamber**, Institute of Cancer Research (United Kingdom); **James F. Greenleaf**, Mayo Clinic; **Michael F. Insana**, Univ. of Illinois at Urbana-Champaign; **Jørgen A. Jensen**, Danmarks Tekniske Univ. (Denmark); **Kathryn R. Nightingale**, Duke Univ.; **K. K. Shung**, Univ. of Southern California; **Kai E. Thomenius**, General Electric Co.; **David H. R. Vilkomerson**, DVX LLC; **William F. Walker**, Univ. of Virginia

✓Posters for this conference will be on display Sunday and Monday, 18-19 February in the Golden Pacific Ballroom. The reception for these posters, with authors in attendance at his or her poster, will be Monday evening from 5:00 to 6:30 pm. All poster awards will be presented at 6:00 pm during the reception.

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Conference 6514

Room: Golden West

Tuesday-Thursday 20-22 Feb. 2007
Proceedings of SPIE Vol. 6514

Computer-Aided Diagnosis

Conference Chairs: **Maryellen L. Giger**, The Univ. of Chicago; **Nico Karssemeijer**, Radboud Univ. Nijmegen (Netherlands)

Program Committee: **Stephen Aylward**, Univ. of North Carolina/Chapel Hill and Kitware, Inc.; **Kyongtae T. Bae**, Washington Univ. in St. Louis; **J. Michael Brady**, Univ. of Oxford (United Kingdom); **Heang-Ping Chan**, Univ. of Michigan; **Simon Duchesne**, Univ. de Rennes I (France); **Shih-Chung B. Lo**, Georgetown Univ. Medical Ctr.; **Michael F. McNitt-Gray**, Univ. of California/Los Angeles; **Kensaku Mori**, Nagoya Univ. (Japan); **Noboru Niki**, The Univ. of Tokushima (Japan); **Mary S. Pastel**, CDRH/U.S. Food and Drug Administration; **Ronald M. Summers**, National Institutes of Health; **Bram van Ginneken**, Univ. Medisch Ctr. Utrecht (Netherlands)

✓Posters for this conference will be on display Tuesday and Wednesday, 20-21 February in the Golden Pacific Ballroom. The reception for these posters, with authors in attendance at his or her poster, will be Wednesday evening from 5:30 to 7:00 pm. All poster awards will be presented at 6:30 pm during the reception.

ST = Short Talk—Presenters have been selected to prepare short ten-minute presentations.

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Conference 6516

Room: Town & Country and California

Tuesday-Thursday 20-22 Feb. 2007
Proceedings of SPIE Vol. 6516

PACS and Imaging Informatics

Conference Chairs: **Steven C. Horii**, Univ. of Pennsylvania; **Katherine P. Andriole**, Harvard Medical School

Program Committee: **William M. Angus**, Philips Medical Systems; **William W. Boonn**, Univ. of Pennsylvania; **Janice C. Honeyman-Buck**, Univ. of Florida; **Heinz U. Lemke**, Technische Univ. Berlin (Germany); **Brent J. Liu**, Univ. of Southern California; **Greg T. Mogel**, Univ. of Southern California; **Khan M. Siddiqui**, Veterans Affairs Medical Ctr.

✓Posters for this conference will be on display Tuesday and Wednesday, 20-21 February in the Golden Pacific Ballroom. The reception for these posters, with authors in attendance at his or her poster, will be Wednesday evening from 5:30 to 7:00 pm. All poster awards will be presented at 6:30 pm during the reception.

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Conference 6515

Room: San Diego

Wednesday-Thursday 21-22 Feb. 2007
Proceedings of SPIE Vol. 6515

Image Perception, Observer Performance, and Technology Assessment

Conference Chairs: **Yulei Jiang**, The Univ. of Chicago; **Berkman Sahiner**, Univ. of Michigan

Program Committee: **Craig K. Abbey**, Univ. of California/Santa Barbara; **Kevin S. Berbaum**, Univ. of Iowa Hospitals and Clinics; **Brandon D. Gallas**, CDRH/FDA and NIBIB/NIH Joint Lab.; **Matthew A. Kupinski**, College of Optical Sciences/The Univ. of Arizona; **David J. Manning**, St. Martin's College (United Kingdom); **Claudia Mello-Thoms**, Univ. of Pittsburgh; **David L. Wilson**, Case Western Reserve Univ.

✓Posters for this conference will be on display Tuesday and Wednesday, 20-21 February in the Golden Pacific Ballroom. The reception for these posters, with authors in attendance at his or her poster, will be Wednesday evening from 5:30 to 7:00 pm. All poster awards will be presented at 6:30 pm during the reception.

WORKSHOP
Validation of Models used in Assessment of Medical Imaging Systems

Town & Country Room
Tuesday · 5:45 to 7:45 pm

Chairs: **Aldo Badano**, CDRH/U.S. Food and Drug Administration and NIBIB/National Institutes of Health; **Kyle J. Myers**, CDRH/U.S. Food and Drug Administration and NIBIB/National Institutes of Health

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<p>Conference 6509 continued Visualization and Image-Guided Procedures Room: San Diego</p>	<p>Conference 6510 continued Physics of Medical Imaging Room: Town & Country</p>	<p>Conference 6511 continued Physiology, Function, and Structure from Medical Images Room: Royal Palm I</p>	<p>Conference 6512 continued Image Processing Room: California</p>	<p>Conference 6513 continued Ultrasonic Imaging and Signal Processing Room: Golden West</p>
<p>SESSION 1 Room: San Diego Sun. 8:00 to 9:40 am</p> <p>Visualization</p> <p><i>Chairs: Jayaram K. Udupa, Univ. of Pennsylvania; George J. Grevera, St. Joseph's Univ.</i></p> <p>8:00 am: Simultaneous visualization of anatomical and functional 3D data by combining volume rendering and flow visualization, T. Schaffitzel, F. Rössler, Univ. Stuttgart (Germany); D. Weiskopf, Simon Fraser Univ. (Canada); T. Ertl, Univ. Stuttgart (Germany) [6509-01]</p> <p>8:20 am: Distributed video generation on a GPU-cluster for the web-based analysis of medical image data, F. A. Roessler, T. Wolff, Univ. Stuttgart (Germany); S. Iserhardt-Bauer, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); B. Tomandl, Bremen East Central Hospital (Germany); P. Hastreiter, Friedrich-Alexander-Univ Erlangen-Nürnberg (Germany); T. Ertl, Univ. Stuttgart (Germany) [6509-02]</p> <p>8:40 am: CAVASS: a computer assisted visualization and analysis software system - visualization aspects, G. J. Grevera, St. Joseph's Univ.; J. K. Udupa, D. Odhner, Y. Zhuge, A. D. A. Souza, T. Iwanaga, S. Mishra, Univ. of Pennsylvania [6509-03]</p> <p>9:00 am: Evaluation of different subvolume visualizations in CT-fluoroscopy guided RF liver ablation, R. Micu, Technische Univ. München (Germany) and Siemens Medical Solutions (Germany); T. Jakobs, C. Zech, Ludwig-Maximilians-Univ. München (Germany); N. Navab, Technische Univ. München (Germany) [6509-04]</p> <p>9:20 am: Visualizing the process of interaction in a 3D environment, V. P. Vaidya, S. Suryanarayanan, R. Mullick, GE Global Research (India) [6509-05]</p> <p>Coffee Break 9:40 to 10:10 am</p> <p>6509 continues on page 13 ➡</p>	<p>SESSION 1 Room: Town & Country ... Sun. 8:00 to 9:40 am</p> <p>Keynote</p> <p><i>Chairs: Jiang Hsieh, GE Healthcare; Michael J. Flynn, Henry Ford Health System</i></p> <p><i>Keynote</i></p> <p>8:00 am: Statistical characterization of radiological images: basic principles and recent progress, H. H. Barrett, The Univ. of Arizona [6510-01]</p> <p>9:00 am: Intensity-modulated fluence patterns for task-specific imaging in cone-beam CT, S. A. Graham, J. H. Siewerdsen, Ontario Cancer Institute (Canada) and Univ. of Toronto (Canada); D. A. Jaffray, Univ. of Toronto (Canada) [6510-02]</p> <p>9:20 am: Observer evaluation of a method for producing simulated mammograms, M. R. Chinander, R. M. Nishikawa, The Univ. of Chicago [6510-03]</p> <p>Coffee Break 9:40 to 10:10 am</p> <p>6510 continues on page 13 ➡</p>	<p>SESSION 1 Room: Royal Palm I Sun. 8:00 to 9:40 am</p> <p>Small Animal Imaging</p> <p><i>Chair: Erik L. Ritman, Mayo Clinic</i></p> <p>8:00 am: In vivo small animal imaging for early assessment of therapeutic efficacy of photodynamic therapy for prostate cancer, B. Fei, H. Wang, J. Meyers, D. K. Feyes, J. Mulvihill, N. L. Oleinick, N. Edgehouse, T. Pretlow, Case Western Reserve Univ. [6511-01]</p> <p>8:20 am: In vivo-CT system with respiratory and cardiac gating using synchrotron radiation, T. Sera, H. Yokota, K. Fujisaki, K. Fukasaku, The Institute of Physical and Chemical Research (Japan); K. Uesugi, N. Yagi, Japan Synchrotron Radiation Research Institute (Japan); R. Himeno, The Institute of Physical and Chemical Research (Japan) [6511-02]</p> <p>8:40 am: Computer-based analysis of microvascular alterations in a mouse model for Alzheimer's disease, S. Heinzer, R. Müller, Univ. and ETH Zürich (Switzerland); M. Stampanoni, R. Abela, Swiss Light Source/Paul Scherrer Institut (Switzerland); E. P. Meyer, A. Schuler, Univ. of Zürich (Switzerland); K. Thomas, Novartis Institutes for BioMedical Research [6511-03]</p> <p>9:00 am: Three-dimensional murine airway segmentation in micro-CT images, L. Shi, E. A. Hoffman, J. M. Reinhardt, The Univ. of Iowa [6511-04]</p> <p>9:20 am: Automated segmentation of the ex vivo mouse brain, A. E. H. Scheenstra, J. Dijkstra, R. C. G. van de Ven, L. van der Weerd, J. H. C. Reiber, Leids Univ. Medisch Ctr. (Netherlands) [6511-05]</p> <p>Coffee Break 9:40 to 10:10 am</p> <p>6511 continues on page 13 ➡</p>	<p>SESSION 1 Room: California Sun. 8:00 to 9:40 am</p> <p>Registration I: Methods</p> <p><i>Chair: Daniel Rueckert, Imperial College London (United Kingdom)</i></p> <p>8:00 am: Constrained non-rigid registration for whole-body image registration: method and validation, X. Li, T. E. Peterson, T. Yankeelov, J. Gore, B. M. Dawant, Vanderbilt Univ. . . [6512-01]</p> <p>☆8:20 am: Large deformation registration of contrast-enhanced images with volume-preserving constraint, K. A. Saddi, Ecole Polytechnique de Montréal (Canada) and Siemens Corporate Research; C. Ched'hotel, Siemens Corporate Research; F. Cheriet, Ecole Polytechnique de Montréal (Canada) [6512-02]</p> <p>8:40 am: Spline-based elastic image registration using solutions of the Navier equation, S. Wörz, Institut für Pharmazie und Molekulare Biotechnologie (Germany) and Univ. of Heidelberg (Germany); K. Rohr, Deutsches Krebsforschungszentrum (Germany) and German Cancer Research Ctr. (Germany) [6512-03]</p> <p>9:00 am: A field map guided approach to non-rigid registration of brain EPI to structural MRI, A. Gholipour, N. Kehtarnavaz, The Univ. of Texas at Dallas; R. W. Briggs, K. S. Gopinath, The Univ. of Texas Southwestern Medical Ctr. at Dallas [6512-04]</p> <p>9:20 am: (ST) Evaluation of a new optimization algorithm for rigid registration of MRI data, N. Wiest-Daesslé, P. Yger, S. Prima, C. Barillot, IRISA (France) [6512-05]</p> <p>9:30 am: (ST) Level set-based non-rigid 3D image registration and motion estimation, D. Yang, J. Deasy, D. A. Low, I. El Naqa, Washington Univ. in St. Louis [6512-06]</p> <p>Coffee Break 9:40 to 10:10 am</p> <p>6512 continues on page 13 ➡</p>	<p>SESSION 1 Room: Golden West Sun. 8:00 to 9:45 am</p> <p>Image Formation and Arrays</p> <p><i>Chair: Stephen A. McAleavy, Univ. of Rochester</i></p> <p>8:00 am: Accurate image reconstruction from sparse data in diffraction tomography using a total variation minimization algorithm, S. J. LaRoque, E. Y. Sidky, X. M. Pan, The Univ. of Chicago [6513-01]</p> <p>☆8:15 am: Receive channel FIR filters for enhanced contrast in medical ultrasound, D. A. Guenther, W. F. Walker, Univ. of Virginia [6513-02]</p> <p>8:30 am: Imaging from multiply scattered waves, R. Gaburro, C. J. Nolan, Univ. of Limerick (Ireland); M. Cheney, Rensselaer Polytechnic Institute; T. Dowling, Univ. of Limerick (Ireland) [6513-03]</p> <p>8:45 am: Ultrasonic reflection imaging by inward continuation of ultrasonic wavefields using the split-step Fourier propagator, L. Huang, Los Alamos National Lab.; Y. Quan, Stanford Univ.; R. G. Pratt, Queen's Univ. (Canada); N. Duric, Karmanos Cancer Institute [6513-04]</p> <p>9:00 am: Sound-speed tomography using first-arrival transmission ultrasound, Y. Quan, Stanford Univ.; L. Huang, Los Alamos National Lab. [6513-05]</p> <p>9:15 am: High-frequency ultrasonic arrays for eye imaging, M. D. Jaeger, R. J. Kline-Schoder, G. M. Douville, D. B. Kynor, Creare Inc. [6513-06]</p> <p>9:30 am: Real-time freehand 3D ultrasound calibration, P. Hsu, R. W. Prager, A. H. Gee, G. M. Treece, Univ. of Cambridge (United Kingdom) . [6513-07]</p> <p>Coffee Break 9:45 to 10:10 am</p> <p>6513 continues on page 13 ➡</p>

☆This paper was nominated by the conference chairs as a finalist in the best student paper competition.

<p>Conference 6509 continued Visualization and Image-Guided Procedures Room: San Diego</p>	<p>Conference 6510 continued Physics of Medical Imaging Room: Town & Country</p>	<p>Conference 6511 continued Physiology, Function, and Structure from Medical Images Room: Royal Palm I</p>	<p>Conference 6512 continued Image Processing Room: California</p>	<p>Conference 6513 continued Ultrasonic Imaging and Signal Processing Room: Golden West</p>
<p>SESSION 2 Room: San Diego ... Sun. 10:10 am to 12:10 pm Image Guidance <i>Chairs: Pierre Jannin, Univ. de Rennes I (France); Jay B. West, Accuray, Inc.</i></p> <p>10:10 am: The VU-DBS project: integrated and computer-assisted planning, intra-operative placement, and post-operative programming of deep-brain stimulators, B. M. Dawant, P. D'Haese, S. Pallavaram, H. Yu, J. Spooner, T. I. Davis, C. Kao, P. E. Konrad, Vanderbilt Univ. ... [6509-06]</p> <p>10:30 am: Active illumination based 3D surface reconstruction and registration for image-guided medialization laryngoplasty, G. Jin, S. Lee, J. K. Hahn, S. Bielamowicz, R. Mittal, R. Walsh, The George Washington Univ. ... [6509-07]</p> <p>10:50 am: A 3D visualization and guidance system for handheld optical imaging devices, F. S. Azar, N. Hajjioui, Siemens Corporate Research; A. Cerussi, A. Li, B. J. Tromberg, Univ. of California/Irvine; F. Sauer, Siemens Corporate Research ... [6509-08]</p> <p>11:10 am: Evaluation of a robust fiducial tracking algorithm for image-guided radiosurgery, S. Hatipoglu, Z. Mu, D. Fu, G. R. Kuduvali, Accuray, Inc. ... [6509-09]</p> <p>11:30 am: A cheap and easy method for 3D C-arm reconstruction using elliptic curves, D. H. Burkhardt, Haverford College; A. K. Jain, G. Fichtinger, Johns Hopkins Univ. ... [6509-10]</p> <p>11:50 am: C-view omnidirectional endoscope for minimally invasive surgery/diagnostics, J. Ma, M. D. Simkulet, J. E. Smith, InterScience, Inc. ... [6509-11]</p> <p>Lunch Break ... 12:10 to 1:20 pm</p> <p>6509 continues on page 14 ➡</p>	<p>SESSION 2 Room: Town & Country Sun. 10:10 am to 12:10 pm Dual Energy <i>Chair: Richard L. Van Metter, Eastman Kodak Co.</i></p> <p>10:10 am: Dual-energy technique for digital flat-panel detectors without x-ray tube voltage switching, C. Coello, M. Arques, Lab. d'Electronique de Technologie de l'Information (France); P. Rohr, Trixell (France); C. Odet, Ctr. de Recherche et d'Applications en Traitement de l'Image et du Signal (France); J. Dinten, Lab. d'Electronique de Technologie de l'Information (France) ... [6510-04]</p> <p>10:30 am: Development and implementation of a high-performance cardiac-gated dual-energy imaging system, N. A. Shkumat, Univ. of Toronto (Canada); J. H. Siewerdsen, Univ. of Toronto and Ontario Cancer Institute (Canada); A. C. Dhanantwari, D. B. Williams, Ontario Cancer Institute (Canada); S. Richard, D. J. Tward, Univ. of Toronto (Canada); N. S. Paul, Princess Margaret Hospital (Canada); J. Yorkston, R. L. Van Metter, Eastman Kodak Co. ... [6510-05]</p> <p>10:50 am: Dual-energy subtraction for contrast enhanced digital breast tomosynthesis, A. G. Carton, Univ. of Pennsylvania; K. Lindman, C. K. Ullberg, T. Francke, XCounter AB; A. D. A. Maidment, Univ. of Pennsylvania [6510-06]</p> <p>11:10 am: Image-domain material decomposition using photon-counting CT, K. Taguchi, E. C. Frey, J. Xu, W. P. Segars, B. M. W. Tsui, Johns Hopkins Univ. ... [6510-07]</p> <p>11:30 am: Atomic number resolution for three spectral CT imaging systems, J. E. Tkaczyk, R. G. Rodrigues, J. Shaw, J. Short, Y. Du, X. Wu, D. J. Walter, W. M. Leue, D. Hoffman, P. M. Edic, GE Global Research ... [6510-08]</p> <p>11:50 am: Investigation of the use of photon counting detectors with energy discrimination capability for material decomposition in micro-computed tomography, E. C. Frey, X. Wang, Y. Du, K. Taguchi, J. Xu, B. M. W. Tsui, Johns Hopkins Univ. ... [6510-09]</p> <p>Lunch Break ... 12:10 to 1:20 pm</p> <p>6510 continues on page 14 ➡</p>	<p>SESSION 2 Room: Royal Palm I . Sun. 10:10 am to 12:10 pm Optical Imaging <i>Chair: Andreas H. Hielscher, Columbia Univ.</i></p> <p><i>Keynote</i></p> <p>10:10 am: In vivo optical molecular imaging for early cancer detection, R. R. Richards-Kortum, Rice Univ. ... [6511-06]</p> <p>11:10 am: Noninvasive quantification of tissue ultrastructure and vascular responsivity with NIR tomography of breast tissue, B. W. Pogue, Dartmouth College; W. A. Wells, Dartmouth Medical School; X. Wang, A. Darling, S. Srinivasan, S. Jiang, Dartmouth College; S. P. Poplack, Dartmouth Hitchcock Medical Ctr.; K. D. Paulsen, Dartmouth College ... [6511-07]</p> <p>11:30 am: Establishing baseline findings with in vivo endovascular optical coherence tomography imaging, J. Su, M. S. Mathews, C. Nwagwu, M. Linskey, B. J. Tromberg, Z. Chen, Univ. of California/Irvine ... [6511-08]</p> <p>11:50 am: Modulated imaging: a novel method for quantifying tissue chromophores in evolving cerebral ischemia, D. Abookasis, M. S. Mathews, C. Lay, D. K. Binder, R. D. Frostig, B. J. Tromberg, Univ. of California/Irvine ... [6511-09]</p> <p>Lunch Break ... 12:10 to 1:20 pm</p> <p>6511 continues on page 14 ➡</p>	<p>SESSION 2 Room: California ... Sun. 10:10 am to 12:10 pm Registration II: 2D-3D and Nuclear Medicine <i>Chair: Bostjan Likar, Univ. of Ljubljana (Slovenia)</i></p> <p>10:10 am: Robust initialization for 2D/3D registration of knee implant models to single-plane fluoroscopy, J. Hermans, J. Bellemans, D. Vandermeulen, P. Suetens, Katholieke Univ. Leuven (Belgium) [6512-07]</p> <p>10:30 am: Registration of 2D to 3D joint images using phase-based mutual information, R. H. Dalvi, The Univ. Of British Columbia (Canada); R. Abugharbieh, The Univ. of British Columbia (Canada); M. R. Pickering, Australian Defence Force Academy (Australia); P. Smith, The Canberra Hospital (Australia) ... [6512-08]</p> <p>10:50 am: Automatic intensity-based 3D-to-2D registration of CT volumes and dual-energy digital radiography for the detection of cardiac calcification, X. Chen, Case Western Reserve Univ. and Xian Jiaotong Univ. (China); R. C. Gilkeson, Univ. Hospitals of Cleveland; B. Fei, Case Western Reserve Univ. ... [6512-09]</p> <p>11:10 am: Projection-slice theorem-based 2D-3D registration in interventional x-ray imaging, M. van der Bom, Univ. Medisch Ctr. Utrecht (Netherlands); J. P. W. Pluim, Univ. Medical Ctr. Utrecht (Netherlands); R. Homan, J. Timmer, Philips Medical Systems (Netherlands); W. Bartels, Univ. Medisch Ctr. Utrecht (Netherlands) [6512-10]</p> <p>11:30 am: Automatic detection of abrupt patient motion in SPECT data acquisition, E. Röhl, H. Schumacher, B. Fischer, Univ. zu Lübeck (Germany) ... [6512-11]</p> <p>11:50 am: (ST) Non-rigid registration of dynamic breast F-18-FDG PET/CT images using deformable FEM model and CT image warping, A. W. Magri, Syracuse Univ.; A. Krol, Upstate Medical Univ./SUNY and Syracuse Univ.; M. Unlu, Syracuse Univ.; D. H. Feiglin, Upstate Medical Univ./SUNY; E. D. Lipson, Syracuse Univ. and Upstate Medical Univ./SUNY; J. Mandel, Syracuse Univ.; W. McGraw, Central New York PET, LLC; W. Lee, Upstate Medical Univ./SUNY; I. L. Coman, Ithaca College and Upstate Medical Univ./SUNY and Syracuse Univ. ... [6512-12]</p>	<p>SESSION 2 Room: Golden West Sun. 10:10 to 11:50 am Doppler and Motion Tracking <i>Chair: John A. Hossack, Univ. of Virginia</i></p> <p>10:10 am: Coded ultrasound for blood flow estimation using subband processing, F. Gran, Danmarks Tekniske Univ. (Denmark); J. Udesen, Copenhagen Univ. Hospital Rigshospitalet (Denmark); J. A. Jensen, Danmarks Tekniske Univ. (Denmark) ... [6513-08]</p> <p>10:30 am: In-vivo examples of synthetic aperture vector flow imaging, N. Oddershede, Danmarks Tekniske Univ. (Denmark); K. L. Hansen, Copenhagen Univ. Hospital Rigshospitalet (Denmark); J. A. Jensen, Danmarks Tekniske Univ. (Denmark) ... [6513-10]</p> <p>10:50 am: A new imaging technique on strength and phase of pulsatile tissue-motion in brightness-mode ultrasonogram, M. Fukuzawa, M. Yamada, N. Nakamori, Kyoto Institute of Technology (Japan); Y. Kitsunozuka, Saiseikai Hyogo-ken Hospital (Japan) ... [6513-11]</p> <p>11:10 am: Off-line recording and analysis of Doppler velocity waveform data, M. L. Thorne, Robarts Research Institute (Canada); R. N. Rankin, The Univ. of Western Ontario (Canada); D. W. Holdsworth, Robarts Research Institute (Canada) ... [6513-12]</p> <p>11:30 am: Magneto-motive ultrasound imaging, S. Y. Emelianov, S. Mallidi, T. Larson, S. Park, A. Karpiouk, K. Sokolov, J. Oh, T. Milner, The Univ. of Texas/Austin ... [6513-13]</p> <p>Lunch Break ... 11:50 am to 1:20 pm</p> <p>6513 continues on page 14 ➡</p> <p>12:00 pm: (ST) Indirect PET-PET image registration to monitor lung cancer tumor, Z. Ouksili, C. Tauber, H. Batatia, Ecole Nationale Supérieure d'Electrotechnique (France); J. Nalis, O. Caselles, F. Courbon, Institut Claudius Regaud (France) [6512-13]</p> <p>Lunch Break ... 12:10 to 1:20 pm</p> <p>6512 continues on page 14 ➡</p>

Conference 6509 continued Visualization and Image-Guided Procedures Room: San Diego	Conference 6510 continued Physics of Medical Imaging Room: Town & Country	Conference 6511 continued Physiology, Function, and Structure from Medical Images Room: Royal Palm I	Conference 6512 continued Image Processing Room: California	Conference 6513 continued Ultrasonic Imaging and Signal Processing Room: Golden West
<p>SESSION 3 Room: San Diego Sun. 1:20 to 3:00 pm</p> <p>Minimally Invasive Technologies <i>Chairs: Frank Sauer</i>, Siemens Corporate Research; <i>Jong Beom Ra</i>, Korea Advanced Institute of Science and Technology (South Korea)</p> <p>1:20 pm: Development of continuous CT-guided minimally invasive surgery, R. Shekhar, Univ. of Maryland School of Medicine; O. S. Dandekar, Univ. of Maryland/College Park and Univ. of Maryland School of Medicine; S. Kavic, I. George, R. S. Mezrich, A. Park, Univ. of Maryland School of Medicine ... [6509-12]</p> <p>1:40 pm: A realistic, anthropomorphic respiratory phantom for image guidance validation, R. Lin, E. Wilson, J. Tang, Georgetown Univ.; D. S. Stoianovici, Johns Hopkins Univ.; K. R. Cleary, Georgetown Univ. [6509-13]</p> <p>2:00 pm: Simulation and training of lumbar punctures using haptic volume rendering and a 6DOF haptic device, M. Färber, J. Heller, H. Handels, Univ. Medical Ctr. Hamburg-Eppendorf (Germany) [6509-14]</p> <p>2:20 pm: A device for real-time measurement of catheter-motion and input to a catheter navigation system, Y. Thakur, J. Cakiroglu, D. W. Holdsworth, M. Drangova, Robarts Research Institute (Canada) [6509-15]</p> <p>2:40 pm: Combining near-infrared illuminants to optimize venous imaging, V. C. Paquit, Oak Ridge National Lab. and Univ. de Bourgogne (France) and The Univ. of Tennessee; J. R. Price, Oak Ridge National Lab.; R. Seulin, Univ. de Bourgogne (France); F. Mériaudeau, The Univ. of Tennessee and Univ. de Bourgogne (France); K. W. Tobin, Jr., Oak Ridge National Lab.; T. L. Ferrell, The Univ. of Tennessee [6509-16]</p> <p>Coffee Break 3:00 to 3:30 pm</p> <p>6509 continues on page 15 ➡</p>	<p>SESSION 3 Room: Town & Country ... Sun. 1:20 to 3:00 pm</p> <p>Performance Assessment <i>Chair: John A. Rowlands</i>, Sunnybrook and Women's Health Sciences Ctr. (Canada)</p> <p>1:20 pm: A method to estimate the point response function of digital X-ray detectors from edge measurements, I. S. Kyrianiou, A. Badano, B. D. Gallas, K. J. Myers, U.S. Food and Drug Administration [6510-10]</p> <p>1:40 pm: The variability of software scoring of the CDMAM phantom associated with a limited number of images, C. J. Yang, R. L. Van Metter, Eastman Kodak Co. [6510-11]</p> <p>2:00 pm: Spatial resolution of x-ray tomosynthesis in relation to computed tomography for coronal images of the knee, M. J. Flynn, R. McGee, J. Blechinger, Henry Ford Health System [6510-12]</p> <p>2:20 pm: Development of a 4D phantom for patient-specific end-to-end radiation therapy QA, K. T. Malinowski, C. Noel, W. Lu, K. Lechleiter, J. Hubenschmidt, D. A. Low, P. J. Parikh, Washington Univ. in St. Louis School of Medicine ... [6510-13]</p> <p>2:40 pm: Anisotropic point spread function of cone-beam computed tomography, Z. Chen, R. Ning, Univ. of Rochester [6510-14]</p> <p>Coffee Break 3:00 to 3:30 pm</p> <p>6510 continues on page 15 ➡</p>	<p>SESSION 3 Room: Royal Palm I Sun. 1:20 to 3:00 pm</p> <p>Image Analysis I <i>Chair: Merryn H. Tawhai</i>, The Univ. of Auckland (New Zealand)</p> <p>1:20 pm: Retinal oxygen saturation evaluation by multispectral fundus imaging, B. Khoobei, Louisiana State Univ.; J. Ning, Tulane Univ.; J. M. Beach, Univ. of Iceland (Iceland) [6511-10]</p> <p>1:40 pm: Quantifying mucosal blood volume fraction from multispectral images of the colon, E. Claridge, D. Hidovic-Rowe, The Univ. of Birmingham (United Kingdom); T. Ismail, P. Taniere, Univ. Hospital Birmingham NHS Trust (United Kingdom) [6511-11]</p> <p>2:00 pm: Discrete color-based Euclidean-invariant signatures for feature tracking in a DIET breast cancer screening system, R. G. Brown, C. E. Hann, J. G. Chase, Univ. of Canterbury (New Zealand); L. A. Ray, Eastman Kodak Co. [6511-12]</p> <p>2:20 pm: Estimating number of fiber directions per voxel for ICA DTI tractography, C. W. Wong, M. Singh, Univ. of Southern California [6511-13]</p> <p>2:40 pm: Neural mass model parameter identification for MEG/EEG, J. Kybic, Czech Technical Univ. in Prague (Czech Republic); O. D. Faugeras, M. Clerc, T. Papadopoulo, INRIA Sophia Antipolis (France) [6511-14]</p> <p>Coffee Break 3:00 to 3:30 pm</p> <p>6511 continues on page 15 ➡</p>	<p>SESSION 3 Room: California Sun. 1:20 to 3:00 pm</p> <p>Segmentation I: Cardiovascular <i>Chair: Boudewijn P. F. Lelieveldt</i>, Leids Univ. Medisch Ctr. (Netherlands)</p> <p>1:20 pm: Ischemic segment detection using the support vector domain description, M. S. Hansen, H. Ólafsdóttir, K. V. Sjöstrand, S. G. Erbou, M. B. Stegmann, Danmarks Tekniske Univ. (Denmark); H. B. Larsson, Copenhagen Univ. Hospital Glostrup (Denmark); R. Larsen, Danmarks Tekniske Univ. (Denmark) [6512-14]</p> <p>1:40 pm: Automatic whole heart segmentation in CT images: method and validation, O. Ecabert, J. Peters, Philips Research Labs. (Germany); M. Walker, Philips Medical Systems N.A.; J. von Berg, C. Lorenz, Philips Research Labs. (Germany); M. Vembar, K. Subramanian, Philips Medical Systems N.A.; J. Weese, Philips Research Labs. (Germany) [6512-16]</p> <p>2:00 pm: Discriminative boundary detection for model-based heart segmentation in CT images, J. Peters, O. Ecabert, H. Schramm, J. Weese, Philips Research Labs. (Germany) [6512-15]</p> <p>2:20 pm: Automated segmentation of the internal carotid arteries through the skull base, R. Manniesing, Univ. Medisch Ctr. Utrecht (Netherlands); W. J. Niessen, Univ. Medisch Ctr. Rotterdam (Netherlands) [6512-17]</p> <p>2:40 pm: Method for extracting the aorta from 3D CT images, W. E. Higgins, P. Taeprasartsit, The Pennsylvania State Univ. [6512-18]</p> <p>Coffee Break 3:00 to 3:30 pm</p> <p>6512 continues on page 15 ➡</p>	<p>SESSION 3 Room: Golden West Sun. 1:20 to 3:05 pm</p> <p>Elasticity Imaging <i>Chair: Stanislav Y. Emelianov</i>, The Univ. of Texas/Austin</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p><i>Keynote</i></p> <p>1:20 pm: Radiation force imaging: challenges and opportunities, G. E. Trahey, J. J. Dahl, M. Palmeri, K. R. Nightingale, Duke Univ. . [6513-14]</p> </div> <p>2:20 pm: Measurement of mechanical properties of homogeneous tissue with ultrasonically induced shear waves, J. F. Greenleaf, M. Fatemi, S. Chen, Mayo Clinic [6513-15]</p> <p>2:35 pm: Angle-independent myocardial elastography: theoretical analysis and clinical validation, E. E. Konofagou, W. Lee, S. Fung-Kee-Fung, Columbia Univ. [6513-16]</p> <p>2:50 pm: Ultrasonic radiation forces for elasticity imaging of 3D engineering tissue constructs, M. Orescanin, M. F. Insana, Univ. of Illinois at Urbana-Champaign [6513-17]</p> <p>Coffee Break 3:05 to 3:30 pm</p> <p>6513 continues on page 15 ➡</p>

Conference 6509 continued
Visualization and Image-Guided Procedures
 Room: San Diego

Conference 6510 continued
Physics of Medical Imaging
 Room: Town & Country

Conference 6511 continued
Physiology, Function, and Structure from Medical Images
 Room: Royal Palm I

Conference 6512 continued
Image Processing
 Room: California

Conference 6513 continued
Ultrasonic Imaging and Signal Processing
 Room: Golden West

SESSION 4
 Room: San Diego Sun. 3:30 to 5:30 pm

Electromagnetic Tracking
Chairs: Steven L. Hartmann, Medtronic Navigation; Kevin R. Cleary, Georgetown Univ.

3:30 pm: **Development and testing of a new magnetic-tracking device for image guidance**, C. P. Stevens, M. T. Schneider, Ascension Technology Corp. ... [6509-17]

3:50 pm: **Needle and catheter navigation with electromagnetic tracking for computer-assisted C-arm CT interventions**, M. H. Nagel, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); M. Hoheisel, Siemens Medical Solutions (Germany); R. Petzold, CAS innovations AG (Germany); U. H. W. Krause, Univ. Witten Herdecke (Germany) [6509-18]

4:10 pm: **Multimodality image guidance system integrating X-ray fluoroscopy and ultrasound image streams with electromagnetic tracking**, L. F. Gutierrez, G. Shechter, D. Stanton, S. M. Dalal, D. R. Elgort, R. M. Manzke, R. C. Chan, L. Zagorchev, Philips Research North America [6509-19]

4:30 pm: **Quantification of AC electromagnetic tracking system accuracy in a CT scanner environment**, E. B. Shen, G. Shechter, J. Kruecker, D. Stanton, Philips Research North America [6509-20]

4:50 pm: **Compensation of electromagnetic tracking system using an optical tracker and its application to bronchoscopy navigation system**, K. Mori, K. Ishitani, D. Deguchi, T. Kitasaka, Y. Suenaga, Nagoya Univ. (Japan); H. Takabatake, Minami Sanjyo Hospital (Japan); M. Mori, Sapporo Kosei Hospital (Japan); H. Natori, Keiwakai Nishioka Hospital (Japan) [6509-21]

Panel Discussion 5:10 to 5:30 pm

WORKSHOP
San Diego Room · 5:45 to 7:45 pm

Software Packages for Visualization and Image-Guided Procedures
Chair: Kevin R. Cleary, Georgetown Univ.
See p. 8 for full description.

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SESSION 4
 Room: Town & Country ... Sun. 3:30 to 5:30 pm

Innovative Imaging I
Chair: Aldo Badano, U.S. Food and Drug Administration

3:30 pm: **Simultaneous X-rays/optical tomography of small animals**, A. Da Silva, M. Leabad, T. Bordy, J. Dinten, P. Peltié, P. Rizo, Lab. d'Electronique de Technologie de l'Information (France) [6510-15]

3:50 pm: **Multisource inverse geometry CT: a new system concept for x-ray computed tomography**, B. De Man, S. Basu, GE Global Research; D. Bequé, General Electric Global Research (Germany); B. E. H. Claus, P. M. Edic, M. Iatrou, J. W. LeBlanc, GE Global Research; R. F. Senzig, GE Healthcare; M. Vermilyea, C. Wilson, Z. Yin, GE Global Research; N. J. Pelc, Stanford Univ. [6510-16]

4:10 pm: **Compact multispectral imaging system for dermatology and neurosurgery**, H. J. Noordmans, R. de Roode, R. M. Verdaasdonk, Univ. Medisch Ctr. Utrecht (Netherlands) [6510-17]

4:30 pm: **Demonstration of three-dimensional imaging of blood vessel using a no-moving parts electronic lens-based optical confocal microscope**, N. A. Riza, M. A. Sheikh, G. Webb-Wood, P. G. Kik, College of Optics & Photonics/Univ. of Central Florida [6510-18]

4:50 pm: **Elemental spectrum of a mouse obtained via neutron stimulation**, A. C. Sharma, Duke Univ.; C. E. Floyd, Jr., B. P. Harrawood, Duke Univ. Medical Ctr.; G. D. Tourassi, A. J. Kapadia, A. S. Crowell, M. R. Kiser, C. R. Howell, Duke Univ. ... [6510-19]

5:10 pm: **Initial experimentation with in-line holography x-ray phase-contrast imaging with an ultrafast laser-based x-ray source**, A. Krol, Upstate Medical Univ./SUNY; R. E. Kincaid, Syracuse Univ.; M. Servol, J. Kieffer, Institut National de la Recherche Scientifique (Canada); Y. I. Nesterets, T. E. Gureyev, A. W. Stevenson, S. W. Wilkins, CSIRO (Australia); H. Ye, E. D. Lipson, Syracuse Univ.; R. Toth, Institut National de la Recherche Scientifique (Canada); A. Pogany, CSIRO (Australia); I. L. Coman, Ithaca College [6510-20]

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SESSION 4
 Room: Royal Palm I Sun. 3:30 to 5:30 pm

Image Analysis II
Chair: Armando Manduca, Mayo Clinic

3:30 pm: **Automated hierarchical partitioning of anatomical trees**, R. Wiemker, T. Buelow, R. Opfer, Philips Research Labs. (Germany) [6511-15]

3:50 pm: **Clinical applications of three-dimensional tortuosity metrics**, G. Dougherty, California State Univ. Channel Islands; M. J. Johnson, Kuwait Univ. (Kuwait) [6511-16]

4:10 pm: **Image analysis for segmentation of CARS microscopy images of C. elegans**, J. Hagmar, A. M. K. Enejder, J. H. Degerman, T. Gustavsson, Chalmers Tekniska Högskola (Sweden) ... [6511-17]

4:30 pm: **Analysis of trabecular bone architectural changes induced by osteoarthritis in rabbit femur using 3D active shape model and digital topology**, P. K. Saha, The Univ. of Iowa; C. S. Rajapakse, Univ. of Pennsylvania [6511-18]

4:50 pm: **Benchmarking nonrigid techniques for hepato-pulmonary motion mapping**, N. Subramanian, R. V. Tranquebar, S. Rajagopalan, GE Global Research - JFWTC (India) [6511-19]

5:10 pm: **Quantification of glomerular filtration rate by measurement of gadobutrol clearance from the extracellular fluid volume: comparison of a TurboFLASH and a TrueFISP approach**, A. Boss, P. Martirosian, F. Artunc, T. Risler, C. D. Claussen, H. Schlemmer, F. Schick, Eberhard Karls Univ. Tübingen (Germany) [6511-20]

WORKSHOP
Molecular Imaging
Golden West Room · 5:45 to 7:45 pm
Chairs: Xiaoping P. Hu, Emory Univ.; Armando Manduca, Mayo Clinic
See p. 8 for full description.

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SESSION 4
 Room: California Sun. 3:30 to 5:30 pm

Neurological Applications
Chair: Colin Studholme, Univ. of California/San Francisco

3:30 pm: **Asymmetric bias in user-guided segmentations of brain structures**, M. A. Styner, R. G. Smith, J. E. Blocher, M. M. Graves, M. W. Mosconi, S. Peterson, S. White, The Univ. of North Carolina at Chapel Hill; M. El-Sayed, Mansoura Univ. (Egypt); H. C. Hazlett, The Univ. of North Carolina at Chapel Hill [6512-19]

3:50 pm: **Early detection of AD using cortical thickness measurements**, M. S. Spjuth, F. H. Gravesen, S. F. Eskildsen, L. R. Østergaard, Aalborg Univ. (Denmark) [6512-20]

4:10 pm: **Expectation maximization classification and Laplacian-based thickness measurement for cerebral cortex thickness estimation**, M. Holden, R. Moreno Vallecillo, Commonwealth Scientific and Industrial Research Organisation (Australia); A. Harris, The Univ. of Sydney (Australia); L. Gomes, Westmead Hospital (Australia); T. Diep, P. T. Bourgeat, S. Ourselin, Commonwealth Scientific and Industrial Research Organisation (Australia) [6512-21]

4:30 pm: **Comparing 3D Gyrfication index and area-independent curvature-based measures in quantifying neonatal brain folding**, C. E. Rodriguez-Carranza, P. Mukherjee, D. B. Vigneron, J. Barkovich, C. Studholme, Univ. of California/San Francisco [6512-22]

4:50 pm: **Quantifying brain development in early childhood using segmentation and registration**, P. Aljabar, K. Bhatia, M. Murgasova, J. Hajnal, J. P. Boardman, L. Srinivasan, M. A. Rutherford, L. Dyet, A. D. Edwards, D. Rueckert, Imperial College London (United Kingdom) [6512-23]

5:10 pm: **Automatic brain cropping and atlas slice matching using a PCNN and generalized invariant Hough transform process**, M. M. Swathanthira-Kumar, J. M. Sullivan, Jr., Worcester Polytechnic Institute [6512-24]

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SESSION 4
 Room: Golden West Sun. 3:30 to 5:00 pm

Elastography
Chair: Gregg E. Trahey, Duke Univ.

3:30 pm: **Power strain imaging based on vibro-elastography techniques**, X. Wen, S. E. Salcudean, The Univ. of British Columbia (Canada) [6513-18]

3:45 pm: **Real-time ultrasound strain imaging**, U. Bae, Y. Kim, Univ. of Washington [6513-19]

4:00 pm: **Vorticity visualization: phantom study for a new discriminant parameter in US elastography**, D. Sosa-Cabrera, Univ. de Las Palmas de Gran Canaria (Spain); M. A. Rodriguez-Flórido, E. Suarez-Santana, J. Ruiz-Alzola, Instituto Tecnológico de Canarias, S.A. (Spain) [6513-20]

4:15 pm: **Lesion contrast and detection using sonoelastographic shear velocity imaging: preliminary results**, K. Hoyt, B. Castaneda, M. Zhang, D. Rubens, K. J. Parker, Univ. of Rochester . [6513-21]

4:30 pm: **Ultrasound-only dosimetry for prostate brachytherapy: preliminary phantom results**, X. Wen, S. E. Salcudean, P. D. Lawrence, The Univ. of British Columbia (Canada) [6513-22]

4:45 pm: **Laser-induced bubble as a messenger of tissue viscoelasticity**, S. Y. Emelianov, A. B. Karpiouk, S. R. Aglyamov, The Univ. of Texas/ Austin [6513-57]

WORKSHOP
Validation in Image Registration Methods
California Room · 5:45 to 7:45 pm
Chair: Pierre Jannin, Univ. de Rennes I (France)
See p. 8 for full description.

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6512 continues on page 22 ➡

✓ Posters — Sunday/Monday

The following posters will be on display Sunday and Monday, 18–19 February in the Golden Pacific Ballroom. The reception with authors in attendance will be Monday evening from 5:00 to 6:30 pm. Poster awards will be presented at 6:00 pm during the poster reception.

Conference 6509 Visualization and Image-Guided Procedures

Visualization

- ✓ **Three-dimensional reconstruction of coronary stents in vivo based on motion compensated X-ray angiograms: first in human results**, D. Schaefer, Philips Research Labs. (Germany); B. Movassaghi, Philips Research North America; M. Grass, G. A. Schoonenberg, Philips Research Labs. (Germany); O. Wink, J. Garcia, J. Y. Chen, J. C. Messenger, J. D. Carroll, Univ. of Colorado Health Sciences Ctr. [6509-57]
- ✓ **Simulation of bifurcated stent grafts to treat abdominal aortic aneurysms (AAA)**, J. Egger, Philipps-Univ. Marburg (Germany); S. Großkopf, Siemens Medical Solutions (Germany); B. Freisleben, Philipps-Univ. Marburg (Germany) [6509-58]
- ✓ **MEDIASSIST: MEDical ASSistance for intraoperative skill transfer in minimally invasive surgery using augmented reality**, G. Sudra, S. Speidel, D. Fritz, R. Dillmann, Univ. Karlsruhe (Germany) [6509-59]
- ✓ **Interactive visualization of fused fMRI and DTI for planning brain tumor resections**, J. Blaas, C. P. Botha, Technische Univ. Delft (Netherlands); C. Majoie, A. Nederveen, Academisch Medisch Centrum (Netherlands); F. H. Post, Technische Univ. Delft (Netherlands) [6509-60]
- ✓ **Forceps insertion supporting system in laparoscopic surgery: image projection on to the abdominal surface**, T. Koishi, S. Ushiki, T. Nakaguchi, H. Hayashi, N. Tsumura, Y. Miyake, Chiba Univ. (Japan) [6509-61]

- ✓ **ViewDEX: a java-based software for presentation and evaluation of medical images in observer performance studies**, M. E. Håkansson, S. L. Svensson, M. Båth, L. G. Månsson, Södra Älvsorrs Sjukhus Borås (Sweden) [6509-62]
- ✓ **Multivolume visualization for interactive therapy planning**, L. Wu, V. R. Amin, Iowa State Univ. . . [6509-63]

- ✓ **Interactive segmentation and visualization of large volume datasets using graphics hardware-based level set method**, S. Park, Seoul National Univ. (South Korea); H. Hong, Seoul Women's Univ. (South Korea); Y. G. Shin, Seoul National Univ. (South Korea) [6509-64]

- ✓ **Integrated visualization of multiangle bioluminescence imaging and micro CT**, P. Kok, Technische Univ. Delft (Netherlands); J. Dijkstra, Leids Univ. Medisch Ctr. (Netherlands); C. P. Botha, F. H. Post, Technische Univ. Delft (Netherlands); E. Kaijzel, I. Que, C. Lowik, Leids Univ. Medisch Ctr. (Netherlands); J. H. C. Reiber, Technische Univ. Delft (Netherlands); B. P. F. Lelieveldt, Leids Univ. Medisch Ctr. (Netherlands) [6509-65]

- ✓ **CAVASS: a computer-assisted visualization and analysis software system _ image processing aspects**, J. K. Udupa, Univ. of Pennsylvania; G. J. Grevera, St Joseph's Univ.; D. Odhner, Y. Zhuge, A. D. A. Souza, S. Mishra, T. Iwanaga, Univ. of Pennsylvania [6509-66]

- ✓ **Technical report on the surface reconstruction of stacked contours by using the commercial software**, D. Shin, M. S. Chung, Ajou Univ. School of Medicine (South Korea); S. B. Kwang, Kyungbuk College (South Korea); J. S. Park, Ajou Univ. School of Medicine (South Korea) [6509-67]

- ✓ **Building an intuitive 3D interface for medical visualization**, V. P. Vaidya, GE Global Research (India); M. Seitel, Deutsches Krebsforschungszentrum (Germany); S. Suryanarayanan, R. Mullick, GE Global Research (India) [6509-68]

- ✓ **Non-photorealistic rendering of virtual implant models for computer-assisted fluoroscopy-based surgical procedures**, G. Zheng, Univ. Bern (Switzerland) [6509-69]

- ✓ **Efficient hardware accelerated rendering of multiple volumes by data dependent local render functions**, H. Lehmann, Philips Research Labs. (Germany); G. Kiefer, Fachhochschule Augsburg (Germany); D. Geller, J. Weese, Philips Research Labs. (Germany) [6509-70]

- ✓ **An efficient out-of-core volume ray casting method for the visualization of large medical data sets**, J. Xue, J. Tian, J. Chen, Y. Dai, Institute of Automation (China) [6509-71]

Image Guidance

- ✓ **Workspace definition for navigated control functional endoscopic sinus surgery**, M. Gessat, M. Hofer, M. Audette, J. Meixensberger, G. Strauss, O. Burgert, Univ. Leipzig (Germany) [6509-72]

- ✓ **Treatment planning and image guidance for radiofrequency ablation of the liver**, H. J. Zhang, Georgetown Univ.; S. Munuo, E. Campos-Nanez, H. Abeledo, The George Washington Univ.; F. Banovac, K. R. Cleary, Georgetown Univ. [6509-73]

- ✓ **Precise determination of regions of interest for hepatic RFA planning**, C. Baegert, C. Villard, P. Schreck, L. Soler, Univ. Louis Pasteur Strasbourg (France) [6509-74]

- ✓ **Optical-based navigation system for paranasal sinus surgery and its first clinical trial**, B. Tsagaan, Shizuoka Univ. (Japan) and Hamamatsu Univ. School of Medicine (Japan); S. Yamamoto, Hamamatsu Univ. School of Medicine (Japan); K. Abe, Aichi Institute of Technology (Japan); H. Nakatani, Shizuoka Univ. (Japan); S. Terakawa, Hamamatsu Univ. School of Medicine (Japan) [6509-75]

- ✓ **Determination of drill paths for percutaneous cochlear access accounting for target positioning error**, J. Noble, Vanderbilt Univ.; F. Warren, The Univ. of Utah; R. F. Labadie, B. M. Dawant, J. M. Fitzpatrick, Vanderbilt Univ. [6509-76]

- ✓ **Soft tissue navigation using needle-shaped markers: evaluation of navigation aid tracking accuracy and initial registration**, L. Maier-Hein, D. Maleike, J. Neuhaus, I. Wolf, H. Meinzer, Deutsches Krebsforschungszentrum (Germany) [6509-77]

- ✓ **3D geometry calibration and markerless electromagnetic tracking with a mobile C-arm**, A. Cheryauka, J. Barrett, A. V. Litvin, A. Hamadeh, D. Beaudet, Z. Wang, GE Healthcare [6509-78]

- ✓ **Intraoperative computer tomography imaging**, G. Eggers, B. Kress, J. Mühling, R. Marmulla, Ruprecht-Karls-Univ. Heidelberg (Germany) . . [6509-79]

- ✓ **Towards active image-guidance: tracking of a fiducial in the thorax during respiration under X-ray fluoroscopy**, S. Siddique, Univ. of Toronto (Canada) and Princess Margaret Hospital (Canada); D. A. Jaffray, Princess Margaret Hospital (Canada) and Univ. of Toronto (Canada) [6509-80]

Cardiac

- ✓ **Automatic extraction of coronary vessels from digital subtraction angiography**, S. Tang, Beijing Institute of Technology (China); Y. Chen, Ritsumeikan Univ. (Japan); J. Wen, Y. Wang, Beijing Institute of Technology (China) [6509-26]

- ✓ **Rapid fusion of 2D X-ray fluoroscopy with 3D multislice CT for image-guided electrophysiology procedures**, L. Zagorchev, Philips Research North America [6509-82]

- ✓ **Planning image-guided endovascular interventions: guidewire simulation using shortest path algorithms**, S. Schafer, V. Singh, Univ. at Buffalo Toshiba Stroke Research Ctr.; K. R. Hoffmann, Univ. at Buffalo; P. B. Noël, Univ. at Buffalo Toshiba Stroke Research Ctr.; J. Xu, Univ. at Buffalo . . . [6509-83]

- ✓ **Real-time dynamic visualization of registered 4D cardiac MR and ultrasound images using a GPU**, Q. Zhang, X. Huang, R. A. Eagleson, G. Guiraudon, T. M. Peters, Roberts Research Institute (Canada) . . [6509-84]

- ✓ **Intra-cardiac 2D US to 3D CT image registration: a phantom study**, X. Huang, N. A. Hill, Roberts Research Institute (Canada); J. Ren, Univ. of Ontario Institute of Technology (Canada) and Roberts Research Institute (Canada); G. Guiraudon, T. M. Peters, Roberts Research Institute (Canada) . . [6509-85]

Ultrasound

- ✓ **Motion correction for radiation therapy of the prostate using B-mode ultrasound**, J. B. Hummel, Community Hospital of Hietzing (Austria) and Medizinische Univ. Wien (Austria); M. Figl, J. Schmidbauer, M. Tinzl, H. Bergmann, W. Birkfellner, Medizinische Univ. Wien (Austria) [6509-86]

- ✓ **3D ultrasound reconstruction based on rotational scanning coping with calibration uncertainty**, X. Luo, M. Ding, C. Zhou, C. Cai, Huazhong Univ. of Science and Technology (China) [6509-87]

- ✓ **A compact robotic apparatus and method for 3D ultrasound**, J. S. Bax, L. Gardi, J. Montreuil, D. Smith, A. Fenster, Robarts Research Institute (Canada) [6509-88]

Brain

- ✓ **Evaluation of the effect of partial asymmetric stent coverage on neurovascular aneurysm hemodynamics using computer fluid dynamics (CFD) calculations**, M. Kim, H. S. Rangwalla, C. N. Ionita, K. R. Hoffmann, Univ. at Buffalo Toshiba Stroke Research Ctr.; D. B. Taulbee, Univ. at Buffalo; H. Meng, S. Rudin, Univ. at Buffalo Toshiba Stroke Research Ctr. [6509-89]

- ✓ **Brain-skull boundary condition in a neurosurgery deformation model**, S. Ji, F. Liu, K. D. Paulsen, Dartmouth College; D. W. Roberts, Dartmouth Hitchcock Medical Ctr.; A. Hartov, Dartmouth College [6509-90]

- ✓ **Quality improvement of tetrahedral meshes by optimizing the minimum local angle**, H. R. Ghadyani, Worcester Polytechnic Institute; J. M. Sullivan, Jr., Worcester Polytechnic Institute [6509-91]

- ✓ **Surface mismatch based inverse method in brain deformation modeling**, F. Liu, K. D. Paulsen, A. Hartov, Dartmouth College; D. W. Roberts, Dartmouth Hitchcock Medical Ctr. [6509-92]

- ✓ **Tensor distance based adaptive seeding algorithm for DT-MRI visualization**, Y. T. Weldeselassie, G. Hamarneh, D. Weiskopf, Simon Fraser Univ. (Canada) [6509-93]

- ✓ **An integrated segmentation and visualization tool for MR brain image processing**, A. H. Zhuang, D. J. Valentino, V. Stamboljan, I. D. Dinov, A. W. Toga, Univ. of California/Los Angeles [6509-94]

✓ Posters — Sunday/Monday

- ✓ **Modeling surgical procedures to assist in understanding surgical approach**, K. H. Ha, Vanderbilt Univ. Medical Ctr.; M. I. Miga, Vanderbilt Univ.; R. C. Thompson, Vanderbilt Univ. Medical Ctr. [6509-95]

Other

- ✓ **PETglove™: a new technology for portable molecular imaging**, K. H. Wong, P. Cheng, Georgetown Univ.; S. Adler, Quantum Molecular Pharmaceuticals, Inc.; P. Abshire, Univ. of Maryland/College Park; V. Saveliev, Obninsk State Univ. (Russia); S. K. Mun, Georgetown Univ.; I. Weinberg, Quantum Molecular Pharmaceuticals, Inc. [6509-96]
- ✓ **Options for new real-time image-processing architectures in cardio/vascular systems**, R. Albers, Technische Univ. Eindhoven (Netherlands) and Philips Medical Systems (Netherlands); M. Boosten, Philips Medical Systems (Netherlands); P. H. N. de With, Technische Univ. Eindhoven (Netherlands) and LogicaCMG (Netherlands) [6509-97]
- ✓ **Six degree-of-freedom haptic rendering for the surgical incision training**, Y. Kawaguchi, T. Nakaguchi, N. Tsumura, Y. Miyake, Chiba Univ. (Japan) [6509-98]

- ✓ **Precision instrument placement using a 4-DOF robot with integrated fiducials for minimally invasive interventions**, R. Stenzel, R. Lin, P. Cheng, Georgetown Univ.; G. Kronreif, M. Kornfeld, ARC Seibersdorf Research GmbH (Austria); D. Lindisch, K. R. Cleary, Georgetown Univ. [6509-99]
- ✓ **A standardized hardware and software protocol for the evaluation of electromagnetic tracker accuracy in the clinical environment: a multi-center study**, E. Wilson, H. J. Zhang, D. Lindisch, F. Banovac, K. R. Cleary, Georgetown Univ. [6509-100]

Modeling

- ✓ **C-arm calibration: is it really necessary?**, A. K. Jain, M. An, N. Chitphakdithai, G. Chintalapani, G. Fichtinger, Johns Hopkins Univ. [6509-101]
- ✓ **Robust centerline extraction from tubular structures in medical images**, J. Liu, K. R. Subramanian, The Univ. of North Carolina at Charlotte [6509-102]

- ✓ **A robust and accurate approach for reconstruction of patient-specific 3D bone models from sparse point sets**, G. Zheng, Univ. Bern (Switzerland) [6509-103]
- ✓ **Angioplasty simulation using Chain-Mail method**, T. Le Fol, P. Haigron, O. Acosta-Tamayo, A. Lucas, Univ. de Rennes I (France) [6509-104]
- ✓ **Statistical characterization of C-arm distortion with application to intra-operative distortion correction**, G. Chintalapani, A. K. Jain, R. H. Taylor, Johns Hopkins Univ. [6509-105]
- ✓ **Automated planning of MRI scans of knee joints**, D. Bystrov, V. Pekar, S. Young, S. Dries, H. Heese, Philips Research Labs. (Germany); A. van Muiswinkel, Philips Medical Systems (Netherlands) [6509-106]

Registration

- ✓ **Clinical determination of target registration error of an image-guided otologic surgical system using patients with bone-anchored hearing aids**, R. Balachandran, R. F. Labadie, J. M. Fitzpatrick, Vanderbilt Univ. [6509-107]
- ✓ **Application of nonrigid registration in ablation of liver cancer**, S. Tang, Beijing Institute of Technology (China); Y. Chen, Ritsumeikan Univ. (Japan); J. Wen, Y. Wang, Beijing Institute of Technology (China) [6509-108]
- ✓ **A computational approach to pre-align point cloud data for surface registration in image-guided liver surgery**, I. Garg, L. W. Clements, R. L. Galloway, Jr., Vanderbilt Univ. [6509-109]
- ✓ **Planning a safe drilling path for cochlear implantation surgery using image registration techniques**, H. Al-Marzouqi, J. Noble, F. Warren, R. F. Labadie, J. M. Fitzpatrick, B. M. Dawant, Vanderbilt Univ. [6509-110]
- ✓ **The effect of CT-based attenuation correction on PET/CT registration: an evaluation study**, Z. R. Yaniv, K. H. Wong, E. Levy, K. R. Cleary, Georgetown Univ. [6509-111]
- ✓ **Fiducial-less 2D-3D spine image registration using spine region segmented in CT image**, D. Fu, H. Wang, C. R. Maurer, G. R. Kuduvali, Accuray, Inc. [6509-112]
- ✓ **Using Laplace's equation for nonrigid registration of breast surfaces**, R. E. Ong, J. J. Ou, M. I. Miga, Vanderbilt Univ. [6509-113]

- ✓ **Slice-to-volume registration of FluoroCT/CT imaging for interventional radiology**, W. Birkfellner, Medizinische Univ. Wien (Austria) [6509-114]
- ✓ **Hardware accelerated ray cast of volume data and volume gradient for an optimized splines-based multi-resolution 2D-3D registration**, G. Zheng, X. Zhang, Univ. Bern (Switzerland) [6509-115]

Conference 6511 Physiology, Function, and Structure from Medical Images

Chairs: **Alexander Hartov**,
Dartmouth College; **Juan R. Cebral**,
George Mason Univ.

- ✓ **A comparison of lung motion measured using implanted electromagnetic transponders and motion algorithmically predicted using external surrogates as an alternative to respiratory correlated CT imaging**, K. Lechleiter, D. A. Low, A. Chaudhari, W. Lu, J. Hubenschmidt, M. L. Mayse, Washington Univ.; S. Dimmer, Calypso Medical Technologies, Inc.; J. D. Bradley, P. J. Parikh, Washington Univ. [6511-59]
- ✓ **Nonlinear histogram binning for quantitative analysis of lung tissue fibrosis in high-resolution CT data**, V. A. Zavaletta, B. J. Bartholmai, R. A. Robb, Mayo Clinic [6511-60]
- ✓ **Quantification of airway morphometry: the effect of CT acquisition and reconstruction parameters**, J. K. Leader, B. Zheng, Univ. of Pittsburgh; H. O. Coxson, Vancouver General Hospital (Canada); C. R. Fuhrman, F. C. Sciarba, J. M. McMurray, G. S. Maitz, D. Gur, Univ. of Pittsburgh [6511-61]
- ✓ **A phase unwrapping method for large-motion phase data in MR elastography**, H. Wang, Dartmouth College; J. B. Weaver, Dartmouth Hitchcock Medical Ctr; M. M. Doyley, K. D. Paulsen, Dartmouth College [6511-63]

- ✓ **Reproducibility of shear modulus estimates of the shear modulus: heel fat pad measurements**, J. B. Weaver, Dartmouth Hitchcock Medical Ctr. and Dartmouth College; T. B. Miller, M. M. Doyley, H. Wang, P. R. Perrinez, Dartmouth College; Y. Y. Cheung, Dartmouth Hitchcock Medical Ctr.; F. E. Kennedy, Dartmouth College; K. D. Paulsen, Dartmouth Hitchcock Medical Ctr. and Dartmouth College [6511-64]
- ✓ **Methods for visualizing the visualizing the viscoelastic properties of soft tissues**, M. M. Doyley, Dartmouth College [6511-65]
- ✓ **Boundary element methods in elastography: a first explorative study**, H. Berger, C. E. Hann, J. G. Chase, R. L. Broughton, E. E. W. Van Houten, Univ. of Canterbury (New Zealand) [6511-66]
- ✓ **Damping models in elastography**, M. D. J. McGarry, H. Berger, Univ. of Canterbury (New Zealand); P. R. Perrinez, Dartmouth College; E. E. W. Van Houten, Univ. of Canterbury (New Zealand) [6511-67]
- ✓ **An evaluation of 3D modality independent elastography robustness to boundary condition noise**, J. J. Ou, R. E. Ong, M. I. Miga, Vanderbilt Univ. [6511-69]
- ✓ **Molecular and structural analysis of viscoelastic properties**, R. D. Yapp, M. F. Insana, Univ. of Illinois at Urbana-Champaign [6511-71]
- ✓ **Bolus tracking by cone-beam reconstruction and reprojection**, Z. Chen, R. Ning, D. L. Conover, Univ. of Rochester [6511-72]
- ✓ **Spatio-temporal patterns of ERP-based on combined ICA-LORETA analysis**, J. Zhang, T. Guo, X. Zhao, L. Yao, Y. Xu, Beijing Normal Univ. (China) [6511-73]
- ✓ **Spatiotemporal analysis of single-trial EEG of emotional pictures based on independent component analysis and source location**, J. Liu, J. Tian, Institute of Automation (China) [6511-74]
- ✓ **The functional connectivity of semantic task changes in the recovery from stroke aphasia**, J. Lu, Xuanwu Hospital (China); X. Wu, L. Yao, Beijing Normal Univ. (China); K. Li, Xuanwu Hospital (China); Q. Dong, Beijing Normal Univ. (China) [6511-75]

- ✓ **Adaptive selection of fMRI spatial data in canonical correlation method**, V. Taimouri, G. A. Hossein Zadeh, Univ. of Tehran (Iran) [6511-76]
- ✓ **Retrospective processing of DTI tractography to compensate for partial volume effects**, D. H. Hwang, A. Shetty, A. Rajagopalan, M. Singh, Univ. of Southern California [6511-77]
- ✓ **A fMRI study of face perception based on priming effect**, J. Liu, J. Tian, Institute of Automation (China) [6511-78]
- ✓ **A comparison between EEG source localization and fMRI during the processing of emotional visual stimuli**, J. Hu, J. Tian, Institute of Automation (China); X. Pan, Beijing Normal Univ. (China); J. Liu, Institute of Automation (China) [6511-79]
- ✓ **Investigation of effective connectivity in the motor cortex of fMRI data using Granger causality model**, X. Wu, T. Ni, Y. Kai, X. Wu, T. Wen, Y. Li, J. X. Zhao, Beijing Normal Univ. (China) [6511-80]
- ✓ **Virtual hybrid bronchoscopy using PET/CT datasets**, K. Englmeier, GSF-Forschungszentrum (Germany); M. D. Seemann, Technische Univ. Muenchen (Germany) [6511-25]
- ✓ **Optimization of a single-shot EPI sequence for diffusion imaging of the human spinal cord**, C. Rossi, Eberhard Karls Univ. Tübingen (Germany) and Univ. degli Studi di Roma/La Sapienza (Italy) and Enrico Fermi Ctr. (Italy); A. Boss, G. Steidle, P. Martirosian, U. Klose, Eberhard Karls Univ. Tübingen (Germany); S. Capuani, Univ. degli Studi di Roma/La Sapienza (Italy); B. Maraviglia, Univ. degli Studi di Roma/La Sapienza (Italy) and Enrico Fermi Ctr. (Italy) and IRCSS Santa Lucia Foundation/Rome (Italy); C. D. Claussen, F. Schick, Eberhard Karls Univ. Tübingen (Germany) [6511-81]
- ✓ **Optimal thresholding of contrast enhancement curve for reliable tumor volume measurement in breast MR imaging**, K. G. Kim, J. H. Kim, S. Park, S. H. Lee, Seoul National Univ. (South Korea) [6511-82]
- ✓ **Analysis of intracranial aneurysm wall motion and its effects on hemodynamic patterns**, E. Oubel, Univ. Pompeu Fabra (Spain); C. M. Putman, Inova Fairfax Hospital; A. F. Frangi, Univ. Pompeu Fabra (Spain); J. R. Cebral, George Mason Univ. [6511-83]

- ✓ **Analysis of flow patterns in anterior communicating artery aneurysms**, M. A. Castro, George Mason Univ.; C. M. Putman, Inova Fairfax Hospital; J. R. Cebal, George Mason Univ. [6511-84]
- ✓ **Hemodynamics before and after bleb formation in cerebral aneurysms**, J. R. Cebal, George Mason Univ.; A. G. Radaelli, A. F. Frangi, Univ. Pompeu Fabra (Spain); C. M. Putman, Inova Fairfax Hospital [6511-85]
- ✓ **Patient-specific modeling of intracranial aneurysm stenting**, S. Appanaboyina, R. Lohner, F. Mut, George Mason Univ.; C. M. Putman, Inova Fairfax Hospital; J. R. Cebal, George Mason Univ. [6511-86]
- ✓ **Modeling, simulation, and in vitro measurement of flow and pressure distributions of intracranial aneurysms**, C. H. Slump, H. Kuipers, Univ. Twente (Netherlands) . . . [6511-87]
- ✓ **Linear programming approach to optimize 3D data obtained from multiple view angiograms**, P. B. Noël, Univ. at Buffalo Toshiba Stroke Research Ctr.; J. Xu, Univ. at Buffalo; K. R. Hoffmann, Toshiba Stroke Research Ctr.; V. Singh, S. Schafer, Univ. at Buffalo Toshiba Stroke Research Ctr.; A. M. Walczak, Toshiba Stroke Research Ctr. [6511-89]
- ✓ **Comparative study of diversely trained 3DASM models for segmentation of gated SPECT datasets of a virtual population**, C. Tobon-Gomez, S. Ordas, C. Butakoff, A. F. Frangi, Univ. Pompeu Fabra (Spain) [6511-90]
- ✓ **Estimation of 3D myocardial motion from tagged MRI using LDDMM**, V. Kotamraju, Simon Fraser Univ. (Canada); E. R. McVeigh, National Institutes of Health; F. M. Beg, Simon Fraser Univ. (Canada) [6511-91]
- ✓ **Optimal parameters and pitfalls for kernel method of surface curvature estimation for CT colonography computer-aided polyp detection**, S. Campbell, R. M. Summers, National Institutes of Health [6511-92]
- ✓ **A new electronic colon cleansing method for virtual colonoscopy**, L. Li, College of Staten Island/CUNY; Z. Liang, S. Wang, D. Eremina, Stony Brook Univ.; X. Wei, City College/CUNY; Z. Wang, Stony Brook Univ. [6511-93]

- ✓ **Magnetic resonance microwave absorption imaging**, B. Xie, J. B. Weaver, P. M. Meaney, K. D. Paulsen, Dartmouth College [6511-94]
- ✓ **Optical tomography for breast cancer imaging using a two-layer tissue effects model to include chest-wall effects**, M. Das, Univ. of Massachusetts Medical School; Q. Zhu, Univ. of Connecticut [6511-95]
- ✓ **Comparison of the depth of an optic nerve head obtained using stereo retinal images and HRT**, T. Nakagawa, Gifu Univ. (Japan); Y. Hayashi, TAK Co., Ltd. (Japan); Y. Hatanaka, Gifu National College of Technology (Japan); A. Aoyama, T. Hara, Gifu Univ. (Japan); M. Kakogawa, TAK Co., Ltd. (Japan); H. Fujita, T. Yamamoto, Gifu Univ. (Japan) [6511-96]
- ✓ **Accuracy limits for efficiently determining shape and size of low-density lipoprotein macromolecules from cryogenic TEM images**, W. L. Collier, Capstone Visual Product Development; L. Martin, Univ. of Rhode Island; R. van Antwerpen, Virginia Commonwealth Univ. [6511-97]
- ✓ **Determination of the chemical composition of human renal stones with CT: influence of the surrounding media**, R. Grosjean, B. Sauer, Univ. Henri Poincaré Nancy I (France); I. Kermarrec, CHU Dijon (France); R. Guerra, Univ. Henri Poincaré Nancy I (France) and Siemens Medical Solutions (France); Y. Ponvianne, D. Wittinger, Univ. Henri Poincaré Nancy I (France); M. Daudon, Hôpitaux Necker-Enfants Malades (France); A. Blum, CHU Nancy (France); J. Felblinger, Univ. Henri Poincaré Nancy I (France); J. Hubert, Univ. Henri Poincaré Nancy I (France) and CHU Nancy (France) [6511-98]

**Conference 6512
Image Processing**

*Chairs: Tianhu Lei, Univ. of Pennsylvania;
Murray H. Loew, George Washington Univ.*

Registration

- ✓ **Analysis of point-to-point lung motion with full inspiration and expiration CT data using nonlinear optimization method: optimal geometric assumption model for the effective registration algorithm**, N. Kim, Seoul National Univ. (South Korea) and Asan Medical Ctr. (South Korea); J. Seo, Asan Medical Ctr. (South Korea); J. Heo, S. Kang, Seoul National Univ. (South Korea) [6512-64]
- ✓ **Computerized method for measurement of displacement vectors of target positions on EPID cine images in stereotactic radiotherapy**, H. Arimura, S. Anai, S. Yoshidome, K. Nakamura, Y. Shioyama, S. Nomoto, H. Honda, Y. Onizuka, H. Terashima, Kyushu Univ. (Japan) [6512-65]
- ✓ **Motion detection and pattern tracking in microscopical images using phase correlation approach**, E. Gladilin, K. Rohr, R. Eils, Deutsches Krebsforschungszentrum (Germany) [6512-66]
- ✓ **Accelerated 3D image registration**, M. Vester-Christensen, S. Darkner, R. Larsen, Danmarks Tekniske Univ. (Denmark) [6512-68]
- ✓ **Local mismatch location and spatial scale detection in image registration**, R. Narayanan, J. A. Fessler, B. Ma, C. R. Meyer, Univ. of Michigan [6512-69]
- ✓ **Mahalanobis distance based iterative closest point**, M. F. Hansen, Danmarks Tekniske Univ. (Denmark); M. R. Blas, ECO-DAN A/S (Denmark); R. Larsen, Danmarks Tekniske Univ. (Denmark) [6512-70]
- ✓ **Fast interactive elastic registration of 12-bit multispectral images with subvoxel accuracy using display hardware**, H. J. Noordmans, R. de Roode, R. M. Verdaasdonk, Univ. Medisch Ctr. Utrecht (Netherlands) [6512-71]
- ✓ **Feature-based pairwise retinal image registration with radial distortion correction**, S. Lee, The Univ. of Iowa; M. D. Abramoff, The Univ. of Iowa Hospitals and Clinics; J. M. Reinhardt, The Univ. of Iowa [6512-72]

- ✓ **Large volume reconstruction from laser scanning microscopy using micro-CT as a template for deformation compensation**, A. Subramanian, Syracuse Univ.; A. Krol, Upstate Medical Univ./SUNY and Syracuse Univ.; A. H. Poddar, Syracuse Univ.; R. L. Price, Univ. of South Carolina; R. Swarnkar, D. H. Feiglin, Upstate Medical Univ./SUNY [6512-73]
- ✓ **Radial subsampling for fast cost function computation in intensity-based 3D image registration**, T. Boettger, Siemens Medical Solutions (Germany); I. Wolf, H. Meinzer, Deutsches Krebsforschungszentrum (Germany); J. C. Celli, Siemens Medical Solutions, Inc. [6512-74]
- ✓ **Registration-based initialization during radiation therapy planning**, G. Gopalakrishnan, R. Mullick, GE India Technology Ctr. Pvt. Ltd. (India) [6512-75]
- ✓ **Optimizing bone edge extraction in MR images for 3D/2D gradient based registration of MR and X-ray images**, P. Markelj, D. Tomaževič, F. Pernu, B. Likar, Univ. v Ljubljani (Slovenia) [6512-76]
- ✓ **Evaluating a method for automated rigid registration**, S. Darkner, Danmarks Tekniske Univ. (Denmark); R. R. Paulsen, Oticon A/S (Denmark); M. Vester-Christensen, R. Larsen, Danmarks Tekniske Univ. (Denmark) [6512-77]
- ✓ **Assistance to neurosurgical planning: using a fuzzy spatial graph model of the brain for locating anatomical targets in MRI**, A. C. Villéger, L. Ouchchane, J. Lemaire, J. Boire, Univ. d'Auvergne Clermont-Ferrand I (France) [6512-78]
- ✓ **A robust optimization strategy for image-based 2D/3D registration of knee implant models to single-plane fluoroscopy**, J. Hermans, J. Bellemans, D. Vandermeulen, P. Suetens, Katholieke Univ. Leuven (Belgium) [6512-79]
- ✓ **Non-rigid multimodal registration on the GPU**, C. P. Vetter, C. Guetter, C. Xu, Siemens Corporate Research; R. Westermann, Technische Univ. München (Germany) [6512-80]
- ✓ **Non-rigid registration using statistical deformation models: application to neuro MR images**, D. C. Buie, D. J. Hawkes, Univ. College London (United Kingdom) [6512-81]

- ✓ **Joint registration of multiple images using entropic graphs**, B. Ma, M-Vision, Inc.; R. Narayanan, H. Park, A. Hero III, P. H. Bland, C. R. Meyer, Univ. of Michigan [6512-82]
- ✓ **Intensity-based image registration using Earth mover's distance**, C. Chef'd'hotel, G. Bousquet, Siemens Corporate Research [6512-83]
- ✓ **Segmentation-guided registration for unified visualization of cardiac structure and function**, S. R. Ranjan, R. Mullick, GE Global Research Ctr. (India) [6512-84]
- ✓ **Improved elastic medical image registration using mutual information**, K. Ens, H. Schumacher, Univ. zu Lübeck (Germany); A. Franz, Philips Research Labs. (Germany); B. Fischer, Univ. zu Lübeck (Germany) [6512-85]
- ✓ **Gabor feature-based registration: accurate alignment without fiducial markers**, N. A. Parra, Florida International Univ.; C. A. Parra, St. Jude Children's Research Hospital . [6512-86]
- ✓ **Method of image fusion for radiotherapy**, S. Chen, J. S. Schildkraut, L. A. Ray, Eastman Kodak Co. [6512-87]
- ✓ **Three-dimensional histopathology of lung cancer with multimodality image registration**, J. C. de Ryk, J. Weydert, The Univ. of Iowa Hospitals and Clinics; G. E. Christensen, J. Thiesse-Namati, The Univ. of Iowa; E. Namati, The Univ. of Iowa Hospitals and Clinics; J. M. Reinhardt, The Univ. of Iowa; E. A. Hoffman, G. McLennan, The Univ. of Iowa Hospitals and Clinics . [6512-88]

Segmentation

- ✓ **Morphology-based three-dimensional segmentation of coronary artery tree from CT scans**, D. P. T. Banh, I. S. Kyprianou, S. Paquerault, K. J. Myers, U.S. Food and Drug Administration [6512-89]
- ✓ **Subcortical structure segmentation using probabilistic atlas prior**, S. Gouttard, M. A. Styner, The Univ. of North Carolina at Chapel Hill; S. C. Joshi, Univ. of Utah; R. G. Smith, H. Cody, G. Gerig, The Univ. of North Carolina at Chapel Hill [6512-90]
- ✓ **Fovea and vessel detection via a multiresolution parameter transform**, K. Estabridis, R. J. P. De Figueiredo, Neural Computing Systems, LLC [6512-91]

✓ Posters — Sunday/Monday

- ✓ **Automatic brain segmentation in Rhesus monkeys**, M. A. Styner, R. Knickmeyer, The Univ. of North Carolina at Chapel Hill; S. J. Short, C. Coe, Univ. of Wisconsin/Madison; J. H. Gilmore, The Univ. of North Carolina at Chapel Hill [6512-92]
- ✓ **Segmentation and tracking of human sperm cells using spatio-temporal representation and clustering**, M. Berezansky, H. Greenspan, D. Cohen-Or, Tel Aviv Univ. (Israel); O. Eitan, Ichilov Medical Ctr. (Israel) [6512-93]
- ✓ **Unbiased vessel-diameter quantification based on the FWHM criterion**, H. Bouma, Technische Univ. Eindhoven (Netherlands); J. Olivan-Bescos, Univ. Twente (Netherlands); A. Vilanova, Technische Univ. Eindhoven (Netherlands); F. A. Gerritsen, Philips Medical Systems (Netherlands) [6512-94]
- ✓ **Bronchopulmonary segments approximation using anatomical atlas and ray-tracing based image registration for lung HRCT: preliminary result**, S. Busayarat, T. Zrimec, Univ. of New South Wales (Australia) . [6512-95]
- ✓ **Improved CSF classification and lesion detection in MR brain images with multiple sclerosis**, Y. Wolff, Tel Aviv Univ. (Israel); S. Miron, A. Achiron, Sheba Medical Ctr. (Israel); H. Greenspan, Tel Aviv Univ. (Israel) [6512-96]
- ✓ **Automatic measuring of quality criteria for heart valves**, T. Hahn, Univ. Schleswig-Holstein (Germany); A. P. Condurache, U. Hofmann, Univ. zu Lübeck (Germany); T. Aach, RWTH Aachen (Germany); M. Misfeld, M. Scharfshwerdt, Univ. Schleswig-Holstein (Germany) [6512-97]
- ✓ **A knowledge-guided active model method of skull segmentation on T1-weighted MR images**, Z. Y. Shan, C. Hua, Q. Ji, C. A. Parra, X. Ying, M. J. Krasin, T. E. Merchant, L. E. Kun, W. E. Reddick, St. Jude Children's Research Hospital [6512-98]
- ✓ **Automated image segmentation using support vector machines**, S. M. Powell, V. A. Magnotta, N. C. Andreasen, The Univ. of Iowa [6512-99]
- ✓ **Parsimonious model selection for tissue classification: a DTI study of zebrafish**, R. Z. Freidlin, National Institutes of Health and The George Washington Univ.; M. H. Loew, The George Washington Univ.; P. J. Basser, National Institutes of Health . [6512-100]
- ✓ **A dynamic multiple thresholding method for automated breast boundary detection in digitized mammograms**, Y. Wu, C. Zhou, L. M. Hadjiiski, J. Shi, J. Wei, C. Paramagul, B. Sahiner, H. Chan, Univ. of Michigan [6512-101]
- ✓ **An automatic method for fast and accurate liver segmentation in CT images using a shape detection level-set method**, J. Lee, N. Kim, H. Lee, Seoul National Univ. (South Korea); J. Seo, H. Won, Y. Shin, Asan Medical Ctr. (South Korea); Y. G. Shin, Seoul National Univ. (South Korea) [6512-102]
- ✓ **A multiscale vector-based fuzzy C-means classification method for multiple weighted MR images for photodynamic therapy in mice**, H. Wang, D. K. Feyes, J. Mulvihill, G. MacLennan, N. L. Oleinick, Case Western Reserve Univ.; B. Fei, Case Western Reserve Univ. and Univ. Hospitals of Cleveland [6512-103]
- ✓ **Fully automatic segmentation of liver from multiphase liver CT**, Y. Zheng, X. Yang, X. Ye, X. Lin, Medisight PLC. (United Kingdom) [6512-104]
- ✓ **Segmentation of prostate biopsy needles in transrectal ultrasound images**, D. Krefting, B. Haupt, T. Tolxdorff, C. Kempkensteffen, K. Miller, Charite Berlin (Germany) ... [6512-105]
- ✓ **Improved livewire method for segmentation on low-contrast and noisy images**, D. Chen, National Institutes of Health and Stanford Univ.; J. Yao, National Institutes of Health [6512-106]
- ✓ **Level sets on non-planar manifolds for ridge detection on isosurfaces**, S. Tan, J. Yao, M. M. Ward, L. Yao, R. M. Summers, National Institutes of Health [6512-107]
- ✓ **A general theory of image segmentation: level set segmentation in the fuzzy connectedness framework**, K. C. Ciesielski, West Virginia Univ. and Univ. of Pennsylvania; J. K. Udupa, Univ. of Pennsylvania [6512-108]
- ✓ **Segmentation of complex objects with nonspherical topologies from volumetric medical images using 3D Livewire**, K. Poon, The Univ. of British Columbia (Canada); G. Hamarneh, Simon Fraser Univ. (Canada); R. Abugarbieh, The Univ. of British Columbia (Canada) [6512-109]
- ✓ **Fast and accurate border detection in dermoscopy images using statistical region merging**, M. E. Celebi, H. A. Kingravi, The Univ. of Texas/Arlington; W. V. Stoecker, Univ. of Missouri/Rolla and Stoecker & Associates; R. H. Moss, Univ. of Missouri/Rolla; Y. A. Aslandogan, The Univ. of Texas/Arlington [6512-110]
- ✓ **Automated localization of periventricular and subcortical white-matter lesions**, F. van der Lijn, Univ. Medisch Ctr Rotterdam (Netherlands) and Erasmus Univ. Medical Ctr (Netherlands); M. W. Vernooij, M. A. Ikram, H. A. Vrooman, Erasmus Univ. Medical Ctr. (Netherlands); D. Rueckert, Imperial College London (United Kingdom); A. Hammers, Hammersmith Hospitals NHS Trust (United Kingdom); M. M. Breteler, Erasmus Univ. Medical Ctr. (Netherlands); W. J. Niessen, Univ. Medisch Ctr. Rotterdam (Netherlands) ... [6512-111]
- ✓ **Improvements in level-set segmentation of 3D small animal imagery**, J. R. Price, D. Aykac, Oak Ridge National Lab.; J. Wall, The Univ. of Tennessee [6512-112]
- ✓ **Model-based segmentation and quantification of fluorescent bacteria in 3D microscopy live cell images**, S. Wörz, Ruprecht-Karls-Univ. Heidelberg (Germany) and Deutsches Krebsforschungszentrum (Germany); C. Kappel, Deutsches Krebsforschungszentrum (Germany); R. Eils, K. Rohr, Ruprecht-Karls-Univ. Heidelberg (Germany) and Deutsches Krebsforschungszentrum (Germany) [6512-113]
- ✓ **Segmentation of liver region with tumorous tissues**, X. Zhang, T. Tajima, T. Kitagawa, M. Kanematsu, X. Zhou, T. Hara, H. Fujita, R. Yokoyama, H. Kondo, H. Hoshi, Gifu Univ. (Japan); S. Nawano, National Cancer Ctr. Hospital East (Japan); K. Shinozaki, National Kyushu Cancer Ctr. (Japan) . [6512-114]
- ✓ **Semi-automatic parcellation of the corpus striatum**, R. A. Al-Hakim, D. Nain, Georgia Institute of Technology; J. Levitt, M. Shenton, Harvard Medical School; A. Tannenbaum, Georgia Institute of Technology [6512-115]
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- ✓ **Automated segmentation of hepatic vessel trees in noncontrast x-ray CT images**, S. Kawajiri, X. Zhou, X. Zhang, T. Hara, H. Fujita, Gifu Univ. (Japan); R. Yokoyama, H. Kondo, M. Kanematsu, H. Hoshi, Gifu Univ. Hospital (Japan) [6512-119]
- ✓ **WHIPPET: a collaborative software environment for medical image processing and analysis**, Y. Hu, D. R. Haynor, K. R. Maravilla, Univ. of Washington [6512-120]
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- ✓ **Automatic multiple threshold scheme for segmentation of tomograms**, K. J. Batenburg, Leiden Univ. (Netherlands) and Mathematical Institute, Leiden Univ. (Netherlands); J. Sijbers, Univ. Antwerpen (Belgium) .. [6512-122]
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- ✓ **Evaluation of internal carotid artery segmentation by InsightSNAP**, E. Spangler, B. E. Chapman, Univ. of Pittsburgh; D. L. Parker, J. A. Roberts, C. Brown, The Univ. of Utah . [6512-124]
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- ✓ **A morphing active surface model for automatic recontouring in 4D radiotherapy**, X. Han, L. S. Hibbard, S. Brame, CMS, Inc. [6512-126]
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- ✓ **Semi-automatic tissue classification of magnetic resonance images of the thigh for application to large-scale datasets**, A. Monzon, National Institutes of Health; P. F. Hemler, Hampden-Sydney College; M. A. Nalls, National Institute on Aging; T. M. Manini, Univ. of Florida; B. C. Clark, Ohio Univ.; T. Harris, National Institute on Aging; M. J. McAuliffe, National Institutes of Health . [6512-130]
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- ✓ **Automatic 4D segmentation of the left ventricle in cardiac-CT data**, D. Fritz, J. Kroll, R. Dillmann, Univ. Karlsruhe (Germany); M. Scheuring, Siemens Medical Solutions (Germany) [6512-132]
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✓ **A new associated scheme for segmentation and tracking of endocardium and epicardium from MR cardiac image sequences**, Q. An, Q. Feng, W. Chen, Southern Medical Univ. (China) . . . [6512-137]

✓ **Automated definition of mid-sagittal planes for standardized MRI brain scanning**, H. Chen, Michigan State Univ.; Q. Xu, Vanderbilt Univ.; L. Zhang, A. P. Kiraly, C. Novak, Siemens Corporate Research . . . [6512-138]

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✓ **Tracking shape changes in scoliosis using structured splines**, P. O. Ajemba, N. G. Durdle, Univ. of Alberta (Canada); J. V. Raso, Glenrose Rehabilitation Hospital (Canada) . . . [6512-140]

✓ **Evaluation of Brownian warps for shape alignment**, M. Nielsen, IT Univ. of Copenhagen (Denmark) . . . [6512-141]

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✓ **Partial volume correction of magnetic resonance spectroscopic imaging**, Y. Lu, The Univ. of Iowa; D. H. Wu, Univ. of Oklahoma Health Sciences Ctr.; V. A. Magnotta, The Univ. of Iowa [6512-147]

✓ **An accurate 3D tongue tissue strain synthesis using pseudo-wavelet reconstruction-based tagline detection**, X. Yuan, Univ. of North Texas; C. R. Ozturk, G. Chi-Fishman, National Institutes of Health . . . [6512-148]

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✓ **A machine learning approach for interactive lesion segmentation**, Y. Li, S. Hara, K. Shimura, Fuji Photo Film Co., Ltd. (Japan) . . . [6512-150]

✓ **Blood vessel classification into arteries and veins in retinal images**, C. Kondermann, D. Kondermann, Ruprecht-Karls-Univ. Heidelberg (Germany); M. Yan, Siemens Corporate Research . . . [6512-151]

✓ **Structural quantification of cartilage changes using statistical parametric mapping**, J. G. Tamez-Peña, M. Barbu-McInnis, S. M. Totterman, VirtualScopics, LLC . . . [6512-152]

✓ **A comparison study of several classifiers for differentiation among obstructive lung diseases on the basis of the features of texture analysis at HRCT**, Y. Lee, Seoul National Univ. (South Korea); J. Seo, Univ. of Ulsan (South Korea); B. Kang, D. Kim, J. Lee, Seoul National Univ. (South Korea); S. S. Kim, Univ. of Ulsan (South Korea); N. Kim, S. Kang, Seoul National Univ. (South Korea) . . . [6512-153]

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✓ **Analyzing μ CT images of bone specimens with wavelets and scaling indices: which texture measure does better depict the trabecular bone structure?**, C. W. Raeth, Max-Planck-Institut für extraterrestrische Physik (Germany); J. Bauer, D. Mueller, E. J. Rummeny, Technische Univ. München (Germany); T. M. Link, S. Majumdar, Univ. of California/San Francisco; F. Eckstein, Paracelsus Medizinische Privatuniv. (Austria); R. A. Monetti, Max-Planck-Institut für extraterrestrische Physik (Germany) . . . [6512-155]

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✓ **Orientation-weighted local Minkowski functionals in 3D for quantitative assessment of trabecular bone structure in the hip**, H. F. Boehm, H. Bitterling, C. Weber, V. Kuhn, F. Eckstein, M. Reiser, Ludwig-Maximilians-Univ. München (Germany) . . [6512-157]

✓ **A comparison of texture models for automatic liver segmentation**, M. T. Pham, R. Susomboon, T. Disney, D. S. Raicu, J. D. Furst, DePaul Univ. . . . [6512-158]

✓ **The performance improvement of differentiation among obstructive lung diseases on the basis of the features of texture and shape analysis at HRCT**, Y. Lee, N. Kim, Seoul National Univ. (South Korea); J. Seo, Univ. of Ulsan (South Korea); J. Lee, S. Kang, Seoul National Univ. (South Korea) [6512-159]

✓ **Boundary refined texture segmentation on liver biopsy images**

for quantitative assessment of fibrosis severity, E. Song, R. Jin, Y. Luo, X. Xu, Huazhong Univ. of Science and Technology (China); C. Hung, Southern Polytechnic State Univ. . . . [6512-160]

✓ **Application of the scaling index method to μ CT tomographic images of human trabecular bone for the characterization of biomechanical strength**, R. A. Monetti, Max-Planck-Institut für extraterrestrische Physik (Germany); J. Bauer, D. Mueller, E. J. Rummeny, Technische Univ. München (Germany); M. Matsuura, Ludwig-Maximilians-Univ. München (Germany); F. Eckstein, Paracelsus Medizinische Privatuniv. (Austria); T. M. Link, Univ. of California/San Francisco; C. W. Raeth, Max-Planck-Institut für extraterrestrische Physik (Germany) . . . [6512-161]

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✓ **Performance analysis of cervix ROI extraction and specular reflection removal algorithms for uterine cervix image analysis**, Z. Xue, National Institutes of Health; S. K. Antani, L. R. Long, National Library of Medicine; J. Jeronimo, National Cancer Institute; G. R. Thoma, National Library of Medicine . . . [6512-163]

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✓ **A fast and efficient algorithm for volumetric medical data compression and retrieval**, L. Ye, Texas Tech Univ.; J. Guo, Beijing Institute of Technology at Zhuhai (China); S. D. Mitra, B. S. Nutter, Texas Tech Univ. . . . [6512-168]

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✓ **Visual enhancement of interval changes using a temporal subtraction technique**, D. Seghers, D. Loeckx, F. Maes, P. Suetens, Katholieke Univ. Leuven (Belgium) . . . [6512-173]

Conference 6513 Ultrasonic Imaging and Signal Processing

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✓ **Automatic ultrasonic breast lesions detection using support vector machine based algorithm**, C. Yeh, National Tsing Hua Univ. (Taiwan); S. Miao, W. Fan, Y. Chen, Yuan Ze Univ. (Taiwan) . . . [6513-41]

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- ✓ **Effective and versatile software beamformation toolbox**, J. Kortbek, S. Nikolov, J. A. Jensen, Danmarks Tekniske Univ. (Denmark) [6513-45]
- ✓ **Differential maximum Doppler frequency for transverse flow estimation**, C. Shen, C. Chou, National Taiwan Univ. of Science and Technology (Taiwan) [6513-46]
- ✓ **A new sonographic method for the evaluation of skin permeability changes after irradiation with low frequency ultrasound**, R. Novario, Univ. degli Studi dell'Insubria (Italy); F. Tanzi, Ospedale di Circolo e Fondazione Macchi Varese (Italy); A. Goddi, Univ. degli Studi di Milano (Italy); R. Monico, Ospedale di Circolo e Fondazione Macchi Varese (Italy); C. Fachinetti, Univ. degli Studi di Milano (Italy); M. Lega, Ospedale di Circolo e Fondazione Macchi Varese (Italy); R. Onori, F. Pavani, Teuco Guzzini S.p.A. (Italy) ... [6513-47]
- ✓ **Multilayer perception based level sets for robust ultrasound image segmentation**, M. Mora, C. Tauber, H. Batatia, Ecole Nationale Supérieure d'Electrotechnique (France) .. [6513-49]
- ✓ **Contour active model initialized with ellipse fitting: application for venous thrombosis segmentation in ultrasound imaging**, D. Mounir, French Research Institute for Exploitation of the Sea (France); B. Solaiman, Ecole Nationale Supérieure des Télécommunications (France); L. Bressollette, Ecole Nationale Supérieure des Télécommunications (France) [6513-51]
- ✓ **Real-time simulator for intravascular ultrasound (IVUS)**, C. Abkai, J. Hesser, Univ. Mannheim (Germany) .. [6513-52]
- ✓ **Enhancement of elasticity images using locally adaptive Gaussian filtering**, K. Hoyt, B. Castaneda, M. Zhang, D. Rubens, K. J. Parker, Univ. of Rochester [6513-53]
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- ✓ **Ultrasound imaging for cavitation detection during HIFU ablation in brain**, T. Long, V. R. Amin, Iowa State Univ. [6513-55]
- ✓ **Optimization and realization of decoding arithmetic in coded-excitation system**, J. He, Beijing Normal Univ. (China) [6513-56]

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<p>Conference 6509 continued Visualization and Image-Guided Procedures Room: San Diego</p>	<p>Conference 6510 continued Physics of Medical Imaging Room: Town & Country</p>	<p>Conference 6511 continued Physiology, Function, and Structure from Medical Images Room: Royal Palm I</p>	<p>Conference 6512 continued Image Processing Room: California</p>	<p>Conference 6513 continued Ultrasonic Imaging and Signal Processing Room: Golden West</p>
<p>SESSION 5 Room: San Diego Mon. 8:00 to 9:40 am</p> <p>Cardiac I <i>Chairs: Guy Shechter</i>, Philips Research North America; <i>David R. Holmes III</i>, Mayo Clinic</p> <p>☆8:00 am: An augmented reality environment for image-guidance of off-pump mitral valve implantation, C. Linte, A. D. Wiles, N. A. Hill, Robarts Research Institute and The Univ. of Western Ontario (Canada); J. C. Moore, C. Wedlake, Robarts Research Institute and The Univ. of Western Ontario (Canada); D. G. Jones, Lawson Health Research Institute and The Univ. of Western Ontario (Canada); D. Bainbridge, The Univ. of Western Ontario (Canada); T. M. Peters, Robarts Research Institute and The Univ. of Western Ontario (Canada) [6509-22]</p> <p>8:20 am: Monte Carlo simulated coronary angiograms of realistic anatomy and pathology models, I. S. Kyprianou, A. Badal, A. Badano, D. P. T. Banh, K. J. Myers, L. Thompson, U.S. Food and Drug Administration [6509-23]</p> <p>8:40 am: 4D gated rotational coronary angiography: first in-human results, B. Movassaghi, Philips Research North America; D. Schaefer, M. Grass, V. Rasche, Philips Research Labs. (Germany); O. Wink, J. Y. Chen, B. M. Groves, J. Garcia, J. C. Messenger, J. D. Carroll, Univ. of Colorado Health Sciences Ctr. . . [6509-24]</p> <p>9:00 am: MRI evaluation of RF ablation scarring for atrial fibrillation treatment, Y. Ishihara, Harvard Univ.; R. Nezafat, J. V. Wylie, Beth Israel Deaconess Medical Ctr.; M. G. Linguraru, Harvard Univ.; M. E. Josephson, Beth Israel Deaconess Medical Ctr.; R. D. Howe, Harvard Univ.; W. J. Manning, D. C. Peters, Beth Israel Deaconess Medical Ctr. [6509-25]</p> <p>9:20 am: Intraoperative fusion of electroanatomical maps (EAM) with imaging data based on rapidly sampled volumetric point clouds from continuous EAM catheter tracking, R. C. Chan, Philips Research North America; Z. J. Malchano, Massachusetts General Hospital; R. M. Manzke, Philips Research North America; R. Vijaykumar, Massachusetts General Hospital; L. Zagorchev, Philips Research North America; V. Y. Reddy, Massachusetts General Hospital [6509-81] Coffee Break 9:40 to 10:10 am</p> <p>6509 continues on page 23 ▶▶▶</p>	<p>SESSION 5 Room: Town & Country ... Mon. 8:00 to 9:40 am</p> <p>Detector Technology <i>Chair: Michael Overdick</i>, Phillips Research Labs. (Germany)</p> <p>8:00 am: A scanning system for intelligent imaging: I-ImaS, R. Longo, Univ. degli Studi di Trieste (Italy); D. Cavouras, Technological Education Institute of Athens (Greece); C. Esbrand, Univ. College London (United Kingdom); I. Evangelou, Univ. of Ioannina (Greece); A. Fant, P. Gasiorek, Rutherford Appleton Lab. (United Kingdom); H. Georgiou, Univ. of Athens (Greece); G. Hall, J. Jones, J. Leaver, Imperial College London (United Kingdom); J. Griffiths, Univ. College of London (United Kingdom); D. Machin, Imperial College London (United Kingdom); N. Manthos, Univ. of Ioannina (Greece); M. G. Metaxas, Univ. College of London (United Kingdom); M. Noy, Imperial College London (United Kingdom); J. M. Ostby, SINTEF ICT (Norway); F. Pomadellis, ANCO S.A. (Greece); T. Rokvic, Univ. degli Studi di Trieste (Italy); G. J. Royle, Univ. College London (United Kingdom); H. Schulerud, SINTEF ICT (Norway); R. D. Speller, Univ. College London (United Kingdom); P. F. van der Stelt, Academisch Ctr. Tandheelkunde Amsterdam (Netherlands); S. Theodoridis, Univ. of Athens (Greece); F. Triantis, Univ. of Ioannina (Greece); R. A. D. Turchetta, Rutherford Appleton Lab. (United Kingdom); C. Venanzi, Univ. College London (United Kingdom) [6510-21]</p> <p>8:20 am: Photon-counting gamma camera based on columnar CsI(Tl) optically coupled to a back-illuminated CCD, B. W. Miller, H. B. Barber, H. H. Barrett, L. Chen, The Univ. of Arizona; S. J. Taylor, Lockheed Martin Corp. . . [6510-22]</p> <p>8:40 am: Wafer scale CMOS detector for generic X-ray radiology, D. Scheffer, Cypress Semiconductor Corp. (Belgium) [6510-23]</p> <p>9:00 am: Quantitative exploration of performance enhancements offered by active matrix x-ray imagers fabricated on plastic substrates, L. E. Antonuk, Y. Wang, M. Behravan, Y. El-Mohri, Q. Zhao, H. Du, Univ. of Michigan; A. Badano, CDRH/U.S. Food and Drug Administration . . [6510-24]</p> <p>9:20 am: Dark current and DQE improvements of mercuric iodide medical imagers, G. Zentai, L. D. Partain, R. Pavlyuchkova, Varian Medical Systems, Inc.; L. Melekhov, O. Dagan, H. Gilboa, Real-Time Radiography, Ltd. (Israel) . . [6510-25] Coffee Break 9:40 to 10:10 am</p> <p>6510 continues on page 23 ▶▶▶</p>	<p>SESSION 5 Room: Royal Palm I Mon. 8:00 to 9:40 am</p> <p>Virtual Endoscopy I: Virtual Bronchoscopy and Related Methods <i>Chair: Ronald M. Summers</i>, National Institutes of Health</p> <p>8:00 am: A model of respiratory airway motion for real-time tracking of an ultrathin bronchoscope, T. D. Soper, D. R. Haynor, R. W. Glenn, E. J. Seibel, Univ. of Washington [6511-21]</p> <p>8:20 am: A method for bronchoscopy tracking using position sensor without fiducial markers, D. Deguchi, K. Ishitani, T. Kitasaka, K. Mori, Y. Suenaga, Nagoya Univ. (Japan); H. Takabatake, Minami Sanjyo Hospital (Japan); M. Mori, Sapporo Kosei Hospital (Japan); H. Natori, Sapporo Medical Univ. (Japan) [6511-22]</p> <p>8:40 am: Method for continuous guidance of endoscopy, W. E. Higgins, S. A. Merritt, L. Rai, J. D. Gibbs, K. Yu, The Pennsylvania State Univ. [6511-23]</p> <p>9:00 am: Airway wall thickness assessment: a new functionality in virtual bronchoscopy investigation, A. Saragaglia, C. I. Fetita, F. J. Prêteux, Institut National des Télécommunications (France); P. A. Grenier, Pitié-Salpêtrière (France) [6511-24]</p> <p>9:20 am: 3D adaptive model-based segmentation of human vessels, S. Wörz, K. Rohr, Institut für Pharmazie und Molekulare Biotechnologie (Germany) and Deutsches Krebsforschungszentrum (Germany) [6511-88] Coffee Break 9:40 to 10:10 am</p> <p>6511 continues on page 23 ▶▶▶</p>	<p>SESSION 5 Room: California Mon. 8:00 to 9:40 am</p> <p>Texture and Pattern Recognition <i>Chair: Bram van Ginneken</i>, Image Sciences Institute (Netherlands)</p> <p>8:00 am: Texture classification of normal tissues in computed tomography using Gabor filters, L. Dettori, A. Bashir, DePaul Univ.; J. Hasemann, Governor State Univ. [6512-25]</p> <p>8:20 am: Solid components evaluation in mixed ground glass nodules with vessel analysis in MSCT images, B. L. Odry, Siemens Corporate Research; J. Huo, Univ. Ulm (Germany); L. Zhang, C. L. Novak, Siemens Corporate Research; D. P. Naidich, New York Univ. [6512-26]</p> <p>8:40 am: Semantics and image content integration for pulmonary nodule interpretation in thoracic computed tomography, E. Varutbangkul, J. Cisneros, D. S. Raicu, J. D. Furst, DePaul Univ.; D. S. Channin, Northwestern Univ. Medical School; S. G. Armato III, The Univ. of Chicago [6512-27]</p> <p>9:00 am: Multiscale shape features for classification of bronchovascular anatomy in CT using AdaBoost, R. Ochs, J. G. Goldin, F. Abtin, H. J. Kim, K. Brown, P. Batra, D. Roback, M. F. McNitt-Gray, M. S. Brown, Univ. of California/Los Angeles [6512-28]</p> <p>9:20 am: Automated arterial input function identification using self-organizing maps, J. J. Jain, J. O. Glass, W. E. Reddick, St. Jude Children's Research Hospital [6512-29] Coffee Break 9:40 to 10:10 am</p> <p>6512 continues on page 23 ▶▶▶</p>	<p>SESSION 5 Room: Golden West Mon. 8:00 to 9:30 am</p> <p>Tissue Characterization <i>Chair: William F. Walker</i>, Univ. of Virginia</p> <p>8:00 am: Challenges facing tissue characterization from backscattered intravascular ultrasound signals, A. Katouzian, Columbia Univ.; S. Sathyanarayana, W. Li, T. Thomas, Boston Scientific Corp.; S. G. Carlier, Columbia Univ. [6513-23]</p> <p>8:15 am: A new approach to analysis of RF ultrasound echo signals for tissue characterization: results of animal studies, M. Moradi, P. Mousavi, P. Isotalo, D. R. Siemens, E. E. Sauerbrei, P. Abolmaesumi, Queen's Univ. (Canada) [6513-24]</p> <p>8:30 am: Quantitative tissue characterization of breast ultrasound images using a PE-CMOS sensor array, S. B. Lo, T. I. Hsieh, C. C. Liu, E. Makariou, A. Sarcone, Georgetown Univ. Medical Ctr.; M. E. Lasser, Imperium, Inc.; Y. J. Wang, Virginia Polytechnic Institute and State Univ. [6513-25]</p> <p>8:45 am: Optoacoustic imaging of blood vessels, I. Patrikeev, H. F. Q. Brecht, Y. Y. Petrov, I. Y. H. Petrova, D. S. Prough, R. O. Esenaliev, The Univ. of Texas Medical Branch at Galveston [6513-26]</p> <p>9:00 am: Measurement of a 2D electric dipole field using the acousto-electric effect, R. Olafsson, R. S. Witte, M. O'Donnell, Univ. of Michigan . . . [6513-28]</p> <p>9:15 am: Effect of third harmonic transmit phasing on second harmonic generation, C. Shen, Y. Wang, National Taiwan Univ. of Science and Technology (Taiwan) [6513-29] Coffee Break 9:30 to 10:10 am</p> <p>6513 continues on page 23 ▶▶▶</p>

<p>Conference 6509 continued Visualization and Image-Guided Procedures Room: San Diego</p>	<p>Conference 6510 continued Physics of Medical Imaging Room: Town & Country</p>	<p>Conference 6511 continued Physiology, Function, and Structure from Medical Images Room: Royal Palm I</p>	<p>Conference 6512 continued Image Processing Room: California</p>	<p>Conference 6513 continued Ultrasonic Imaging and Signal Processing Room: Golden West</p>
<p>SESSION 6 Room: San Diego . . . Mon. 10:10 am to 12:10 pm Keynote and Cardiac II <i>Chair: Terry M. Peters, Roberts Research Institute (Canada)</i></p> <p><i>Keynote</i> 10:10 am: New methods for image guidance and visualization for cardiac procedures, E. R. McVeigh, NHLBI/National Institutes of Health . . . [6509-27]</p> <p>11:10 am: Rotational X-ray angiography: a method for intra-operative volume imaging of the left-atrium and pulmonary veins for atrial fibrillation ablation guidance, R. M. Manzke, L. Zagorchev, Philips Research North America; A. d'Avila, A. Thiagalingam, I. Ho, V. Y. Reddy, Massachusetts General Hospital; R. C. Chan, Philips Research North America . . . [6509-28]</p> <p>11:30 am: Interactive physical simulation of catheter motion for mayor vessel structures and cavities for to ASD/VSD treatment, N. Becherer, J. Hesser, Univ. Mannheim (Germany); U. Kornmesser, Cathi GmbH (Germany); D. Schranz, Justus-Liebig Univ. Giessen (Germany); R. Männer, Univ. Mannheim (Germany) [6509-29]</p> <p>Panel Discussion . . . 11:50 am to 12:10 pm Lunch Break 12:10 to 1:20 pm</p> <p>6509 continues on page 24 ➡</p>	<p>SESSION 6 Room: Town & Country Mon. 10:10 am to 12:10 pm Innovative Imaging II <i>Chair: Michael J. Flynn, Henry Ford Health System</i></p> <p>10:10 am: A sub-matrix method for extracting x-ray coherent scattering form factors from image plate data, B. W. King, P. C. Johns, Carleton Univ. (Canada) [6510-26]</p> <p>☆10:30 am: Prism array lenses as an energy filter in medical x-ray imaging, E. Fredenberg, B. Cederström, M. E. Danielsson, Kungliga Tekniska Högskolan (Sweden) [6510-27]</p> <p>10:50 am: Phase contrast mammography with synchrotron radiation: physical aspects of the clinical trial, R. Longo, Univ. degli Studi di Trieste (Italy) and INFN sezione di Trieste (Italy); A. Abrami, Sincrotrone Trieste S.C.p.A. (Italy); F. Arfelli, P. Bregant, Univ. degli Studi di Trieste (Italy); V. Chenda, Sincrotrone Trieste S.C.p.A. (Italy); M. A. Cova, Univ. degli Studi di Trieste (Italy); D. Dreossi, Univ. degli Studi di Trieste (Italy) and INFN sezione di Trieste (Italy); F. de Guarrini, Univ. degli Studi di Trieste (Italy); R. H. Menk, E. Quai, Sincrotrone Trieste S.C.p.A. (Italy); T. Rokvic, Univ. degli Studi di Trieste (Italy) and INFN sezione di Trieste (Italy); M. Tonutti, Univ. degli Studi di Trieste (Italy); G. Tromba, Sincrotrone Trieste S.C.p.A. (Italy); F. Zanconati, Univ. degli Studi di Trieste (Italy); E. Castelli, Univ. degli Studi di Trieste (Italy) and INFN sezione di Trieste (Italy) [6510-28]</p> <p>11:10 am: Dual-energy contrast enhanced digital breast tomosynthesis: concept, method and evaluation on phantoms, S. Puong, GE Healthcare France (France) and Univ. Paris XI (France); F. Patoureaux, R. Iordache, X. Bouchevreau, S. L. Muller, GE Healthcare France (France) . . [6510-29]</p> <p>11:30 am: A prototype instrument for adaptive SPECT imaging, M. Freed, M. A. Kupinski, L. R. Furenliid, M. K. Whitaker, H. H. Barrett, The Univ. of Arizona [6510-30]</p> <p>11:50 am: Multiplexing radiography based on carbon nanotube field emission X-ray technology, J. Zhang, G. Yang, Y. Lee, S. Chang, J. Lu, O. Zhou, The Univ. of North Carolina at Chapel Hill [6510-31]</p> <p>Lunch Break 12:10 to 1:20 pm</p> <p>510 continues on page 24 ➡</p>	<p>SESSION 6 Room: Royal Palm I . Mon. 10:10 am to 12:10 pm Virtual Endoscopy II: CT Colonography <i>Chair: William E. Higgins, The Pennsylvania State Univ.</i></p> <p>10:10 am: Colonoscopy simulation, W. Hong, J. Wang, F. Qiu, A. E. Kaufman, J. Anderson, Stony Brook Univ. . [6511-26]</p> <p>10:30 am: Colonic wall thickness using level sets for CT virtual colonoscopy visual assessment and polyp detection, R. Van Uitert, R. M. Summers, National Institutes of Health [6511-27]</p> <p>10:50 am: Slice-based guided navigation for colonography, S. Sudarsky, B. Geiger, Siemens Corp. Research [6511-28]</p> <p>11:10 am: Using the teniae coli as a registration tool in CT colonography, P. A. Jabour, A. Huang, R. M. Summers, National Institutes of Health . . . [6511-29]</p> <p>11:30 am: Gain by mixture-based image segmentation for virtual colonoscopy with colonic material tagging, L. Li, College of Staten Island/CUNY; Z. Wang, S. Wang, J. Wang, Z. Liang, Stony Brook Univ. [6511-30]</p> <p>11:50 am: CT colonography of the unprepared colon: an evaluation of electronic stool subtraction, R. J. Carston, A. Manduca, R. J. Wentz, C. D. Johnson, Mayo Clinic [6511-31]</p> <p>Lunch Break 12:10 to 1:20 pm</p> <p>6511 continues on page 24 ➡</p>	<p>SESSION 6 Room: California . . . Mon. 10:10 am to 12:10 pm Segmentation II: Methodology <i>Chair: Sebastien Ourselin, Commonwealth Scientific and Industrial Research Organisation (Australia)</i></p> <p>10:10 am: A probabilistic level set formulation for interactive organ segmentation, D. Cremers, Univ. Bonn (Germany); O. Fluck, M. Rousson, A. Shmuel, Siemens Corporate Research [6512-30]</p> <p>10:30 am: Oriented active shape models for 3D segmentation in medical images, J. Liu, J. K. Udupa, Univ. of Pennsylvania [6512-31]</p> <p>10:50 am: 3D skeleton parameterization for medial shape representation using manifold learning, A. D. Ward, G. Hamarneh, Simon Fraser Univ. (Canada) [6512-32]</p> <p>11:10 am: A learning-based automatic clinical organ segmentation in medical images, X. Liu, J. Samarabandu, The Univ. of Western Ontario (Canada); S. Li, GE Healthcare (Canada); I. D. Ross, London Health Sciences Ctr. (Canada); G. Garvin, St. Joseph's Hospital (Canada) . . [6512-33]</p> <p>11:30 am: HWT-hybrid watershed transform: optimal combination of hierarchical interactive and automated image segmentation, H. K. Hahn, M. T. Wenzel, J. Drexl, S. Zentis, H. Peitgen, MeVis GmbH (Germany) [6512-34]</p> <p>11:50 am: Multiscale shape prior using wavelet packet representation and independent component analysis, R. F. Zewail, A. S. ElSafi, N. G. Durdle, Univ. of Alberta (Canada) [6512-35]</p> <p>Lunch Break 12:10 to 1:20 pm</p> <p>6512 continues on page 24 ➡</p>	<p>SESSION 6 Room: Golden West . Mon. 10:10 am to 12:10 pm Image Processing and Registration <i>Chair: Michael F. Insana, Univ. of Illinois at Urbana-Champaign</i></p> <p>10:10 am: Multi-dimensional spline-based non-rigid image registration, W. F. Walker, F. Viola, Univ. of Virginia [6513-30]</p> <p>10:30 am: Interframe registration of IVUS images due to catheter rotation with feature-based optical flow, M. G. Danilouchkine, F. Mastik, A. F. W. van der Steen, Univ. Medisch Ctr. Rotterdam (Netherlands) [6513-31]</p> <p>10:50 am: Adaptive spatial compounding for improving ultrasound images of the epidural space, D. Tran, R. N. Rohling, The Univ. of British Columbia (Canada) [6513-32]</p> <p>11:10 am: Spatio-temporal nonrigid registration for 3D ultrasound cardiac motion estimation, D. Loeckx, J. Ector, F. Maes, J. D'hooge, D. Vandermeulen, J. Voigt, H. Heidbüchel, P. Suetens, Katholieke Univ. Leuven (Belgium) [6513-33]</p> <p>11:30 am: Speckle suppression for 3D ultrasound images using nonlinear multiscale wavelet diffusion, Y. Yue, J. W. Clark, Jr., Rice Univ. [6513-34]</p> <p>11:50 am: Reduction of attenuation effects in 3D transrectal ultrasound images, H. Frimmel, O. Acosta, Commonwealth Scientific and Industrial Research Organisation (Australia); A. Fenster, Roberts Research Institute (Canada); S. Ourselin, Commonwealth Scientific and Industrial Research Organisation (Australia) [6513-35]</p> <p>Lunch Break 12:10 to 1:20 pm</p> <p>6513 continues on page 24 ➡</p>

<p>Conference 6509 continued Visualization and Image-Guided Procedures Room: San Diego</p>	<p>Conference 6510 continued Physics of Medical Imaging Room: Town & Country</p>	<p>Conference 6511 continued Physiology, Function, and Structure from Medical Images Room: Royal Palm I</p>	<p>Conference 6512 continued Image Processing Room: California</p>	<p>Conference 6513 continued Ultrasonic Imaging and Signal Processing Room: Golden West</p>
<p>SESSION 7 Room: San Diego Mon. 1:20 to 3:00 pm Ultrasound <i>Chair: Robert L. Galloway, Jr., Vanderbilt Univ.</i></p> <p>1:20 pm: Augmenting CT cardiac roadmaps with segmented streaming ultrasound, Q. Duan, G. Shechter, L. F. Gutierrez, D. Stanton, L. Zagorchev, Philips Research North America; A. F. Laine, Columbia Univ.; D. R. Elgort, Philips Research North America [6509-30]</p> <p>1:40 pm: Navigation accuracy for an intra-cardiac procedure using VR-enhanced ultrasound, A. D. Wiles, The Univ. of Western Ontario and Robarts Research Institute (Canada); G. Guiraudon, Robarts Research Institute and Lawson Health Research Institute (Canada); J. C. Moore, C. Wedlake, Robarts Research Institute (Canada); N. A. Hill, The Univ. of Western Ontario and Robarts Research Institute (Canada); D. Bainbridge, The Univ. of Western Ontario (Canada); D. G. Jones, Lawson Health Research Institute and The Univ. of Western Ontario (Canada); T. M. Peters, The Univ. of Western Ontario and Robarts Research Institute (Canada) [6509-31]</p> <p>2:00 pm: Real-time motion tracking using 3D ultrasound, S. Xu, J. Kruecker, Philips Research North America; S. Settlemier, Philips Medical Systems; B. J. Wood, National Institutes of Health [6509-32]</p> <p>2:20 pm: Evaluation of a prototype 3D ultrasound system for multimodality imaging of cervical nodes for adaptive radiation therapy, D. Fraser, McGill Univ. (Canada); P. Falva, F. Cury, T. Vuong, Montreal General Hospital (Canada); T. Falco, Resonant Medical Inc. (Canada); F. Verhaegen, McGill Univ. (Canada) [6509-33]</p> <p>2:40 pm: A novel graphical user interface for ultrasound-guided shoulder arthroscopic surgery, K. Tyryshkin, P. Mousavi, M. Beek, D. Pichora, P. Abolmaesumi, Queen's Univ. (Canada) [6509-34]</p> <p>6509 continues on page 25 ▶▶</p>	<p>SESSION 7 Room: Town & Country ... Mon. 1:20 to 3:00 pm System Modeling <i>Chair: Christoph Hoeschen, Forschungszentrum für Umwelt und Gesundheit, GmbH (Germany)</i></p> <p>1:20 pm: Scattered radiation in flat-detector based cone-beam CT: propagation of signal, contrast and noise into reconstructed volumes, J. Wiegert, S. Hohmann, M. Bertram, Philips Research Labs. (Germany) [6510-32]</p> <p>1:40 pm: Validation of simulated point-response functions in columnar phosphor screens, A. Badano, I. S. Kyrianiou, K. H. Tang, A. Saha, U.S. Food and Drug Administration [6510-33]</p> <p>☆2:00 pm: Monte Carlo package for simulating radiographic images of realistic anthropomorphic phantoms described by triangle meshes, A. Badal, Univ. Politècnica de Catalunya (Spain) and U.S. Food and Drug Administration; I. S. Kyrianiou, A. Badano, U.S. Food and Drug Administration; J. Sempau, Univ. Politècnica de Catalunya (Spain); K. J. Myers, U.S. Food and Drug Administration .. [6510-34]</p> <p>2:20 pm: Wiener estimation of a parameterized tumor model for SPECT imaging, M. K. Whitaker, The Univ. of Arizona [6510-35]</p> <p>2:40 pm: Noise transfer analysis of base material decomposition methods, B. J. Heismann, Siemens Medical Solutions (Germany) [6510-36]</p> <p>6510 continues on page 25 ▶▶</p>	<p>SESSION 7 Room: Royal Palm I Mon. 1:20 to 3:00 pm Lung Imaging <i>Chair: Eric A. Hoffman, The Univ. of Iowa Hospitals and Clinics</i></p> <p>1:20 pm: Noninvasive quantification of the time course of lung radiation dose response in humans, W. G. O'Dell, P. Wang, H. Liu, D. Fuller, M. Schell, P. Okunieff, Univ. of Rochester .. [6511-32]</p> <p>1:40 pm: Surface-based cardiac and respiratory motion extraction for pulmonary structures from multiphase CT, J. von Berg, H. Barschdorf, Philips Research Labs. (Germany); T. Blaffert, Phillips Research Labs (Germany); S. Kabus, C. Lorenz, Philips Research Labs. (Germany) [6511-33]</p> <p>2:00 pm: The effect of lung orientation on functional imaging of blood flow, K. S. Burrows, M. H. Tawhai, The Univ. of Auckland (New Zealand) [6511-34]</p> <p>2:20 pm: Automated detection of mucus plugs within bronchial tree in MSCT images, B. L. Odry, D. Guilliguan, A. P. Kiraly, C. L. Novak, Siemens Corp. Research; D. P. Naidich, New York Univ.; J. Lerallut, Univ. of Compiègne (France) [6511-35]</p> <p>2:40 pm: Novel method and applications for labeling and identifying lymph nodes, A. P. Kiraly, Siemens Corp. Research; D. P. Naidich, New York Univ.; L. Guendel, Siemens Medical Solutions; L. Zhang, C. L. Novak, Siemens Corp. Research [6511-36]</p> <p>Coffee Break 3:00 to 3:30 pm</p> <p>6511 continues on page 25 ▶▶</p>	<p>SESSION 7 Room: California Mon. 1:20 to 3:40 pm Segmentation III: Applications <i>Chair: Jayaram K. Udupa, Univ. of Pennsylvania</i></p> <p>1:20 pm: Automatic detection of diseased regions in knee cartilage, A. A. Qazi, E. B. Dam, O. F. Olsen, M. Nielsen, IT Univ. of Copenhagen (Denmark); C. Christiansen, Ctr. for Clinical and Basic Research (Denmark) [6512-36]</p> <p>1:40 pm: Shape-based segmentation of MRIs of the bones in the knee, J. E. Fripp, P. T. Bourgeat, Commonwealth Scientific and Industrial Research Organisation (Australia); S. Crozier, Univ. of Queensland (Australia); S. Ourselin, Commonwealth Scientific and Industrial Research Organisation (Australia) [6512-37]</p> <p>2:00 pm: Probabilistic retinal vessel segmentation, C. Wu, Kettering Univ.; G. Agam, Illinois Institute of Technology [6512-38]</p> <p>☆2:20 pm: Automated segmentation of intraretinal layers from macular optical coherence tomography images, M. Haeker, M. Sonka, The Univ. of Iowa; R. H. Kardon, The Univ. of Iowa Hospitals and Clinics; V. A. Shah, Univ. of Missouri/Kansas City; X. Wu, The Univ. of Iowa; M. D. Abramoff, The Univ. of Iowa Hospitals and Clinics [6512-39]</p> <p>2:40 pm: Segmentation of the optic nerve head combining pixel classification and graph search, M. B. Merickel, Jr., The Univ. of Iowa; M. D. Abramoff, The Univ. of Iowa Hospitals and Clinics; M. Sonka, X. Wu, The Univ. of Iowa [6512-40]</p> <p>3:00 pm: Automatic delineation of the optic nerves and chiasm on CT images, M. Gensheimer, A. J. Cmelak, K. Niermann, B. M. Dawant, Vanderbilt Univ. . . [6512-41]</p> <p>3:20 pm: (ST) A new general tumor segmentation framework based on radial basis function energy minimization with a validation study on LIDC lung nodules, R. Opfer, R. Wiemker, Philips Research Labs. (Germany) [6512-42]</p> <p>3:30 pm: (ST) Deriving Bayesian priors from expectation-maximization weights and neighboring posteriors: applications for brain MRI segmentation, J. M. Melonakos, A. Tannenbaum, Y. Gao, Georgia Institute of Technology . [6512-43]</p> <p>6512 continues on page 25 ▶▶</p>	<p>SESSION 7 Room: Golden West Mon. 1:20 to 3:20 pm Segmentation and Computer-Aided Diagnosis <i>Chair: Stephen A. McAleavey, Univ. of Rochester</i></p> <p>1:20 pm: Semi-automatic ultrasonic full-breast scanner and computer-assisted detection system for breast cancer mass screening, E. Takada, Dokkyo Univ. School of Medicine (Japan); Y. Ikedo, D. Fukuoka, T. Hara, H. Fujita, Gifu Univ. (Japan); T. Endo, National Nagoya Hospital (Japan); T. Morita, Chunichi Hospital (Japan) [6513-37]</p> <p>1:40 pm: Artifact-free volume clipping algorithm for real-time 3D ultrasound, K. Karadayi, V. T. Shamdasani, Univ. of Washington; R. A. Managuli, Hitachi Medical Systems America, Inc. and Univ. of Washington; Y. Kim, Univ. of Washington [6513-38]</p> <p>2:00 pm: The application of the principle of conserved myocardium volume in guiding automated chamber estimation in mouse cardiac imaging, C. D. Garson, J. A. Hossack, B. Li, Univ. of Virginia [6513-39]</p> <p>2:20 pm: Accuracy estimation in freehand ultrasound probe calibration, M. Moghari, P. Abolmaesumi, Queen's Univ. (Canada) [6513-50]</p> <p>2:40 pm: Segmenting surfaces of arbitrary topology: a two-step approach, J. Abhau, Leopold-Franzens-Univ. Innsbruck (Austria); W. Hinterberger, MathConsult GmbH (Austria); O. Scherzer, Leopold-Franzens-Univ. Innsbruck (Austria) and MathConsult GmbH (Austria) [6513-42]</p> <p>3:00 pm: Accurate fiducial location for freehand 3D ultrasound calibration, P. Hsu, R. W. Prager, N. E. Houghton, A. H. Gee, G. M. Treece, Univ. of Cambridge (United Kingdom) [6513-48]</p>
<p>Best Student Paper Award and Plenary Presentation <i>Town & Country Room · 4:00 to 5:00 pm</i> <i>Chair: Elizabeth Krupinski, The Univ. of Arizona</i> Michael B. Merickel Student Paper Award Plenary Presentation: Human and artificial vision systems Maria Petrou, Imperial College (United Kingdom) Please join us for a poster reception from 5:00 to 6:30 pm this evening in the Golden Pacific Ballroom. Poster awards will be presented at 6:00 pm.</p>				

<p>Conference 6509 continued Visualization and Image-Guided Procedures Room: San Diego</p>	<p>Conference 6510 continued Physics of Medical Imaging Room: Town & Country</p>	<p>Conference 6511 continued Physiology, Function, and Structure from Medical Images Room: Royal Palm I</p>	<p>Conference 6512 continued Image Processing Room: California</p>	<p>Conference 6514 continued Computer-Aided Diagnosis Room: Golden West</p>
<p>SESSION 8 Room: San Diego Tues. 8:00 to 9:40 am Prostate <i>Chair: Kenneth H. Wong, Georgetown Univ.</i> 8:00 am: Development of a 3D ultrasound-guided prostate biopsy system, D. W. Cool, The Univ. of Western Ontario (Canada); S. Sherebrin, Robarts Research Institute (Canada); J. Izawa, London Health Sciences Ctr. (Canada); D. B. Downey, A. Fenster, Robarts Research Institute (Canada) [6509-35] 8:20 am: Soft tissue navigation for laparoscopic prostatectomy: evaluation of camera pose estimation for enhanced visualization, M. Baumhauer, T. Simpfendorfer, R. Schwarz, M. Seitel, Deutsches Krebsforschungszentrum (Germany); B. P. Müller-Stich, C. N. Gutt, Heidelberg School of Medicine (Germany); J. Rassweiler, Ruprecht-Karls-Univ. Heidelberg (Germany); H. Meinzer, I. Wolf, Deutsches Krebsforschungszentrum (Germany) [6509-36] 8:40 am: Fusion of real-time transrectal ultrasound with preacquired MRI for multimodality prostate imaging, J. Kruecker, S. Xu, Phillips Research North America; N. D. W. Glossop, Traxtal Technologies (Canada); P. Guion, P. L. Choyke, A. Singh, B. J. Wood, National Institutes of Health [6509-37] 9:00 am: Automatic prostate localization using elastic registration of planning CT and daily 3D ultrasound images, J. Wu, O. S. Dandekar, Univ. of Maryland Medical Ctr.; V. Walimbe, Ohio State Univ.; W. D'Souza, R. Shekhar, Univ. of Maryland Medical Ctr. [6509-38] 9:20 am: Seed-based ultrasound and fluoroscopy registration using iterative optimal assignment for intraoperative prostate brachytherapy dosimetry, I. B. Tutar, Univ. of Washington .. [6509-39] Coffee Break 9:40 to 10:10 am 6509 continues on page 26 ▶▶</p>	<p>SESSION 8 Room: Town & Country ... Tues. 8:00 to 9:40 am Cardiac Imaging <i>Chair: Jiang Hsieh, GE Healthcare</i> 8:00 am: Motion-compensated reconstructions of calcified coronary plaques in cardiac CT, M. King, M. L. Giger, X. M. Pan, The Univ. of Chicago [6510-37] 8:20 am: Proposed diagnostic reference levels for 3 common cardiac interventional procedures in Ireland, C. D'Helft, A. M. McGee, L. A. Rainford, Univ. College Dublin (Ireland); S. L. Mc Fadden, C. M. Hughes, R. J. Winder, Univ. of Ulster (United Kingdom) [6510-38] 8:40 am: ECG-gated HYPR reconstruction for undersampled CT myocardial perfusion imaging, M. A. Speidel, M. S. Van Lysel, S. B. Reeder, M. P. Supanich, B. E. Nett, J. N. Zambelli, S. M. Chang, Univ. of Wisconsin/Madison; J. Hsieh, GE Healthcare and Univ. of Wisconsin/Madison; G. Chen, C. A. Mistretta, Univ. of Wisconsin/Madison [6510-39] 9:00 am: Cardiac C-arm CT: 4D non-model based heart motion estimation and its application, M. Pruemmer, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); R. Fahrig, L. Wigström, Stanford Univ.; J. Boese, G. Lauritsch, Siemens Medical Solutions (Germany); N. Strobel, Siemens Medical Solutions (Germany) and Stanford Univ.; J. Hornegger, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) .. [6510-40] 9:20 am: Image-based motion compensated time resolved 4D cardiac CT, K. Taguchi, W. P. Segars, E. K. Fishman, B. M. W. Tsui, Johns Hopkins Univ.[6510-41] Coffee Break 9:40 to 10:10 am 6510 continues on page 26 ▶▶</p>	<p>SESSION 8 Room: Royal Palm I Tues. 8:00 to 9:40 am MRI Brain Analysis <i>Chair: Xiaoping P. Hu, Emory Univ.</i> 8:00 am: Partial correlation mapping of brain function connectivity with resting state fMRI, Z. Zhen, J. Tian, W. Qin, Institute of Automation (China) .. [6511-37] 8:20 am: A novel approach to analyzing fMRI and SNP data via parallel independent component analysis, J. Liu, G. Pearlson, V. Calhoun, The Institute of Living [6511-38] 8:40 am: Real-time fMRI-based activation analysis and stimulus control, T. Moench, M. Hollmann, J. Bernarding, Otto-von-Guericke-Univ. Magdeburg (Germany) [6511-39] 9:00 am: Detection of fine-scale activity patterns by integration of information in local regions, Z. Zhen, J. Tian, W. Qin, Institute of Automation (China) .. [6511-40] 9:20 am: Dimensionality estimation for group fMRI data reduction at multiple levels, S. Chen, Ntaional Institute on Drug Abuse; T. J. Ross, National Institute on Drug Abuse; K. Chuang, National Tsing Hua Univ. (Taiwan); E. A. Stein, Y. Yang, W. Zhan, National Institute on Drug Abuse [6511-41] Coffee Break 9:40 to 10:10 am 6511 continues on page 26 ▶▶</p>	<p>SESSION 8 Room: California Tues. 8:00 to 9:40 am Shape and Deformable Geometry <i>Chair: Aaron Fenster, Robarts Research Institute (Canada)</i> 8:00 am: Vertebral fracture classification, M. de Bruijne, IT-Univ. i Kobenhavn (Denmark); P. Pettersen, L. Tanko, Ctr. for Clinical and Basic Research (Denmark); M. Nielsen, IT-Univ. i Kobenhavn (Denmark) [6512-44] 8:20 am: Discrimination analysis using multi-object statistics of shape and pose, K. Gorcowski, M. A. Styner, J. Jeong, J. S. Marron, J. Piven, H. C. Hazlett, S. M. Pizer, G. Gerig, The Univ. of North Carolina at Chapel Hill [6512-45] 8:40 am: Active index model: a unique approach for regional quantitative morphometry in longitudinal and transverse studies, P. K. Saha, H. Zhang, M. Sonka, G. E. Christensen, The Univ. of Iowa [6512-46] 9:00 am: A craniofacial statistical deformation model of wild-type mice and Crouzon mice, H. Ólafsdóttir, Danmarks Tekniske Univ. (Denmark); T. Darvann, Univ. of Copenhagen (Denmark) and Danmarks Tekniske Univ. (Denmark); B. K. Ersbøll, Danmarks Tekniske Univ. (Denmark); E. Oubel, Univ. Pompeu Fabra (Spain); N. V. Hermann, Univ. of Copenhagen (Denmark); S. Kreiborg, Univ. of Copenhagen (Denmark) and The Juliane Marie Ctr./Copenhagen Univ. Hospital (Denmark); A. F. Frangi, Univ. Pompeu Fabra (Spain); C. A. Perlyn, Washington Univ. in St. Louis School of Medicine [6512-47] 9:20 am: Segmentation of cardiac MR and CT image sequences using model-based registration of a 4D statistical model, D. Perperidis, R. H. Mohiaddin, P. J. Edwards, D. Rueckert, Imperial College London (United Kingdom) [6512-48] Coffee Break 9:40 to 10:10 am 6512 continues on page 26 ▶▶</p>	<p>Welcome and Introduction to the Conference Room: Golden West Tues. 8:00 to 8:20 am <i>Chairs: Maryellen L. Giger, The Univ. of Chicago; Nico Karssemeijer, Radboud Univ. Nijmegen Medical Ctr. (Netherlands)</i> SESSION 1 Room: Golden West Tues. 8:20 to 9:40 am Mammogram Analysis <i>Chair: J. Michael Brady, Univ. of Oxford (United Kingdom)</i> 8:20 am: Mass detection with digitized screening mammograms by using Gabor features, Y. Zheng, K. Agyepong, Alcorn State Univ. [6514-01] 8:40 am: Incorporation of a multiscale texture-based approach to mutual information matching for improved knowledge-based detection of masses in screening mammograms, G. D. Tourassi, A. Bilska-Wolak, Duke Univ. Medical Ctr.; P. A. Habas, Univ. of Louisville; C. E. Floyd, Jr., Duke Univ. Medical Ctr. [6514-02] 9:00 am: Contribution of Haar wavelets and MPEG-7 textural features for false positive reduction in a CAD system for the detection of masses in mammograms, N. H. Eltonsy, Univ. of Louisville; G. D. Tourassi, Duke Univ.; A. S. Elmaghraby, Univ. of Louisville .. [6514-03] 9:20 am: Computer-aided detection of breast masses on prior mammograms, J. Wei, B. Sahiner, H. Chan, L. M. Hadjiiski, M. A. Roubidoux, M. A. Helvie, J. Ge, C. Zhou, Y. Wu, Univ. of Michigan [6514-04] Coffee Break 9:40 to 10:10 am 6514 continues on page 26 ▶▶</p>

Conference 6509 continued
Visualization and Image-Guided Procedures
Room: San Diego

SESSION 9
Room: San Diego . . . Tues. 10:10 am to 12:10 pm
Liver
Chair: David R. Haynor, Univ. of Washington
 10:10 am: **Registration-free laparoscope augmentation for intra-operative liver resection planning**, M. Feuerstein, Technische Univ. München (Germany); T. Mussack, S. M. Heining, Klinikum der Univ. München (Germany); N. Navab, Technische Univ. München (Germany) [6509-40]
 ☆10:30 am: **In-vitro evaluation of a novel needle-based soft tissue navigation system with a respiratory liver motion simulator**, L. Maier-Hein, Deutsches Krebsforschungszentrum (Germany); S. Müller, F. K. C. Pianka, B. P. Müller-Stich, C. N. Gutt, Heidelberg School of Medicine (Germany); A. Seitel, U. Rietdorf, H. Meinzer, Deutsches Krebsforschungszentrum (Germany); G. Richter, B. Schmied, Heidelberg School of Medicine (Germany); I. Wolf, Deutsches Krebsforschungszentrum (Germany) [6509-41]
 10:50 am: **Atlas-based method for deformation compensation in image-guided liver surgery**, L. W. Clements, P. Dumpuri, Vanderbilt Univ.; W. C. Chapman, Washington Univ. School of Medicine; R. L. Galloway, Jr., M. I. Miga, Vanderbilt Univ. [6509-42]
 11:10 am: **PET guidance for liver radiofrequency ablation: an evaluation**, P. Lei, O. S. Dandekar, Univ. of Maryland Medical Ctr. and Univ. of Maryland/College Park; F. Mahmoud, Baltimore V.A. Medical Ctr.; P. Malloy, Univ. of Maryland Medical Ctr.; R. Shekhar, Univ. of Maryland Medical Ctr. and Univ. of Maryland/College Park . . [6509-43]
 11:30 am: **Workflow oriented software support for image guided radiofrequency ablation of focal liver malignancies**, A. Weihusen, F. Ritter, MeVis GmbH (Germany); T. Kroeger, T. Preusser, Univ. Bremen (Germany); S. Zidowitz, H. Peitgen, MeVis GmbH (Germany) [6509-44]
 11:50 am: **Image-guided ex-vivo targeting accuracy using a laparoscopic tissue localization system**, J. Bieszczyk, E. M. Friets, D. A. Knaus, Creare Inc.; T. P. Rauth, Vanderbilt Univ. Medical Ctr.; A. J. Herline, M. I. Miga, R. L. Galloway, Jr., Vanderbilt Univ.; D. B. Kynor, Creare Inc. . . [6509-45]
 Lunch/Exhibition Break . 12:10 to 1:20 pm

6509 continues on page 27 ➡

Conference 6510 continued
Physics of Medical Imaging
Room: Town & Country

SESSION 9
Room: Town & Country Tues. 10:10 pm to 12:10 am
X-ray Imaging
Chair: Ehsan Samei, Duke Univ.
 10:10 pm: **Configuration of AEC kVp dependence for digital radiography systems**, W. Huang, C. J. Yang, R. L. Van Metter, J. Yorkston, Eastman Kodak Co. [6510-42]
 10:30 pm: **The x-ray light valve: a low-cost digital radiographic imaging system: spatial resolution**, R. MacDougall, Sunnybrook and Women's Health Sciences Ctr. (Canada) and Univ. of Toronto (Canada); I. Koprinarov, C. A. Webster, J. A. Rowlands, Sunnybrook and Women's Health Sciences Ctr. (Canada) [6510-43]
 10:50 pm: **Development of a portable instrument for automated measurements of the detective quantum efficiency of X-ray detectors**, I. A. Cunningham, S. Lazarev, M. Sattarivand, Roberts Research Institute (Canada) [6510-44]
 11:10 pm: **Multimode C-Arm fluoroscopy, tomosynthesis, and cone-beam CT for image-guided interventions: from proof of principle to patient protocols**, J. H. Siewerdsen, M. J. Daly, Ontario Cancer Institute (Canada); G. Bahar, Princess Margaret Hospital (Canada); D. J. Moseley, G. Bootsma, Ontario Cancer Institute (Canada); S. Chhabra, Princess Margaret Hospital (Canada); D. A. Jaffray, Ontario Cancer Institute (Canada); J. C. Irish, Princess Margaret Hospital (Canada) [6510-45]
 11:30 pm: **Optimization of a CR system comprising line-scanning and needle image plate technology with respect to examinations of extremities**, C. Herrmann, J. Frankenberger, G. I. Reiser, Agfa-Gevaert AG (Germany); J. Lamotte, Agfa-Gevaert Group (Belgium) [6510-46]
 11:50 pm: **Progress in electron-multiplying CCD (EMCCD) based high-resolution high-sensitivity x-ray detector for fluoroscopy and radiography**, A. T. Kuhls, G. K. Yadava, S. Rudin, Univ. at Buffalo. [6510-47]
 Conference 6510 oral program resumes Wednesday at 8:00 am

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Conference 6511 continued
Physiology, Function, and Structure from Medical Images
Room: Royal Palm I

SESSION 9
Room: Royal Palm I . Tues. 10:10 am to 12:10 pm
Mechanical Properties and Elastography
Chair: Felix W. Wehrli, Univ. of Pennsylvania
 10:10 am: **Rapid 3D isotropic cartilage assessment with VIPR MRI**, W. F. Block, J. Klaers, Y. Jung, E. K. Brodsky, R. Kijowski, Univ. of Wisconsin/Madison [6511-42]
 10:30 am: **Diffusion tensor imaging of the lower leg musculature during exercise**, F. Schick, G. Steidle, Univ. Tübingen (Germany) [6511-43]
 10:50 am: **Time reversal principles for wave optimization in multiple driver magnetic resonance elastography**, Y. K. Mariappan, A. Manduca, R. L. Ehman, Mayo Clinic [6511-62]
 11:10 am: **The effects of interstitial tissue pressure on the measured shear modulus in vivo**, J. B. Weaver, Dartmouth Hitchcock Medical Ctr. and Dartmouth College; P. R. Perrinez, J. A. Bergeron, F. E. Kennedy, H. Wang, Dartmouth College; M. M. Doyley, Dartmouth Hitchcock Medical Ctr. and Dartmouth College; P. J. Hoopes, Dartmouth Hitchcock Medical Ctr.; K. D. Paulsen, Dartmouth College [6511-45]
 11:30 am: **Poroelastic modeling of the brain for use in MR elastography**, P. R. Perrinez, S. P. Marra, Dartmouth College; J. B. Weaver, Dartmouth Hitchcock Medical Ctr.; F. E. Kennedy, M. M. Doyley, K. D. Paulsen, Dartmouth College [6511-46]
 11:50 am: **An elastography framework for use in dermoscopy**, M. I. Miga, J. J. Ou, Vanderbilt Univ.; D. L. Ellis, Vanderbilt Univ. Medical Ctr. [6511-47]
 Lunch/Exhibition Break . 12:10 to 1:20 pm

6511 continues on page 27 ➡

WORKSHOP
Validation of Models used in Assessment of Medical Imaging Systems
Town & Country Room • 5:45 to 7:45 pm
Chairs: Aldo Badano, CDRH/U.S. Food and Drug Administration and NIBIB/ National Institutes of Health;
Kyle J. Myers, CDRH/U.S. Food and Drug Administration and NIBIB/National Institutes of Health
See p. 9 for full description.

Conference 6512 continued
Image Processing
Room: California

SESSION 9
Room: California . . . Tues. 10:10 am to 12:10 pm
Validation
Chair: Mostafa Analoui, Pfizer Inc.
Keynote
 10:10 am: **Oncological image analysis: medical and molecular image analysis**, J. M. Brady, Univ. of Oxford (United Kingdom) [6512-49]
 11:10 am: **Evaluation of four mammographic density measures on HRT data**, J. Raundahl, M. Nielsen, M. Loog, IT Univ. of Copenhagen (Denmark); P. Pettersen, Ctr. for Clinical and Basic Research (Denmark) [6512-50]
 11:30 am: **Validation of voxel-based morphometry (VBM) based on MRI**, X. Yang, Beijing Normal Univ. (China); K. Chen, Banner Good Samaritan Medical Ctr.; X. Guo, L. Yao, Beijing Normal Univ. (China) [6512-51]
 11:50 am: **Non-rigid registration methods assessment of 3D CT images for head and neck radiotherapy**, A. Parraga, Univ. Catholique de Louvain (Belgium) and Univ. Federal do Rio Grande do Sul (Brazil); M. S. De Craene, Univ. Catholique de Louvain (Spain); J. Petteersson, Linköpings Univ. (Sweden); A. Susin, Univ. Federal do Rio Grande do Sul (Brazil); B. Macq, Univ. Catholique de Louvain (Belgium) [6512-52]
 Lunch/Exhibition Break . 12:10 to 1:20 pm

6512 continues on page 27 ➡

Conference 6514 continued
Computer-Aided Diagnosis
Room: Golden West

SESSION 2
Room: Golden West . Tues. 10:10 am to 12:10 pm
CT Colon
Chair: Ronald M. Summers, National Institutes of Health
 10:10 am: **Computer-aided detection of colonic polyps using volume rendering**, W. Hong, F. Qiu, Stony Brook Univ.; J. Marino, Rite-Solutions Inc.; A. E. Kaufman, Stony Brook Univ. [6514-05]
 10:30 am: **Using Pareto fronts to evaluate polyp detection algorithms for CT colonography**, A. Huang, J. Li, R. M. Summers, National Institutes of Health; N. A. Petrick, U.S. Food and Drug Administration; A. K. Hara, Mayo Clinic [6514-06]
 10:50 am: **Efficient detection of polyps in CT colonography**, M. Wolf, P. Cathier, S. Lakare, M. Dundar, L. Bogoni, Siemens Medical Solutions USA, Inc. [6514-07]
 11:10 am: **Delineation of tagged region using local iso-surface roughness in electronic cleansing for CT colonography**, W. Cai, H. Yoshida, M. Zalis, J. J. Nappi, Massachusetts General Hospital [6514-08]
 11:30 am: **Pseudo-enhancement correction for computer-aided detection in fecal-tagging CT colonography**, J. J. Nappi, H. Yoshida, W. Cai, M. Zalis, Massachusetts General Hospital [6514-09]
 11:50 am: **(ST) Toward a computer-aided diagnosis system for colon motility dysfunction**, B. Glocker, Technische Univ. München (Germany); S. Buhmann, C. Kirchhoff, Ludwig-Maximilians-Univ. München (Germany); T. Mussack, Klinikum der Univ. München (Germany); M. Reiser, Ludwig-Maximilians-Univ. München (Germany); N. Navab, Technische Univ. München (Germany) [6514-10]
 12:00 pm: **(ST) Intra-patient colon surface registration based on tæniæ coli**, J. Lamy, R. M. Summers, National Institutes of Health [6514-11]
 Lunch/Exhibition Break . 12:10 to 1:20 pm

ST = Short Talk—Presenters have been selected to prepare short ten-minute presentations.

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Conference 6509 continued Visualization and Image-Guided Procedures Room: San Diego	Conference 6511 continued Physiology, Function, and Structure from Medical Images Room: Royal Palm I	Conference 6512 continued Image Processing Room: California	Conference 6514 continued Computer-Aided Diagnosis Room: Golden West
<p style="text-align: center;">SESSION 10 Room: San Diego Tues. 1:20 to 3:00 pm Brain <i>Chair: Michael I. Miga, Vanderbilt Univ.</i></p> <p>1:20 pm: Brain shift analysis for deep brain stimulation surgery using non-rigid registration, M. F. Khan, Georgia Institute of Technology; K. Mewes, R. Gross, Emory Univ.; O. Skrinjar, Georgia Institute of Technology [6509-46]</p> <p>1:40 pm: Automated selection of anterior and posterior commissures based on a deformable atlas and its evaluation based on manual selections by neurosurgeons, S. Pallavaram, H. Yu, J. Spooner, P. Dhaese, T. Koyama, B. Bodenheimer, P. E. Konrad, B. M. Dawant, Vanderbilt Univ. [6509-47]</p> <p>2:00 pm: Target error for image-to-physical space registration: preliminary results using laser range scanning, A. Cao, M. I. Miga, P. Dumpuri, B. M. Dawant, Vanderbilt Univ.; R. C. Thompson, Vanderbilt Univ. Medical Ctr. [6509-48]</p> <p>2:20 pm: Grid-based spectral fiber clustering, J. Klein, MeVis GmbH (Germany); P. Bittihn, P. Ledochowitsch, Georg-August-Univ. Göttingen (Germany); H. K. Hahn, O. Konrad, J. Rexilius, H. Peitgen, MeVis GmbH (Germany) [6509-49]</p> <p>2:40 pm: 3D multimodality roadmapping in neuroangiography, D. Ruijters, D. Babic, R. Homan, P. Mielekamp, Philips Medical Systems (Netherlands); B. M. ter Haar Romeny, Technische Univ. Eindhoven (Netherlands); P. Suetens, Katholieke Univ. Leuven (Belgium) [6509-50]</p> <p>Coffee Break 3:00 to 3:30 pm</p> <p style="text-align: right;">6509 continues on page 28 ►►</p>	<p style="text-align: center;">SESSION 10 Room: Royal Palm I Tues. 1:20 to 3:00 pm Vessel Imaging and Dynamics <i>Chair: Anne V. Clough, Marquette Univ.</i></p> <p>☆1:20 pm: Longitudinal vascular imaging using a novel nano-encapsulated CT and MR contrast agent, J. Zheng, J. D. P. Hoisak, C. J. Allen, Univ. of Toronto (Canada); D. A. Jaffray, Univ. of Toronto (Canada) and Princess Margaret Hospital (Canada) [6511-48]</p> <p>1:40 pm: Qualitative comparison of intraneurysmal flow structures determined from conventional and virtual angiograms, J. R. Cebral, George Mason Univ.; A. G. Radaelli, Pompeu Fabra Univ. (Spain); A. F. Frangi, Univ. Pompeu Fabra (Spain); C. M. Putman, Inova Fairfax Hospital [6511-49]</p> <p>2:00 pm: Combined clinical and computational information in complex cerebral aneurysms: application to mirror cerebral aneurysms, A. G. Radaelli, Pompeu Fabra Univ. (Spain); J. R. Cebral, George Mason Univ.; T. Sola Martínez, E. Vivas Diaz, Hospital General de Catalunya (Spain); X. Mellado, Pompeu Fabra Univ. (Spain); L. Guimaraens, Hospital General de Catalunya (Spain); A. F. Frangi, Pompeu Fabra Univ. (Spain) [6511-50]</p> <p>2:20 pm: Semi-automatic aortic aneurysm analysis, O. Bodur, L. Grady, Siemens Corporate Research; A. Stillman, Emory Univ.; R. M. Setser, The Cleveland Clinic Foundation; G. Funka-Lea, T. P. O'Donnell, Siemens Corporate Research ... [6511-51]</p> <p>2:40 pm: A 3D visualization of strain in abdominal aortic aneurysms based on navigated ultrasound, R. Brekken, J. H. Kaspersen, G. A. Tangen, SINTEF (Norway); T. Dahl, St. Olavs Hospital (Norway); T. Hernes, SINTEF (Norway); H. O. Myhre, St. Olav's Hospital (Norway) [6511-52]</p> <p>Coffee Break 3:00 to 3:30 pm</p> <p style="text-align: right;">6511 continues on page 28 ►►</p>	<p style="text-align: center;">SESSION 10 Room: California Tues. 1:20 to 3:00 pm MRI Applications <i>Chair: James C. Gee, Univ. of Pennsylvania</i></p> <p>1:20 pm: Computation of the mid-sagittal plane in diffusion tensor MR brain images, S. Prima, N. Wiest-Daesslé, IRISA (France) [6512-53]</p> <p>1:40 pm: Sharpening the diffusion tensor improves white-matter tractography, M. Descoteaux, R. Deriche, C. Lenglet, INRIA Sophia Antipolis (France) [6512-54]</p> <p>2:00 pm: DT-MRI segmentation using graph cuts, Y. T. Weldeselassie, G. Hamarneh, Simon Fraser Univ. (Canada) [6512-55]</p> <p>2:20 pm: Restoration of MRI data for field nonuniformities using high-order neighborhood statistics, E. Hadjidemetriou, C. Studholme, S. Mueller, M. W. Weiner, N. Schuff, Univ. of California/San Francisco [6512-56]</p> <p>2:40 pm: Dynamic field mapping and distortion correction for fMRI, N. Xu, J. M. Fitzpatrick, Vanderbilt Univ. [6512-57]</p> <p>Coffee Break 3:00 to 3:30 pm</p> <p style="text-align: right;">6512 continues on page 28 ►►</p>	<p style="text-align: center;">SESSION 3 Room: Golden West Tues. 1:20 to 2:20 pm Keynote Session <i>Chairs: Maryellen L. Giger, The Univ. of Chicago; Nico Karssemeijer, Radboud Univ. Nijmegen Medical Ctr. (Netherlands)</i></p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p style="text-align: center;"><i>Keynote</i></p> <p>1:20 pm: Computer-aided diagnosis and the general bioinformatics problem, R. F. Wagner, U.S. Food and Drug Administration [6514-12]</p> </div> <p style="text-align: center;">SESSION 4 Room: Golden West Tues. 2:20 to 3:00 pm Pathology Imaging <i>Chair: Shih-Chung B. Lo, Georgetown Univ. Medical Ctr.</i></p> <p>2:20 pm: Computer-aided classification of cell nuclei by volume and principal axis, A. M. Sagstetter, J. J. Camp, M. S. Lurken, J. H. Szurszewski, G. Farrugia, S. J. Gibbons, R. A. Robb, Mayo Clinic [6514-13]</p> <p>2:40 pm: (ST) Challenges in automated detection of cervical intraepithelial neoplasia, Y. Srinivasan, Kestrel Corp.; B. S. Nutter, S. D. Mitra, S. Yang, B. Phillips, Texas Tech Univ.; L. R. Long, National Library of Medicine [6514-14]</p> <p>2:50 pm: (ST) Computer-aided cytological cancer diagnosis: cell type classification as a step toward fully automatic cancer diagnosis on cytopathological specimens of serous effusions, T. E. Schneider, A. A. Bell, D. Meyer-Ebrecht, RWTH Aachen (Germany); A. Böcking, Heinrich-Heine-Univ. Dusseldorf (Germany); T. Aach, RWTH Aachen (Germany) [6514-15]</p> <p>Coffee Break 3:00 to 3:30 pm</p> <p style="text-align: center;">ST = Short Talk—Presenters have been selected to prepare short ten-minute presentations.</p> <p style="text-align: right;">6514 continues on page 28 ►►</p>

Don't miss the
Poster Awards
during Poster
Receptions

<p>Conference 6509 continued Visualization and Image-Guided Procedures Room: San Diego</p>	<p>Conference 6511 continued Physiology, Function, and Structure from Medical Images Room: Royal Palm I</p>	<p>Conference 6512 continued Image Processing Room: California</p>	<p>Conference 6514 continued Computer-Aided Diagnosis Room: Golden West</p>	<p>Conference 6516 continued PACS and Imaging Informatics Room: Town & Country</p>
<p>SESSION 11 Room: San Diego Tues. 3:30 to 5:30 pm Bronchoscopy and Colonoscopy <i>Chair: Wolfgang Birkfellner, Medizinische Univ. Wien (Austria)</i> ☆3:30 pm: An interactive 3D user interface for guided bronchoscopy, I. Atmosukarto, T. D. Soper, R. W. Glenny, E. J. Seibel, L. G. Shapiro, Univ. of Washington [6509-51] 3:50 pm: Evaluation and extension of a navigation system for bronchoscopy inside human lungs, I. Wegner, J. Biederer, R. Tetzlaff, I. Wolf, H. Meinzer, Deutsches Krebsforschungszentrum (Germany) [6509-52] 4:10 pm: Easy and stable bronchoscope camera calibration technique for bronchoscope navigation system, K. Ishitani, D. Deguchi, T. Kitasaka, K. Mori, Y. Suenaga, Nagoya Univ. (Japan); H. Takabatake, Minami Sanjyo Hospital (Japan); M. Mori, Sapporo Kosei Hospital (Japan); H. Natori, Sapporo Medical Univ. (Japan) [6509-53] 4:30 pm: High dynamic range (HDR) virtual bronchoscopy rendering, T. R. Popa, J. J. Choi, Georgetown Univ. [6509-54] 4:50 pm: 3D path planning and extension for endoscopic guidance, W. E. Higgins, J. D. Gibbs, The Pennsylvania State Univ. [6509-55] 5:10 pm: Toward automated model building from video in computer-assisted diagnoses in colonoscopy, Y. Wang, D. Koppel, C. Chen, H. Lee, Univ. of California/Santa Barbara; J. Gu, A. B. Poirson, R. Wolters, STI Medical Systems [6509-56]</p>	<p>SESSION 11 Room: Royal Palm I Tues. 3:30 to 5:30 pm Cardiac and Aortic Imaging <i>Chair: Amir A. Amini, Univ. of Louisville</i> 3:30 pm: Automatic segmentation and co-registration of gated CT angiography datasets: measuring aortic pulsatility, R. J. Wentz, A. Manduca, J. G. Fletcher, R. Shields, T. J. Vrtiska, G. C. Spencer, A. N. Primak, T. A. Nielson, C. H. McCollough, Mayo Clinic [6511-53] 3:50 pm: Patient specific coronary territory maps, P. Beliveau, Ecole Polytechnique de Montréal (Canada); T. P. O'Donnell, Siemens Corporate Research; R. M. Setser, The Cleveland Clinic Foundation; F. Cheriet, Ecole Polytechnique de Montréal (Canada) [6511-54] 4:10 pm: A statistical shape model of the heart and its application to model-based segmentation in MSCT and MRI, S. Ordas, E. Oubel, A. F. Frangi, Univ. Pompeu Fabra (Spain) [6511-55] ☆4:30 pm: Structure and function relationship of human heart from DENSE MRI, A. N. Moghaddam, M. Gharib, California Institute of Technology [6511-56] ☆4:50 pm: Four-dimensional functional analysis of left and right ventricles using MR images and active appearance models, H. Zhang, M. T. Thomas, N. E. Walker, A. H. Stolpen, A. Wahle, T. D. Scholz, M. Sonka, The Univ. of Iowa [6511-57] 5:10 pm: Novel methods for parameter based analysis of myocardial tissue in MR images, A. Hennemuth, S. Behrens, C. Kuehnel, MeVis GmbH (Germany); S. O. Otto-von-Guericke-Univ. Magdeburg (Germany); O. Konrad, H. Peitgen, MeVis GmbH (Germany) [6511-58]</p>	<p>SESSION 11 Room: California Tues. 3:30 to 5:30 pm Registration III: Applications <i>Chair: Benoit M. Dawant, Vanderbilt Univ.</i> 3:30 pm: Analysis of free breathing motion using artifact reduced 4D CT image data, J. Ehrhardt, R. Werner, T. Frenzel, H. Handels, Univ. Medical Ctr. Hamburg-Eppendorf (Germany) . [6512-58] 3:50 pm: Stabilization of a sequence of thermal brain images, B. Kovalerchuk, J. Lemley, Central Washington Univ.; A. M. Gorbach, National Institutes of Health [6512-59] 4:10 pm: 3D reconstruction of highly fragmented bone fractures, A. R. Willis, Univ. North Carolina/Charlotte; D. D. Anderson, T. Thomas, T. Brown, L. March, The Univ. of Iowa [6512-60] 4:30 pm: Determination of 3D location and rotation of lumbar vertebrae in CT images by symmetry-based autoregistration, T. Vrtovec, B. Likar, F. Pernus, Univ. v Ljubljani (Slovenia) [6512-61] 4:50 pm: Compensation of global movement for improved tracking of cells in time-lapse confocal microscopy image sequences, I. Kim, W. J. Godinez, N. Harder, Ruprecht-Karls-Univ. Heidelberg (Germany); F. Mora-Bermudez, J. Ellenberg, European Molecular Biology Lab. (Germany); R. Eils, K. Rohr, Ruprecht-Karls-Univ. Heidelberg (Germany) [6512-62] 5:10 pm: Multimodality image registration of ex vivo 4 Tesla prostate MRI with whole mount histology for cancer detection, J. C. Chappelow, A. Madabhushi, Rutgers Univ.; M. Feldman, M. A. Rosen, J. Tomaszewski, Univ. of Pennsylvania [6512-63]</p>	<p>SESSION 5 Room: Golden West Tues. 3:30 to 5:30 pm Databases and Pattern Recognition <i>Chair: Bram van Ginneken, Image Sciences Institute (Netherlands)</i> 3:30 pm: Training a CAD classifier with correlated data, M. Dundar, B. Krishnapuram, S. Lakare, M. Wolf, L. Bogoni, Siemens Medical Solutions USA, Inc. [6514-16] 3:50 pm: Mixture of expert artificial neural networks with ensemble training for reduction of various sources of false positives in CAD, K. Suzuki, A. H. Dachman, The Univ. of Chicago [6514-17] 4:10 pm: The Lung Image Database Consortium (LIDC): pulmonary nodule measurements, the variation, and the difference between different size metrics, A. P. Reeves, A. Biancardi, T. V. Apanasovich, Cornell Univ.; C. R. Meyer, Univ. of Michigan; H. MacMahon, The Univ. of Chicago; E. J. R. van Beek, The Univ. of Iowa; E. A. Kazerooni, Univ. of Michigan; D. F. Yankelevitz, Cornell Univ.; M. F. McNitt-Gray, Univ. of California/Los Angeles; G. McLennan, The Univ. of Iowa Hospitals and Clinics; S. G. Armato III, The Univ. of Chicago; D. R. Aberle, Univ. of California/Los Angeles; C. I. Henschke, Cornell Univ.; E. A. Hoffman, The Univ. of Iowa Hospitals and Clinics; B. Y. Croft, L. P. Clarke, National Cancer Institute . . [6514-18] 4:30 pm: The Lung Image Database Consortium (LIDC) data collection process for nodule detection and annotation, M. F. McNitt-Gray, Univ. of California/Los Angeles; S. G. Armato III, The Univ. of Chicago; C. R. Meyer, Univ. of Michigan; A. P. Reeves, Cornell Univ.; G. McLennan, The Univ. of Iowa Hospitals and Clinics; R. Pais, Univ. of California/Los Angeles; J. Freymann, National Cancer Institute; M. S. Brown, Univ. of California/Los Angeles; R. M. Engelmann, The Univ. of Chicago; P. H. Bland, G. E. Laderach, Univ. of Michigan; C. Piker, J. Guo, The Univ. of Iowa; D. P. -Qing, Univ. of California/Los Angeles; D. F. Yankelevitz, Cornell Univ.; D. R. Aberle, Univ. of California/Los Angeles; E. J. R. Van Beek, The Univ. of Iowa; H. MacMahon, The Univ. of Chicago; E. A. Kazerooni, Univ. of Michigan; B. Y. Croft, L. P. Clarke, National Cancer Institute [6514-19] 4:50 pm: The effect of nodule segmentation on the accuracy of computerized lung nodule detection on CT scans: comparison on a data set annotated by multiple radiologists, B. Sahiner, L. M. Hadjiiski, H. Chan, J. Shi, T. W. Way, P. N. Cascade, E. A. Kazerooni, C. Zhou, J. Wei, Univ. of Michigan [6514-20] 5:10 pm: Particle swarm optimization of neural network CAD systems with clinically relevant objectives, P. A. Habas, J. M. Zurada, A. S. Elmaghraby, Univ. of Louisville; G. D. Tourassi, Duke Univ. Medical Ctr. [6514-21]</p>	<p>SESSION 1 Room: Town & Country ... Tues. 3:30 to 5:10 pm Surgical PACS <i>Chair: Heinz U. Lemke, Computer Assisted Radiology and Surgery (Germany)</i> 3:30 pm: Specification and design of a Therapy Imaging and Model Management System (TIMMS), H. U. Lemke, Computer Assisted Radiology and Surgery (Germany) [6516-01] 3:50 pm: Summary of the white paper of DICOM WG24 'DICOM in Surgery', H . U. Lemke, Computer Assisted Radiology and Surgery (Germany) [6516-02] 4:10 pm: Deriving DICOM surgical extensions from surgical workflows, O. Burgert, W. Korb, Univ. Leipzig (Germany) [6516-03] 4:30 pm: Video and LAN solutions for a digital OR: the Varese experience, U. Nocco, E. Coccozza, Ospedale di Circolo e Fondazione Macchi Varese (Italy); M. Sivo, Azienda Ospedaliera San Paolo (Italy); G. Peta, Olympus Italia srl (Italy) . [6516-04] 4:50 pm: Virtual microscopy in medical research: Open European Nephrology Science Center (OpEN.SC), T. Schrader, Charité-Univ. Medizin Berlin (Germany); M. Beil, Lausitz Univ. of Applied Sciences (Germany); D. Schmidt, Humboldt-Univ. zu Berlin (Germany); M. Dietel, Charité-Univ. Medizin Berlin (Germany); G. Lindemann, Humboldt-Univ. zu Berlin (Germany) [6516-05]</p> <div data-bbox="1665 1092 2032 1211" style="border: 1px solid black; padding: 5px;"> <p align="center">WORKSHOP DICOM</p> <p align="center"><i>California Room • 5:45 to 7:45 pm See p. 9 for full description.</i></p> </div> <p align="right">6516 continues on page 29 ➡</p> <div data-bbox="1665 1276 2032 1511" style="border: 1px solid black; padding: 5px;"> <p align="center">WORKSHOP Hands-on experience with CAD</p> <p align="center"><i>San Diego Room • 5:45 to 7:45 pm</i></p> <p><i>Chairs: Nico Karssemeijer, Radboud Univ. Nijmegen Medical Ctr. (Netherlands); Maryellen L. Giger, The Univ. of Chicago; Michael F. McNitt-Gray, Univ. of California/Los Angeles</i></p> <p align="center"><i>See p. 9 for full description.</i></p> </div> <p align="right">6514 continues on page 29 ➡</p>

<p>Conference 6510 continued Physics of Medical Imaging Room: Town & Country</p>	<p>Conference 6514 continued Computer-Aided Diagnosis Room: Golden West</p>	<p>Conference 6515 continued Image Perception, Observer Performance, & Technology Assessment Room: San Diego</p>	<p>Conference 6516 continued PACS and Imaging Informatics Room: California</p>
<p>SESSION 10 Room: Town & Country ... Wed. 8:00 to 9:40 am Breast Imaging <i>Chair: Ehsan Samei, Duke Univ.</i> 8:00 am: Contrast-detail comparison of computed mammatomography and digital mammography, R. L. McKinley III, M. P. Tornai, E. Samei, C. E. Floyd, Jr., Duke Univ. [6510-48] 8:20 am: Contrast phantom design considerations in mammography, M. V. Lundqvist, Sectra AB (Sweden); B. Cederström, M. C. Åslund, M. E. Danielsson, Kungliga Tekniska Högskolan (Sweden) [6510-49] 8:40 am: Evaluation of lesion visualization at various system tilts in the development of a hybrid SPECT-CT system for dedicated mammatomography, P. Madhav, Duke Univ. and Duke Univ. Medical Ctr.; D. J. Crotty, Duke Univ. and Duke Univ. Medical Ctr.; R. L. McKinley III, M. P. Tornai, Duke Univ. and Duke Univ. Medical Ctr. [6510-50] 9:00 am: Performance characterization of a volumetric breast ultrasound scanner, T. R. Nelson, J. Nebeker, L. I. Cervino, Univ. of California/San Diego; J. M. Boone, Univ. of California/Davis [6510-51] 9:20 am: Investigating novel patient bed designs for use in a hybrid dual-modality dedicated 3D breast imaging system, D. J. Crotty, P. Madhav, R. L. McKinley III, M. P. Tornai, Duke Univ. [6510-52] Coffee Break 9:40 to 10:10 am 6510 continues on page 30 ➡</p>	<p>SESSION 6 Room: Golden West Wed. 8:00 to 9:40 am Thoracic CT <i>Chair: Michael F. McNitt-Gray, Univ. of California/Los Angeles</i> 8:00 am: Automated characterization of normal and pathologic lung tissue by topological texture analysis of multidetector CT, H. F. Boehm, C. Fink, C. Becker, M. Reiser, Ludwig-Maximilians-Univ. München (Germany) [6514-22] 8:20 am: Toward computer-aided emphysema quantification on ultralow-dose CT: reproducibility of ventrodorsal gravity effect measurement and correction, R. Wiemker, R. Opfer, T. Buelow, Philips Research Labs. (Germany); P. Rogalla, Humboldt-Univ. zu Berlin (Germany); A. Steinberg, Philips Medical Systems Technologies Ltd. (Israel); E. Dharaiya, K. Subramanyan, Philips Medical Systems N.A. [6514-23] 8:40 am: Automatic detection of rib metastasis in chest CT volume data, H. Shen, Siemens Corp. Research; L. Ma, Ohio Univ.; J. Kaefer, Technische Univ. München (Germany); D. P. Naidich, New York Univ. [6514-24] 9:00 am: Efficient detection of diffuse lung disease, J. S. J. Wong, T. Zrimec, Univ. of New South Wales (Australia) [6514-25] 9:20 am: Pulmonary nodule registration in serial CT scans using rib anatomy and nodule template matching, J. Shi, B. Sahiner, H. Chan, L. M. Hadjiiski, C. Zhou, Y. Wu, J. Wei, Univ. of Michigan [6514-26] Coffee Break 9:40 to 10:10 am 6514 continues on page 30 ➡</p>	<p>SESSION 1 Room: San Diego Wed. 8:00 to 9:40 am ROC Methods <i>Chair: Brandon D. Gallas, CDRH/FDA and NIBIB/NIH Joint Lab.</i> 8:00 am: Describing three-class task performance: three-class linear discriminant analysis and three-class ROC analysis, X. He, E. C. Frey, Johns Hopkins Univ. [6515-01] 8:20 am: A utility-based performance metric for ROC analysis of N-class classification tasks, D. C. Edwards, C. E. Metz, The Univ. of Chicago [6515-02] 8:40 am: Estimation ROC curves and their corresponding ideal observers, E. W. Clarkson, The Univ. of Arizona [6515-03] 9:00 am: A bivariate binormal ROC methodology for comparing new methods to an existing standard for screening applications, C. K. Abbey, Univ. of California/Santa Barbara; M. F. Insana, Univ. of Illinois at Urbana-Champaign; M. P. Eckstein, Univ. of California/Santa Barbara; J. M. Boone, Univ. of California/Davis [6515-04] 9:20 am: Pooling MRMC forced-choice data, B. D. Gallas, U.S. Food and Drug Administration and NIBIB/CDRH Joint Imaging Lab.; G. A. Pennello, U.S. Food and Drug Administration [6515-05] Coffee Break 9:40 to 10:10 am 6515 continues on page 30 ➡</p>	<p>SESSION 2 Room: California Wed. 8:00 to 9:40 am Joint Session PACS/Visualization <i>Chair: Greg T. Mogel, Univ. of Southern California</i> 8:00 am: Flexible high-resolution display systems for the next-generation of radiology reading rooms, J. J. Caban, Univ. of Maryland/Baltimore County [6516-06] 8:20 am: Introducing CAVASS: a computer-assisted visualization and analysis software system, G. J. Grevera, St. Joseph's Univ.; J. K. Udupa, D. Odhner, Y. Zhuge, A. D. A. Souza, T. Iwanaga, S. Mishra, Univ. of Pennsylvania . [6516-07] 8:40 am: A PACS-CAD toolkit for integrating and independent CAD workstation to diagnostic workflow, Z. Z. Zhou, A. Le, Univ. of Southern California; B. J. Liu, H. K. Huang, Univ. of Southern California [6516-08] 9:00 am: The image-guided surgery toolkit IGSTK: an open source software platform, K. R. Cleary, Georgetown Univ. [6516-09] 9:20 am: Whole-slide imaging in pathology: the potential impact on PACS, S. C. Horii, Univ. of Pennsylvania [6516-10] Coffee Break 9:40 to 10:10 am 6516 continues on page 30 ➡</p>



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<p>Conference 6510 continued Physics of Medical Imaging Room: Town & Country</p>	<p>Conference 6514 continued Computer-Aided Diagnosis Room: Golden West</p>	<p>Conference 6515 continued Image Perception, Observer Performance, & Technology Assessment Room: San Diego</p>	<p>Conference 6516 continued PACS and Imaging Informatics Room: California</p>
<p>SESSION 11 Room: Town & CountryWed. 10:10 am to 12:10 pm Tomosynthesis <i>Chair: Robert M. Nishikawa, The Univ. of Chicago</i></p> <p>10:10 am: Methodology of NEQ(f) analysis for optimization and comparison of digital breast tomosynthesis acquisition techniques and reconstruction algorithms, Y. Chen, J. Y. Lo, N. T. Ranger, E. Samei, J. T. Dobbins III, Duke Univ. [6510-53]</p> <p>10:30 am: Improved in-plane visibility of tumors using breast tomosynthesis, M. E. Ruschin, Lunds Univ. (Sweden); M. Båth, Sahlgrenska Univ. Hospital (Sweden); P. Timberg, T. M. Svahn, B. Hemdal, A. Tingberg, S. Mattsson, Lunds Univ. (Sweden) [6510-54]</p> <p>10:50 am: Mathematical model approaches toward combining information from multiple image projections of the same patient, A. S. Chawla, E. Samei, Duke Univ.; C. K. Abbey, Univ. of California/Santa Barbara and Univ. of California/Davis [6510-55]</p> <p>11:10 am: Effect of acquisition parameters on image quality in digital tomosynthesis, T. Deller, K. N. Jabri, J. M. Sabol, X. Ni, G. B. Avinash, R. Saunders, R. Uppaluri, GE Healthcare [6510-56]</p> <p>11:30 am: Optimization of detector operation and imaging geometry for breast tomosynthesis, W. Zhao, B. Zhao, P. R. Fisher, Stony Brook Univ.; P. Warmoes, B. T. Polischuk, Anrad Corp.; T. Mertelmeier, J. Orman, Siemens AG (Germany) [6510-57]</p> <p>11:50 am: Circular tomosynthesis implemented with a clinical interventional flat-panel based C-Arm, B. E. Nett, J. N. Zambelli, Univ. of Wisconsin/Madison; C. Riddell, General Electric Healthcare; B. F. Belanger, GE Healthcare; G. Chen, Univ. of Wisconsin/Madison [6510-58]</p> <p>Lunch/Exhibition Break . 12:10 to 1:20 pm</p> <p>6510 continues on page 31 </p>	<p>SESSION 7 Room: Golden West . Wed. 10:10 am to 12:10 pm MRI Applications <i>Chair: Kensaku Mori, Nagoya Univ. (Japan)</i></p> <p>10:10 am: Classification of brain tumors using MRI and MRS data, Q. Wang, E. K. Liacouras, E. Miranda, U. S. Kanamalla, V. Megalooikonomou, Temple Univ. [6514-32]</p> <p>10:30 am: Segmentation of suspicious lesions in dynamic contrast-enhanced breast MR images, T. Buelow, Philips Research Labs. (Germany); L. Arbash-Meinell, Philips Research USA; R. Wiemker, Philips Research Labs. (Germany) [6514-27]</p> <p>10:50 am: Effect of calibration on computerized analysis of prostate lesions using quantitative dynamic contrast-enhanced magnetic resonance imaging, P. Vos, T. Hambroek, J. J. Futterer, C. A. Hulsbergen-van de Kaa, J. Barentsz, H. H. Huisman, Radboud Univ. Nijmegen Medical Ctr. (Netherlands) [6514-28]</p> <p>11:10 am: Multispectral brain tumor segmentation based on histogram model adaptation, J. Rexilius, H. K. Hahn, J. Klein, MeVis GmbH (Germany); M. Lentschig, Institut for MR-Diagnostic (Germany); H. Peitgen, MeVis GmbH (Germany) [6514-29]</p> <p>11:30 am: Automatic detection of pelvic lymph nodes using multiple MR sequences, M. Yan, Siemens Corp. Research; Y. Lu, Univ. of Illinois at Urbana-Champaign; M. Requardt, Siemens AG (Germany); J. Barentsz, S. Takahashi, Radboud Univ. Nijmegen Medical Ctr. (Netherlands) [6514-30]</p> <p>11:50 am: Computer-aided differential diagnosis in movement disorders using MRI morphometry, S. Duchesne, Univ. de Rennes I (France); Y. Rolland, M. Verin, Ctr. Hospitalier Univ. de Rennes (France); C. Barillot, Univ. de Rennes I (France) [6514-31]</p> <p>Lunch/Exhibition Break . 12:10 to 1:20 pm</p> <p>6514 continues on page 31 </p>	<p>SESSION 2 Room: San Diego . . . Wed. 10:10 am to 12:10 pm Harold Kundel Honorary Lecture and Image Perception <i>Chair: Elizabeth A. Krupinski, The Univ. of Arizona</i></p> <p><i>Keynote</i></p> <p>10:10 am: How to minimize perceptual error and maximize expertise in medical imaging, H. L. Kundel, Univ. of Pennsylvania [6515-06]</p> <p>11:10 am: Visual search characteristics in mammography: malignant vs. benign breast masses, C. Mello-Thoms, Univ. of Pittsburgh [6515-07]</p> <p>11:30 am: Evaluating user interfaces for stack mode viewing, A. C. Knight, M. Omueti, S. Villecroze, A. E. Kirkpatrick, M. S. Atkins, Simon Fraser Univ. (Canada); B. Forster, The Univ. of British Columbia (Canada) [6515-08]</p> <p>11:50 am: Evaluation of perception performance in neck dissection planning using eye tracking: first results, O. Burgert, V. Örn, M. Gessat, Univ. Leipzig (Germany); M. Joos, Interactive Minds Dresden (Germany); G. Strauss, Univ. Leipzig (Germany); C. Tietjen, B. Preim, Otto-von-Guericke-Univ. Magdeburg (Germany); I. Hertel, Univ. Leipzig (Germany) [6515-09]</p> <p>Lunch/Exhibition Break . 12:10 to 1:20 pm</p> <p>6515 continues on page 31 </p>	<p>SESSION 3 Room: California . . . Wed. 10:10 am to 12:10 pm Databases and Data Mining I <i>Chair: Brent J. Liu, Univ. of Southern California</i></p> <p>☆10:10 am: A web collaboration system for content-based image retrieval of medical images, D. Tahmouh, H. Samet, Univ. of Maryland/College Park . . [6516-11]</p> <p>10:30 am: A fully integrated data management environment for small animal imaging core facilities, G. Zhang, J. Szymanski, D. L. Wilson, Case Western Reserve Univ. [6516-12]</p> <p>10:50 am: A new database for medical images and information, D. Tahmouh, H. Samet, Univ. of Maryland/College Park [6516-13]</p> <p>11:10 am: Content-based image retrieval from a database of fracture images, H. Müller, P. A. Do Hoang, A. Depeursinge, P. Hoffmeyer, A. Geissbuhler, Univ. Hospital of Geneva (Switzerland) [6516-14]</p> <p>11:30 am: Flexible patient information search and retrieval framework: pilot implementation, S. Erdal, U. V. Catalyurek, J. H. Saltz, J. Kamal, M. N. Gurcan, The Ohio State Univ. Medical Ctr. . . . [6516-15]</p> <p>11:50 am: Gaps in content-based image retrieval, T. M. Deserno, National Library of Medicine and RWTH Aachen (Germany); S. K. Antani, L. R. Long, National Library of Medicine [6516-16]</p> <p>Lunch/Exhibition Break . 12:10 to 1:20 pm</p> <p>6516 continues on page 31 </p>

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<p>SESSION 12 Room: Town & Country ... Wed. 1:20 to 3:00 pm</p> <p>CT Systems <i>Chair: Bruce R. Whiting, Washington Univ. in St. Louis</i></p> <p>1:20 pm: Perfusion analysis using a wide coverage flat-panel volume CT: feasibility study, M. Grasruck, Siemens Medical Solutions (Germany); R. Gupta, B. Reichardt, Massachusetts General Hospital; E. Klotz, B. T. Schmidt, T. Flohr, Siemens Medical Solutions (Germany) ... [6510-59]</p> <p>1:40 pm: Evaluation of the spatial resolution of a dedicated breast CT system using computer simulation, K. Yang, A. L. C. Kwan, J. M. Boone, Univ. of California/Davis ... [6510-60]</p> <p>2:00 pm: Novel C-arm based cone-beam CT using a source trajectory of two concentric arcs, J. N. Zambelli, B. E. Nett, S. Leng, Univ. of Wisconsin/Madison; C. Riddell, General Electric Healthcare (France); B. F. Belanger, GE Healthcare; G. Chen, Univ. of Wisconsin/Madison ... [6510-61]</p> <p>2:20 pm: Microcomputed tomography with a photon-counting X-ray detector, E. C. Frey, K. Taguchi, Johns Hopkins Univ.; M. Kapusta, Gamma Medica-Ideas; J. Xu, Johns Hopkins Univ.; T. Orskaug, I. Ninive, Gamma Medica-Ideas, Inc. (Norway); D. J. Wagenaar, B. E. Patt, Gamma Medica-Ideas, Inc.; B. M. W. Tsui, Johns Hopkins Univ. ... [6510-62]</p> <p>2:40 pm: Evaluation of noise power spectra of CT images, K. G. Metheany, A. L. C. Kwan, J. M. Boone, Univ. of California/Davis ... [6510-63]</p> <p>Coffee Break ... 3:00 to 3:30 pm</p> <p>6510 continues on page 32 ➡</p>	<p>SESSION 8 Room: Golden West ... Wed. 1:20 to 3:00 pm</p> <p>CT Lung Nodules <i>Chair: Kyongtae T. Bae, Washington Univ. in St. Louis</i></p> <p>1:20 pm: Automated volumetric segmentation method for growth consistency of nonsolid pulmonary nodules in high-resolution CT, W. A. Browder, A. Reeves, T. V. Apanasovich, M. Cham, D. Yankelevitz, C. I. Henschke, Cornell Univ. ... [6514-33]</p> <p>1:40 pm: Simulating solid lung nodules in MDCT images for CAD evaluation: modeling, validation, and applications, X. Zhang, R2 Technology Inc.; E. Olcott, Stanford Univ.; P. Raffy, N. Yu, H. Chui, R2 Technology Inc. ... [6514-34]</p> <p>☆2:00 pm: Automated detection of pulmonary nodules from low-dose computed tomography scans using a two-stage classification system based on local image features, K. Murphy, A. M. Schilham, Image Sciences Institute (Netherlands); H. Gietema, M. Prokop, Univ. Medical Ctr. Utrecht (Netherlands); B. van Ginneken, Image Sciences Institute (Netherlands) ... [6514-35]</p> <p>2:20 pm: Computer-aided diagnosis for interval change analysis of lung nodule features in serial CT examinations, L. M. Hadjiiski, T. W. Way, B. Sahiner, H. Chan, P. N. Cascade, N. Bogot, E. A. Kazerooni, C. Zhou, Univ. of Michigan ... [6514-36]</p> <p>2:40 pm: (ST) Statistical image quantification toward optimal scan fusion and change quantification, V. Potesil, St. John's College (United Kingdom) and Univ. of Oxford (United Kingdom); X. S. Zhou, Siemens Medical Solutions USA, Inc. ... [6514-37]</p> <p>2:50 pm: (ST) Computer-aided characterizing of solitary pulmonary nodules (SPNs) using structural 3D, texture, and functional dynamic contrast features, Y. Wang, M. F. McNitt-Gray, S. K. Shah, M. S. Brown, J. G. Goldin, D. R. Aberle, Univ. of California/Los Angeles ... [6514-38]</p> <p>Coffee Break ... 3:00 to 3:30 pm</p> <p>ST = Short Talk—Presenters have been selected to prepare short ten-minute presentations.</p> <p>6514 continues on page 32 ➡</p>	<p>SESSION 3 Room: San Diego ... Wed. 1:20 to 3:00 pm</p> <p>Image Display <i>Chair: David J. Manning, St. Martin's College (United Kingdom)</i></p> <p>1:20 pm: A multicenter study on the influence of 8-bit vs. 11-bit displays, E. A. Krupinski, The Univ. of Arizona; K. M. Siddiqui, E. L. Siegel, Univ. of Maryland/Baltimore; R. Shrestha, E. G. Grant, Univ. of Southern California; H. Roehrig, J. Fan, The Univ. of Arizona ... [6515-10]</p> <p>1:40 pm: Ambient lighting: setting international standards for the viewing of softcopy chest images, M. F. McEntee, J. T. Ryan, Univ. College Dublin (Ireland); M. G. Evanoff, The American Board of Radiology; A. Keeling, William Beaumont Hospital (Ireland); D. P. Chakraborty, Univ. of Pittsburgh; D. J. Manning, St. Martin's College (United Kingdom); P. C. Brennan, National Univ. of Ireland/Dublin (Ireland) ... [6515-11]</p> <p>2:00 pm: Greyscale standard display function on LCD color monitors, D. De Monte, C. Casale, L. Albani, S. Bonfiglio, FIMI Philips (Italy) ... [6515-12]</p> <p>2:20 pm: A comparison between 8-bit and 10-bit luminance resolution when generating low-contrast sinusoidal test pattern on an LCD, P. Sund, M. Båth, L. Ungsten, L. G. Månsson, Sahlgrenska Univ. Hospital (Sweden) ... [6515-13]</p> <p>2:40 pm: Visual image quality metrics for optimization of breast tomosynthesis acquisition technique, J. P. Johnson, Siemens Corporate Research; J. Y. Lo, Duke Univ.; T. Mertelmeier, Siemens AG; J. S. Nafziger, Siemens Corporate Research; P. Timberg, Lunds Univ. (Sweden); E. Samei, Duke Univ. . [6515-14]</p> <p>Coffee Break ... 3:00 to 3:30 pm</p> <p>6515 continues on page 32 ➡</p>	<p>SESSION 4 Room: California ... Wed. 1:20 to 3:00 pm</p> <p>Databases and Data Mining II <i>Chair: William W. Boonn, Univ. of Pennsylvania</i></p> <p>1:20 pm: Finding relevant PDF medical journal articles by the caption and content of their figures, A. J. Christiansen, D. J. Lee, Brigham Young Univ. . [6516-17]</p> <p>1:40 pm: Exploring access to scientific literature using content-based image retrieval, T. M. Deserno, RWTH Aachen (Germany) and National Library of Medicine; S. K. Antani, L. R. Long, National Library of Medicine ... [6516-18]</p> <p>2:00 pm: Development of an indexed integrated neuroradiology reports for teaching file creation, H. Z. Tameem, Univ. of California/Los Angeles ... [6516-19]</p> <p>2:20 pm: Content-based image retrieval for pulmonary computed tomography nodule images, M. O. Lam, T. Disney, M. T. Pham, D. S. Raicu, J. D. Furst, R. Susomboon, DePaul Univ. ... [6516-20]</p> <p>2:40 pm: Design and implementation of a fault-tolerant and dynamic metadata database for clinical trials, J. Lee IV, Z. Z. Zhou, J. R. Documet, B. J. Liu, Univ. of Southern California ... [6516-21]</p> <p>Coffee Break ... 3:00 to 3:30 pm</p> <p>6516 continues on page 32 ➡</p>

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<p>Conference 6510 continued Physics of Medical Imaging Room: Town & Country</p>	<p>Conference 6514 continued Computer-Aided Diagnosis Room: Golden West</p>	<p>Conference 6515 continued Image Perception, Observer Performance, & Technology Assessment Room: San Diego</p>	<p>Conference 6516 continued PACS and Imaging Informatics Room: California</p>
<p>SESSION 13 Room: Town & Country ... Wed. 3:30 to 5:30 pm</p> <p>Signal Corrections <i>Chair: Thomas Flohr,</i> Siemens Medical Solutions (Germany)</p> <p>3:30 pm: Evaluation of scatter effects on image quality for breast tomosynthesis, G. Wu, J. G. Mainprize, Sunnybrook and Women's Health Sciences Ctr. (Canada); J. M. Boone, Univ. of California/Davis; M. J. Yaffe, Sunnybrook and Women's Health Sciences Ctr. (Canada) .. [6510-64]</p> <p>3:50 pm: Improved scatter correction for x-ray cone-beam CT using primary modulation, L. Zhu, Stanford Univ.; J. Star-Lack, Varian Medical Systems, Inc.; N. R. Bennett, T. Li, L. Xing, R. Fahrig, Stanford Univ. [6510-65]</p> <p>4:10 pm: Scatter mitigation strategies for x-ray cone-beam CT: impact of scatter subtraction and anti-scatter grids on contrast-to-noise ratio, D. Lazos, G. Lasio, J. F. Williamson, Virginia Commonwealth Univ. [6510-66]</p> <p>4:30 pm: Data inconsistency correction to reduce motion artifacts in fan-beam CT, S. Leng, B. E. Nett, G. Chen, Univ. of Wisconsin/Madison [6510-67]</p> <p>4:50 pm: Resolution and noise trade-off analysis for volumetric computed tomography (CT), B. Li, GE Healthcare; S. Nandyala, GE Healthcare; G. B. Avinash, J. Hsieh, GE Healthcare [6510-68]</p> <p>5:10 pm: Sinogram restoration of dual focal spot CT data, P. Forthmann, T. Koehler, Philips Research Labs. (Germany); P. G. C. Begemann, Univ. Hospital Hamburg-Eppendorf (Germany); M. Defrise, Vrije Univ. Brussel (Belgium) [6510-69]</p> <p>6510 continues on page 39 ➡</p>	<p>SESSION 9 Room: Golden West Wed. 3:30 to 4:50 pm</p> <p>Breast Tomosynthesis <i>Chair: Heang-Ping Chan,</i> Univ. of Michigan</p> <p>3:30 pm: Feasibility study of breast tomosynthesis CAD system, A. K. Jerebko, Y. Quan, Siemens Medical Solutions USA, Inc.; N. Merlet, E. Ratner, Siemens Computer Aided Diagnosis Ltd. (Israel); S. Singh, J. Y. Lo, Duke Univ. [6514-39]</p> <p>3:50 pm: Breast mass detection in tomosynthesis projection images using information-theoretic similarity measures, S. Singh, G. D. Tourassi, J. Y. Lo, Duke Univ. [6514-40]</p> <p>4:10 pm: Computer-aided detection of masses in digital tomosynthesis mammography: combination of 3D and 2D detection information, H. Chan, J. Wei, Y. Zhang, Univ. of Michigan; R. H. Moore, D. B. Kopans, Massachusetts General Hospital; L. M. Hadjiiski, B. Sahiner, M. A. Roubidoux, M. A. Helvie, Univ. of Michigan [6514-41]</p> <p>4:30 pm: Analysis of parenchymal texture properties in breast tomosynthesis images, D. Kontos, P. R. Bakic, A. D. A. Maidment, Univ. of Pennsylvania [6514-42]</p> <p>6514 continues on page 39 ➡</p>	<p>SESSION 4 Room: San Diego Wed. 3:30 to 5:30 pm</p> <p>Model Observers I <i>Chair: Kevin S. Berbaum,</i> The Univ. of Iowa Hospitals and Clinics</p> <p>3:30 pm: Bias and variance in Hotelling observer performance computed from finite data, M. A. Kupinski, E. W. Clarkson, J. Y. Hesterman, The Univ. of Arizona [6515-15]</p> <p>3:50 pm: Adaptive Hotelling discriminant functions, M. A. Kupinski, E. W. Clarkson, H. H. Barrett, The Univ. of Arizona [6515-16]</p> <p>4:10 pm: Mass detection on real and synthetic mammograms: human observer templates and local statistics, C. Castella, Institut Univ. de Radiophysique Appliquée (Switzerland); K. Kinkel, Clinique des Grangettes (Switzerland); F. R. Verdun, Institut Univ. de Radiophysique Appliquée (Switzerland); M. P. Eckstein, C. K. Abbey, Univ. of California/Santa Barbara; F. O. Bochud, Institut Univ. de Radiophysique Appliquée (Switzerland) [6515-17]</p> <p>4:30 pm: A contrast-sensitive channelized-Hotelling observer to predict human performance in a detection task using lumpy backgrounds and Gaussian signals, S. Park, A. Badano, K. J. Myers, U.S. Food and Drug Administration [6515-18]</p> <p>4:50 pm: Effect of slow display on stack-mode reading of volumetric image datasets using an anthropomorphic observer, H. Liang, S. Park, A. Badano, U.S. Food and Drug Administration [6515-19]</p> <p>5:10 pm: Validation of closed-form compression noise statistics using model observers, D. Li, M. H. Loew, The George Washington Univ. [6515-20]</p> <p>6515 continues on page 39 ➡</p>	<p>SESSION 5 Room: California Wed. 3:30 to 5:10 pm</p> <p>Infrastructure: Devices, Systems, and Standards <i>Chair: Janice C. Honeyman-Buck,</i> Univ. of Florida</p> <p>3:30 pm: A grid-based implementation of XDS-I as part of EHR for longitudinal patient care crossing multiple hospitals, J. Zhang, J. Sun, Sr., C. Zhang, Y. Yang, J. Jin, Z. He, Shanghai Institute of Technical Physics (China) [6516-22]</p> <p>3:50 pm: Design and implementation of a web-based data grid management system in imaging-based clinical trials, Z. Z. Zhou, Univ. of Southern California; K. C. Ma, Univ. of Southern California and The Univ. of Texas/Austin; J. R. Documet, B. J. Liu, Univ. of Southern California [6516-23]</p> <p>4:10 pm: Managing healthcare information using short message service (SMS) in wireless broadband networks, J. R. Documet, S. Tsao, B. J. Liu, Z. Z. Zhou, Univ. of Southern California; L. Documet, Saints John's Health Ctr. [6516-24]</p> <p>4:30 pm: A data grid for imaging-based clinical trials, Z. Z. Zhou, B. J. Liu, H. K. Huang, J. R. Documet, J. Lee IV, Univ. of Southern California [6516-25]</p> <p>4:50 pm: A PDA study management tool (SMT) utilizing wireless broadband and full-DICOM viewing capability, J. R. Documet, B. J. Liu, Z. Z. Zhou, H. K. Huang, S. Tsao, Univ. of Southern California; L. Documet, Saint John's Health Ctr. [6516-26]</p> <p>6516 continues on page 39 ➡</p>

Don't miss the Poster Awards during Poster Receptions

The following posters will be on display Tuesday and Wednesday, 20-21 February in the Golden Pacific Ballroom. The reception for these posters, with authors in attendance at his or her poster, will be Wednesday evening from 5:30 to 7:00 pm. All poster awards will be presented at 6:30 pm during the reception.

Conference 6510
Physics of Medical Imaging

Radiography/Computed Tomography

- ✓ **Experimental benchmarking of a Monte Carlo dose simulation code for pediatric CT**, X. Li, E. Samei, Duke Univ.; T. Yoshizumi, G. Nguyen, L. Daigle, Duke Univ. Medical Ctr.; J. G. Colsher, GE Healthcare; D. P. Frush, Duke Univ. Medical Ctr. [6510-81]
- ✓ **Low dose applications of lightspeed VCT in cardiac imaging**, J. Li, GE Healthcare China Ltd. (China); J. Hsieh, R. J. Lundgren, GE Healthcare; Y. Shen, GE Healthcare China Ltd. (China) [6510-82]
- ✓ **Radiation dose from MDCT using Monte Carlo simulations: estimating fetal dose due to pulmonary embolism scans accounting for overscan**, E. Angel, David Geffen School of Medicine; C. Wellnitz, Mayo Clinic Scottsdale; M. Goodsitt, Univ. of Michigan; J. J. DeMarco, C. H. Cagnon, Univ. of California/Los Angeles; M. Ghatali, David Geffen School of Medicine; D. D. Cody, D. M. Stevens, The Univ. of Texas M.D. Anderson Cancer Ctr.; C. H. McCollough, A. N. Primak, Mayo Clinic; M. F. McNitt-Gray, Univ. of California/Los Angeles [6510-83]
- ✓ **Methodology for determining dose reduction for chest tomosynthesis**, C. M. Li, J. T. Dobbins III, Duke Univ. [6510-84]
- ✓ **Coupling the use of anti-scatter grid with analytical scatter estimation in cone beam CT**, J. Rinkel, L. Gerfault, Commissariat à l’Energie Atomique (France); F. Estève, European Synchrotron Radiation Facility (France); J. Dinten, Commissariat à l’Energie Atomique (France) [6510-85]
- ✓ **Initial application of digital tomosynthesis to improve brachytherapy treatment planning**, A. H. Baydush, M. Mirzaei-McKee, J. King, Wake Forest Univ. [6510-86]
- ✓ **CATSIM: a new Computer Assisted Tomography SIMulation environment**, B. De Man, S. Basu, GE Global Research; N. Chandra, B. Dunham, GE Healthcare; P. M. Edic, M. Iatrou, GE Global Research; S. M. McOlash, P. Sainath, C. Shaughnessy, GE Healthcare; B. Tower, GE Global Research; E. C. Williams, GE Healthcare [6510-87]
- ✓ **Dual-energy contrast enhanced digital mammography using a new approach for breast tissue canceling**, S. Puong, X. Bouchevreau, F. Patoureaux, R. Iordache, S. L. Muller, GE Healthcare France (France) [6510-88]
- ✓ **Dedicated dental volumetric and total body multislice computed tomography: a comparison of image quality and radiation dose**, S. Strocchi, Ospedale di Circolo e Fondazione Macchi Varese (Italy); V. Colli, Univ. degli Studi dell’Insubria Hospital (Italy); R. Novario, G. Carrafiello, Univ. degli Studi dell’Insubria (Italy); A. Giorgianni, A. Macchi, C. Fugazzola, Ospedale di Circolo e Fondazione Macchi Varese (Italy); L. Conte, Univ. degli Studi dell’Insubria (Italy) [6510-89]
- ✓ **Semi-empirical scattering correction model for MSCT**, O. Amir, I. Sabo-Napadensky, Philips Medical Systems Technologies Ltd. (Israel) [6510-90]
- ✓ **Scattering phenomena in MSCT: measurements and analysis**, I. Sabo-Napadensky, O. Amir, Philips Medical Systems Technologies Ltd. (Israel) [6510-91]
- ✓ **Optimized anti-scatter grids for flat panel detectors**, M. Lendl, Siemens Medical Solutions (Germany) [6510-92]
- ✓ **On the development of Gaussian noise model for scatter compensation**, J. Q. Xia, G. D. Tourassis, J. Y. Lo, C. E. Floyd, Jr., Duke Univ. [6510-93]
- ✓ **Clinical usefulness of automatic cardiac phase selection in coronary CT angiography (CTA)**, T. Ota, Toshiba Information Systems Japan Corp. (Japan); I. A. Hein, Toshiba Medical Research Institute USA, Inc.; M. Okumura, Toshiba Medical Systems Corp. (Japan); H. Anno, K. Katada, Fujita Health Univ. (Japan) [6510-94]
- ✓ **Enhancement of edge response in same matrix size of X-ray CT image without special image processing**, N. Yasuda, Y. Ishikawa, Y. Kodera, Nagoya Univ. (Japan) [6510-95]
- ✓ **Application of time sampling in brain CT perfusion imaging for dose reduction**, S. H. Lee, J. H. Kim, K. G. Kim, S. J. Park, B. I. Choi, Seoul National Univ. Institute of Radiation Medicine (South Korea) [6510-96]
- ✓ **Robust temporal resolution of MSCT cardiac scan by rotation-time update scheme based on analysis of patient ECG database**, S. Glasberg, Philips Medical Systems Technologies Ltd. (Israel); D. Farjun, M. Ankr, Jerusalem College of Technology (Israel); M. Shnapp, A. Altman, Philips Medical Systems Technologies Ltd. (Israel) [6510-97]
- ✓ **Development of the translating and rotating volume computed tomography (TRVCT)**, S. W. Park, Y. Yi, Korea Univ. (South Korea); J. B. Park, DRGEM Corp. (South Korea) [6510-98]
- ✓ **Dose reduction of up to 75% while maintaining image quality in cardiovascular CT achieved with prospective ECG gating**, J. H. Londt, U. Shreter, GE Healthcare [6510-99]
- ✓ **Quantitative flow phantom for contrast-enhanced breast tomosynthesis**, M. L. Nock, Sunnybrook and Women’s Health Sciences Ctr. (Canada) and Univ. of Toronto (Canada); M. P. Kempston, J. G. Mainprize, Sunnybrook and Women’s Health Sciences Ctr. (Canada); M. J. Yaffe, Sunnybrook and Women’s Health Sciences Ctr. (Canada) and Univ. of Toronto (Canada) [6510-103]
- ✓ **Laser-induced photoacoustic imaging: a tool for real time in vitro identification of breast cancer**, Y. H. El-Sharkawy, Cairo Univ. (Egypt) [6510-104]
- ✓ **Dual-energy contrast-enhanced breast imaging optimization using contrast to noise ratio**, C. D. Arvanitis, G. J. Royle, R. D. Speller, Univ. College London (United Kingdom) [6510-105]
- ✓ **Breast density mapping based upon system calibration, X-ray techniques, and FFDM images**, B. Chen, A. P. Smith, Z. Jing, T. Wu, Hologic, Inc. [6510-106]
- ✓ **A novel cone beam breast CT scanner: system evaluation**, R. Ning, D. L. Conover, Y. Yu, Y. Zhang, W. Cai, R. Betancourt-Benitez, X. Lu, Univ. of Rochester [6510-108]
- ✓ **A low-angle x-ray scatter technique to extract x-ray spectra and diffraction signals of breast tissue**, R. J. LeClair, P. Zhao, Y. Wang, M. Boileau, Laurentian Univ. (Canada) [6510-109]
- ✓ **Optimization of image quality in digital breast tomosynthesis using lumpectomy and mastectomy samples**, P. Timberg, M. E. Ruschin, T. M. Svahn, B. Hemdal, I. Andersson, A. Tingberg, Lunds Univ. (Sweden) [6510-110]
- ✓ **Segmentation-free estimation of volume changes in 3D ultrasound of breast lesion phantoms**, G. Narayanasamy, B. J. Fowlkes, R. Narayanan, P. L. Carson, Univ. of Michigan [6510-111]
- ✓ **Investigation of the use of iodine as a contrast agent in a proposed CT mammography system**, C. S. Didier, S. J. Glick, Univ. of Massachusetts Medical School; X. Gong, Rush Univ. Medical Ctr.; M. M. Mahmoud, Univ. of Massachusetts/Lowell [6510-112]
- ✓ **Novel single X-ray absorptometry method to solve for volumetric breast density in mammograms with paddle tilt**, S. Malkov, J. Wang, J. A. Shepherd, Univ. of California/San Francisco [6510-113]
- ✓ **Breast positioning system for full field digital mammography and digital breast tomosynthesis system**, M. J. Varjonen, Planned Oy (Finland); M. Pamilo, P. Hokka, R. Hokkanen, Health Services Research Ltd. (Finland); P. Strömmer, Planned Oy (Finland) [6510-114]
- ✓ **Analysis of patient bed positioning in SPECT-CT imaging for dedicated mammotomography**, K. L. Perez, D. J. Crotty, P. Madhav, M. P. Tornai, Duke Univ. [6510-115]
- ✓ **Glandular segmentation of cone-beam breast CT volume images**, N. Packard, J. M. Boone, Univ. of California/Davis [6510-116]
- ✓ **Evaluation of a new bow-tie compensation filter for a dedicated breast imaging system**, W. Cai, R. Ning, Y. Zhang, D. L. Conover, Univ. of Rochester [6510-117]
- ✓ **Evaluation of physical image characteristics of phase contrast mammography**, A. Yamazaki, K. Ichikawa, Y. Kodera, Nagoya Univ. (Japan) [6510-118]
- ✓ **Digital breast tomosynthesis geometry calibration**, X. Wang, J. G. Mainprize, M. P. Kempston, G. E. Mawdsley, M. J. Yaffe, Sunnybrook and Women’s Health Sciences Ctr. (Canada) [6510-119]
- ✓ **A new approach to digital breast tomosynthesis for breast cancer screening**, R. M. Nishikawa, I. S. Reiser, The Univ. of Chicago [6510-120]
- ✓ **Development of a model for breast tomosynthesis image acquisition**, I. S. Reiser, R. M. Nishikawa, E. Y. Sidky, M. R. Chinander, P. Seifi, The Univ. of Chicago [6510-121]
- ✓ **Threshold contrast for digital mammography: local CNR in relation to CDMAM performance**, D. A. Vandenberg, M. Van den Zegel, F. Wanninger, W. Jacobs, E. Widemann, Agfa-Gevaert Group (Belgium) [6510-122]

Innovative Imaging

- ✓ **Super-resolution ultrasound tomography: a preliminary study with a ring array**, F. Simonetti, Imperial College London (United Kingdom); L. Huang, Los Alamos National Lab.; N. Duric, O. Rama, Karmanos Cancer Institute and Wayne State Univ. [6510-124]
- ✓ **Development of qualitative near-infrared vascular imaging system with tuned aperture computed tomography**, T. Matsushita, T. Miyati, K. Nakayama, T. Hamaguti, Kanazawa Univ. (Japan); Y. Hayakawa, Tokyo Dental College (Japan); A. G. Farman, Univ. of Louisville; Y. Kikuchi, Kanazawa Univ. (Japan) [6510-126]
- ✓ **Carbon nanotube based microfocus field emission X-ray source for microCT imaging**, Z. Liu, Y. Z. Lee, The Univ. of North Carolina at Chapel Hill; D. S. Lalush, North Carolina State Univ.; J. Lu, O. Zhou, The Univ. of North Carolina at Chapel Hill [6510-127]
- ✓ **Dynamic cone-beam microCT using carbon nanotube based microfocus field emission X-ray source**, Z. Liu, Y. Z. Lee, The Univ. of North Carolina at Chapel Hill; D. S. Lalush, North Carolina State Univ.; J. Lu, O. Zhou, The Univ. of North Carolina at Chapel Hill [6510-128]
- ✓ **Adaptive MOEMS mirrors for medical imaging**, R. Fayek, Biomedical Photometrics Inc. (Canada) and Univ. of Waterloo (Canada); H. Ibrahim, Univ. of Waterloo (Canada) [6510-129]
- ✓ **Energy and dose considerations for diffraction enhanced CT in small animal studies**, D. M. Connor, Jr., F. A. Dilmanian, Brookhaven National Lab.; C. Parham, The Univ. of North Carolina at Chapel Hill; T. Kao, Z. Zhong, Brookhaven National Lab. [6510-130]
- ✓ **Characterization of a novel microCT detector for small animal computed tomography (CT)**, S. C. Thacker, V. Nagarkar, Radiation Monitoring Devices, Inc.; H. Liang, Univ. of California/Davis; V. B. Gaysinskiy, S. R. Miller, Radiation Monitoring Devices, Inc.; S. R. Cherry, Univ. of California/Davis [6510-131]
- ✓ **Dual-energy cone-beam micro-CT for animal imaging: preliminary study**, S. Cho, E. Y. Sidky, J. Bian, X. M. Pan, The Univ. of Chicago [6510-132]

- ✓ **A system model for pinhole SPECT simulating edge penetration, detector, and pinhole response and nonuniform attenuation**, C. Wietholt, National Health Research Institutes (Taiwan); I. Hsiao, Chang Gung Univ. (Taiwan); C. Chen, The Univ. of Chicago [6510-133]
- ✓ **Analytical deconvolution for improvement in spatial resolution of the In-111 coincidence camera**, Z. Cao, Medical College of Georgia [6510-134]
- ✓ **Mean absorbed dose to mouse in micro-CT imaging with an ultrafast laser-based x-ray source**, A. Krol, Upstate Medical Univ./SUNY; H. Ye, R. E. Kincaid, Syracuse Univ.; J. M. Boone, Univ. of California/Davis; M. Servol, J. Kieffer, Institut National de la Recherche Scientifique (Canada); Y. I. Nesterets, T. E. Gureyev, A. W. Stevenson, S. W. Wilkins, CSIRO (Australia); E. D. Lipson, Syracuse Univ.; R. Toth, Institut National de la Recherche Scientifique (Canada); A. Pogany, CSIRO (Australia); I. L. Coman, Ithaca College [6510-135]
- ✓ **Frequency multiplexing radiography based on carbon nanotube field emission x-ray technology**, J. Zhang, G. Yang, Y. Lee, S. Chang, J. Lu, O. Zhou, The Univ. of North Carolina at Chapel Hill [6510-136]
- ✓ **Modeling and testing of a non-standard scanning device with dose reduction potential**, H. de las Heras, O. Tischenko, Forschungszentrum für Umwelt und Gesundheit, GmbH (Germany); Y. Xu, Univ. of Oregon; H. Schlattl, C. Hoeschen, Forschungszentrum für Umwelt und Gesundheit, GmbH (Germany) [6510-137]
- ✓ **Imaging with Iridium photons: an application in brachytherapy**, F. Verhaegen, S. Palefsky, D. Rempel, E. Poon, McGill Univ. (Canada) [6510-138]
- ✓ **Recovery of hemoglobin images from MR-guided NIR spectroscopy**, B. W. Pogue, C. M. Carpenter, P. K. Yalavarthy, S. C. Davis, J. Wang, K. D. Paulsen, Dartmouth College [6510-139]
- ✓ **Micro-tomographic images of the biological soft-tissue using synchrotron X-rays**, D. V. Rao, Sir.C.R.R. Autonomous College (India) [6510-140]

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- ✓ **Photon counting pixel architecture for X-ray and gamma-ray imaging applications**, A. H. Goldan, L. Ng, Simon Fraser Univ. (Canada); J. A. Rowlands, Sunnybrook and Women's Health Sciences Ctr. (Canada); K. S. Karim, Simon Fraser Univ. (Canada) [6510-141]
- ✓ **Amplified pixel sensor architectures for low dose computed tomography using silicon thin film technology**, F. Taghibakhsh, K. S. Karim, Simon Fraser Univ. (Canada) [6510-142]
- ✓ **Multidetector-row CT with a 64-row amorphous silicon flat panel detector**, E. G. Shapiro, Varian Imaging Products; R. E. Colbeth, E. Daley, D. Humber, D. Jones, I. P. Mollov, T. Mollov, J. M. Pavkovich, P. G. Roos, C. A. Tognina, Varian Medical Systems, Inc. [6510-143]
- ✓ **Comparison of multi-arm VRX CT scanners through computer models**, D. A. Rendon, F. A. DiBianca, G. S. Keyes, The Univ. of Tennessee Health Science Ctr. [6510-144]
- ✓ **Effect of multiple rare earth dopants on the quantum efficiency (QE) of alkali halide storage phosphors**, V. J. Weir, Univ. of Minnesota [6510-145]
- ✓ **Evaluation of Moire artifacts with stationary anti-scatter grids in amorphous selenium-based flat panel X-ray detector system**, K. Oda, Anjo Kosei Hospital (Japan); M. Tsuzaka, Nagoya Univ. (Japan) [6510-146]
- ✓ **A simple all-digital PET system**, Q. Xie, The Univ. of Chicago and Huazhong Univ. of Science and Technology (China); C. Kao, The Univ. of Chicago; R. Xia, X. Wang, N. Li, X. Jiang, L. Zhi, Z. Deng, Huazhong Univ. of Science and Technology (China); C. Chen, The Univ. of Chicago; Z. Zhang, Huazhong Univ. of Science and Technology (China) [6510-147]
- ✓ **Comparison of compound semiconductor radiation films deposited by screen printing method**, C. Choi, J. Park, B. Cha, K. Kim, S. Nam, Inje Univ. (South Korea) [6510-148]
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- ✓ **The effect of blood vessels on the computation of the scanning laser ophthalmoscope retinal thickness map**, A. C. Mantri, Lickenbrock Engineering, Inc.; Y. Li, N. Hutchings, J. G. Flanagan, Univ. of Waterloo (Canada); T. J. Holmes, Lickenbrock Engineering, Inc. [6514-106]
- ✓ **Automated tumor delineation using joint PET/CT information**, V. Potesil, St. John's College (United Kingdom) and Univ. of Oxford (United Kingdom); X. Huang, X. S. Zhou, Siemens Medical Solutions USA, Inc. [6514-107]
- ✓ **Detection of retinal nerve fiber layer defects in retinal fundus images using Gabor filtering**, Y. Hayashi, TAK Co., Ltd. (Japan) and TAK Co., Ltd. (Japan); T. Nakagawa, Gifu Univ. (Japan); Y. Hatanaka, Gifu National College of Technology (Japan); A. Aoyama, Gifu Univ. (Japan); M. Kakogawa, TAK Co., Ltd. (Japan); T. Hara, H. Fujita, T. Yamamoto, Gifu Univ. (Japan) [6514-108]
- ✓ **Classification of cirrhotic liver in Gadolinium-enhanced MR images**, G. N. Lee, Y. Uchiyama, X. Zhang, M. Kanematsu, X. Zhou, T. Hara, H. Kato, H. Kondo, H. Fujita, H. Hoshi, Gifu Univ. (Japan) [6514-109]
- ✓ **Fully automatic screening of immunocytochemically stained cytopathological specimens for early cancer detection**, A. A. Bell, T. E. Schneider, D. A. C. Müller-Frank, D. Meyer-Ebrecht, RWTH Aachen (Germany); A. Böcking, Heinrich-Heine-Univ. Dusseldorf (Germany); T. Aach, RWTH Aachen (Germany) . . [6514-110]
- ✓ **Automated detection of extradural and subdural hematoma for contrast-enhanced CT images in emergency medical care**, T. Hara, H. Fujita, N. Matoba, Gifu Univ. (Japan); K. Sakashita, T. Matsuoka, Osaka Pref. Senshu Critical Care Medical Ctr. (Japan) [6514-111]
- ✓ **Digital staining of pathological images: dye amount correction for improved classification performance**, P. A. Bautista, T. Abe, M. Yamaguchi, Tokyo Institute of Technology (Japan); Y. Yagi, Univ. of Pittsburgh; N. Ohyama, Tokyo Institute of Technology (Japan) [6514-112]
- ✓ **Bone, blood vessels, and muscles anatomical space segmentation and creating database based on dynamic and nondynamic multi-slice CT image of head and neck**, M. Shabbir Ahamed, M. Kubo, Y. Kawata, N. Niki, H. Iwasaki, The Univ. of Tokushima (Japan) [6514-113]
- ✓ **Automatic segmentation of uterine cervix for in vivo detection of cervical intraepithelial neoplasia**, Y. Tamrat, T. Johnson, J. Schoonmaker, S. Saggese, Apogen Technologies [6514-114]
- ✓ **Automatic selection of region of interest for radiographic texture analysis**, L. Lan, M. L. Giger, J. R. Wilkie, W. Chen, H. Li, T. J. Vokes, T. Lyons, M. R. Chinander, The Univ. of Chicago [6514-115]
- ✓ **Automatic CAD of meniscal tears on MR imaging: a morphology-based approach**, B. Ramakrishna, W. Liu, Univ. of Maryland/Baltimore County; N. M. Safdar, Univ. of Maryland Medical School; K. M. Siddiqui, VA Maryland Health Care System; W. Kim, Univ. of Pennsylvania and VA Maryland Health Care System; K. Juluru, VA Maryland Health Care System and Johns Hopkins Univ. School of Medicine; C. Chang, Univ. of Maryland/Baltimore County; E. L. Siegel, VA Maryland Health Care System [6514-116]
- ✓ **Characterization of solid pulmonary nodules using three-dimensional features**, A. Jirapatnakul, A. P. Reeves, T. V. Apanasovich, M. Cham, D. F. Yankelevitz, C. I. Henschke, Cornell Univ. [6514-123]
- ✓ **False positive reduction for lung nodule CAD**, L. Zhao, L. Boroczky, J. Drysdale, L. Agnihotri, Philips Research USA [6514-124]
- ✓ **Extrapolation techniques for textural characterization of tissue in medical images**, W. F. Sensakovic, S. G. Armato III, A. Starkey, The Univ. of Chicago [6514-125]
- ✓ **Quantitative kinetic analysis of lung nodules by temporal subtraction technique in dynamic chest radiography with a flat panel detector**, Y. Tsuchiya, Y. Kodera, Nagoya Univ. (Japan) [6514-126]
- ✓ **3D temporal subtraction on multislice CT images using nonlinear warping technique**, T. Ishida, Hiroshima International Univ. (Japan); S. Katsuragawa, Kumamoto Univ. (Japan); I. Kawashita, Hiroshima International Univ. (Japan); H. Kim, Y. Itai, Kyushu Institute of Technology (Japan); K. Awai, Kumamoto Univ. (Japan); Q. Li, K. Doi, The Univ. of Chicago [6514-127]
- ✓ **Automatic two-step detection of pulmonary nodules**, M. Dolejsi, J. Kybic, Czech Technical Univ. in Prague (Czech Republic) [6514-128]
- ✓ **3D-based detection of localized ground glass opacity (GGO) using hybrid method and artificial neural network (ANN)**, K. G. Kim, J. H. Kim, S. Park, S. H. Lee, J. Lee, Seoul National Univ. (South Korea) [6514-129]
- ✓ **Algorithm of pulmonary emphysema extraction**, S. Saita, M. Kubo, Y. Kawata, N. Niki, The Univ. of Tokushima (Japan); Y. Nakano, Shiga Univ. of Medical Science (Japan); H. Ohmatsu, National Cancer Ctr. Hospital East (Japan); K. Tominaga, Tochigi Public Health Service Association (Japan); K. Eguchi, Tokai Univ. (Japan); N. Moriyama, National Cancer Ctr. Hospital East (Japan) [6514-130]
- ✓ **Application of supervised range-constrained thresholding to extract lung pleura for automated detection of pleural thickenings from thoracic CT images**, K. Chaisaowong, A. Knepper, RWTH Aachen (Germany); T. Kraus, Univ. Hospital Aachen (Germany); T. Aach, RWTH Aachen (Germany) . . [6514-131]
- ✓ **Computer-aided detection of ground glass opacity using 3D feature analysis with multidetector CT**, J. S. Kim, Korea Advanced Institute of Science and Technology (South Korea); J. W. Lee, Electronics and Telecommunications Research Institute (South Korea); J. Kim, Chungnam National Univ. (South Korea); J. Jeong, Electronics and Telecommunications Research Institute (South Korea); S. Kim, Chungnam National Univ. (South Korea); S. Lee, S. Kim, Electronics and Telecommunications Research Institute (South Korea); G. Cho, Korea Advanced Institute of Science and Technology (South Korea); J. M. Goo, Seoul National Univ. (South Korea) [6514-132]
- ✓ **Extracting alveolar structure of human lung tissue specimens based on surface skeleton representation from 3D micro-CT images**, H. Ishimori, Y. Kawata, N. Niki, The Univ. of Tokushima (Japan); M. Fujii, Toshiba Corp. (Japan); Y. Nakaya, National Cancer Ctr. Hospital East (Japan); E. Matsui, Gifu Research Institute for Environmental Medicine (Japan); H. Ohmatsu, N. Moriyama, National Cancer Ctr. Hospital East (Japan) . . . [6514-133]
- ✓ **Image-based diagnostic aid for interstitial lung disease with secondary data integration**, A. Depeursinge, H. Müller, A. Hidki, P. Poletti, A. Platon, A. Geissbuhler, Univ. Hospital of Geneva (Switzerland) [6514-134]
- ✓ **Labeling the pulmonary arterial tree in CT images for automatic quantification of pulmonary embolism**, R. J. M. Peters, H. A. Marquering, H. Dogan, Leids Univ. Medisch Ctr. (Netherlands); E. A. Hendriks, Technische Univ. Delft (Netherlands); A. de Roos, J. H. C. Reiber, B. C. Stoel, Leids Univ. Medisch Ctr. (Netherlands) . . [6514-135]
- ✓ **An automated system for lung nodule detection in low-dose computed tomography**, I. Gori, Bracco Imaging (Italy); A. Preite Martinez, Museo Storica della Fisica e Ctr Studi e Ricerche Enrico Fermi (Italy); A. Retico, Univ. degli Studi di Pisa (Italy) [6514-136]

Thoracic Imaging

- ✓ **Evaluation of lung nodule growth measurement for MDCT exams with different dosages using synthetic nodules**, H. Chui, X. Zhang, R2 Technology Inc.; E. Olcott, Stanford Univ.; P. Raffy, N. Yu, R2 Technology Inc. [6514-117]
- ✓ **Texture-based computer-aided diagnosis system for lung fibrosis**, J. J. Caban, Univ. of Maryland/Baltimore County; J. Yao, N. Avila, J. Fontana, National Institutes of Health . [6514-118]
- ✓ **Prediction of tumor volumes using an exponential model**, A. Jirapatnakul, A. P. Reeves, T. V. Apanasovich, D. F. Yankelevitz, C. I. Henschke, Cornell Univ. [6514-119]
- ✓ **Classifying pulmonary nodules using dynamic enhanced CT images based on CT number histogram**, K. Minami, Y. Kawata, N. Niki, The Univ. of Tokushima (Japan); K. Mori, Tochigi Cancer Ctr. (Japan); K. Yamada, Kanagawa Cancer Ctr. (Japan); H. Ohmatsu, R. Kakinuma, M. Kusumoto, National Cancer Ctr. Hospital East (Japan); K. Eguchi, Tokai Univ. School of Medicine (Japan); N. Moriyama, National Cancer Ctr. Hospital East (Japan) [6514-120]
- ✓ **Automated alignment of serial thoracic scans using bone structure descriptors**, M. A. Gavrielides, N. Petrick, K. J. Myers, U.S. Food and Drug Administration [6514-121]
- ✓ **Differentiating solitary pulmonary nodules (SPNs) with 3D shape features**, Y. Wang, M. F. McNitt-Gray, J. G. Goldin, D. R. Aberle, M. S. Brown, H. Zhao, Univ. of California/Los Angeles [6514-122]

✓ Posters — Tuesday/Wednesday

- ✓ **Automated anatomical labeling algorithm of bronchial branches based on multi-slice CT images**, J. Kawai, S. Saita, M. Kubo, Y. Kawata, N. Niki, The Univ. of Tokushima (Japan); Y. Nakano, Shiga Univ. of Medical Science (Japan); H. Nishitani, The Univ. of Tokushima (Japan); H. Ohmatsu, National Cancer Ctr. Hospital East (Japan); K. Eguchi, Tokai Univ. School of Medicine (Japan); M. Kaneko, The Univ. of Tokushima (Japan); M. Kusumoto, National Cancer Ctr. Hospital East (Japan); R. Kakinuma, The Univ. of Tokushima (Japan); N. Moriyama, National Cancer Ctr. Hospital East (Japan) [6514-137]

Conference 6515

Image Perception, Observer Performance, & Technology Assessment

- ✓ **Evaluation of an interactive computer-aided diagnosis system for mammography: a pilot study**, B. Zheng, G. A. Abrams, C. A. Britton, C. M. Hakim, A. Lu, R. J. Clearfield, J. M. Drescher, G. S. Maitz, D. Gur, Univ. of Pittsburgh [6515-42]
- ✓ **Observer evaluation of computer-aided detection: second reader versus concurrent reader scenario**, S. Paquerault, U.S. Food and Drug Administration; D. T. Wade, U.S. Food and Drug Administration and Univ. of Miami/Coral Gables; N. Petrick, K. J. Myers, F. W. Samuelson, U.S. Food and Drug Administration [6515-43]
- ✓ **Evaluation methods of effective CAD use by means of the bias with variance characteristic (BVC) analysis and analysis of internal structure of a ROC-curve**, T. Matsumoto, A. Furukawa, K. Nishizawa, National Institute of Radiological Sciences (Japan); S. Wada, Niigata Univ. (Japan); S. Yamamoto, Toyohashi Univ. of Technology (Japan) and Chukyo Univ. (Japan); K. Murao, Fujitsu Ltd. (Japan); M. Matsumoto, Tokyo Metropolitan Univ. (Japan) and Daiichi Hospital (Japan); S. Sone, JA Azumi General Hospital (Japan); K. Fukuhisa, T. Iinuma, Y. Tateno, National Institute of Radiological Sciences (Japan) [6515-44]

- ✓ **Do aging displays impact observer performance and visual search efficiency?**, E. A. Krupinski, H. Roehrig, J. Fan, The Univ. of Arizona ... [6515-45]
- ✓ **High-luminance monochrome vs. low-luminance monochrome and color softcopy displays: observer performance and visual search efficiency**, E. A. Krupinski, H. Roehrig, J. Fan, The Univ. of Arizona; T. Yoneda, Eizo Nanao Corp. (Japan) ... [6515-46]
- ✓ **A new imaging-quality evaluation method for low-contrast resolution in computed tomography**, T. Akita, N. Yagi, National Cancer Ctr. Hospital East (Japan) [6515-47]
- ✓ **Remote vs. head-mounted eye tracking: a comparison using radiologists reading mammograms**, C. Mello-Thoms, Univ. of Pittsburgh [6515-48]
- ✓ **Expert novice differences in the interpretation of ultrasound data: evidence from an eye tracking experiment**, S. R. Chambers, A. G. Gale, Loughborough Univ. (United Kingdom) [6515-49]
- ✓ **Combining a wavelet transform with a channelized Hotelling observer for tumor detection in 3D PET oncology imaging**, C. Lartzien, S. Tomei, V. Maxim, C. Odet, Ctr. de Recherche et d'Applications en Traitement de l'Image et du Signal (France) [6515-50]
- ✓ **Optimization of iterative image reconstruction method in PET/SPECT using channelized Hotelling observer**, W. Mukai, K. Murase, S. Fukami, K. Matsumoto, K. Shimizu, X. Yang, M. Senda, Osaka Univ. (Japan) [6515-51]
- ✓ **Computerized observers for optimizing simulated x-ray imaging chain**, I. Son, Rensselaer Polytechnic Institute [6515-52]
- ✓ **Comparison of human observers and CDCOM software reading for CDMAM images**, N. Lanconelli, Univ. degli Studi di Bologna (Italy); S. Rivetti, Azienda USL di Modena (Italy) [6515-53]
- ✓ **How much is enough: factors affecting the optimal interpretation of breast screening mammograms**, H. J. Scott, A. G. Gale, Loughborough Univ. (United Kingdom) [6515-54]

- ✓ **The pixel size dependency on calcification reproducibility in digital mammography**, T. Kuwabara, N. Iwasaki, K. Yamane, T. Kojima, K. Fukushima, T. Agano, Fuji Photo Film Co Ltd (Japan) [6515-55]
- ✓ **Evaluation of the global effect of anatomical background on microcalcifications detection**, F. Zanca, C. Van Ongeval, J. Jacobs, Univ. Ziekenhuizen Leuven (Belgium); P. Pöyry, STUK-Radiation and Nuclear Safety Authority (Finland); G. Marchal, H. T. C. Bosmans, Katholieke Univ. Leuven (Belgium) [6515-56]
- ✓ **Performance evaluation of CT-automatic exposure control devices**, D. F. Gutierrez, S. Schmidt, A. Denys, P. Schnyder, F. O. Bochud, F. R. Verdun, Institut Univ. de Radiophysique Appliquée (Switzerland) [6515-57]
- ✓ **Development of a visualization method for assessing treatment response in tumors using dynamic contrast-enhanced magnetic resonance imaging**, M. Shohei, K. Murase, X. Yang, Osaka Univ. (Japan); Y. Sugawara, M. Kajihara, K. Sakayama, K. Kikuchi, T. Mochizuki, Ehime Univ. (Japan) [6515-58]
- ✓ **Multicenter MRI volume and linearity behavior**, M. Barbu-Mclnris, L. Molinelli, E. Durkin, S. M. Totterman, J. G. Tamez-Peña, VirtualScopics, LLC ... [6515-59]
- ✓ **Clinical evaluation of new workflow-efficient image processing for digital radiography**, L. L. Barski, M. E. Couwenhoven, X. Wang, L. M. Fletcher-Heath, Eastman Kodak Co.; M. Dupin, Howard M. Proskin & Associates; D. Katz, A. Price, A. Kranz, Winthrop-Univ. Hospital; D. H. Foos, Eastman Kodak Co. [6515-60]
- ✓ **A software system for the simulation of chest lesions**, J. T. Ryan, M. F. McEntee, Univ. College Dublin (Ireland); M. G. Evanoff, The American Board of Radiology; P. C. Brennan, Univ. College Dublin (Ireland); D. J. Manning, St. Martin's College (United Kingdom) [6515-61]

- ✓ **Implementing a large-scale multicentric study for evaluation of lossy JPEG and JPEG2000 medical image compression: challenges and rewards**, D. A. Koff, Univ. of Toronto (Canada); P. R. Bak, Canada Health Infoway Inc. (Canada); H. Shulman, Univ. of Toronto (Canada); L. Lepanto, Univ. de Montréal (Canada); A. Volkening, Sunnybrook Health Science Ctr. (Canada); P. Brownrigg, Fraser Health Authority (Canada); A. Kiss, T. Michalak, Sunnybrook Health Science Ctr. (Canada) [6515-62]
 - ✓ **Development of surgical lighting for enhanced color contrast**, M. Litorja, S. W. Brown, M. E. Nadal, G. T. Fraser, National Institute of Standards and Technology; A. M. Gorbach, National Institutes of Health [6515-63]
- ### Conference 6516

PACS and Imaging Informatics
- ✓ **Development of a new resolution enhancement technology for medical liquid crystal display**, K. Ichikawa, Y. Koderia, Nagoya Univ. (Japan); Y. Nishi, S. Hayashi, M. Hasegawa, Totoku Electric Co., Ltd. (Japan) [6516-42]
 - ✓ **Characterization of color-related properties of displays for medical applications**, J. Fan, H. Roehrig, E. A. Krupinski, The Univ. of Arizona [6516-43]
 - ✓ **Stereo display of CT images for lung cancer screening: a pilot study**, X. Wang, J. E. Durick, D. L. Herbert, A. Lu, S. K. Golla, D. D. Shinde, S. Piracha, K. Foley, C. R. Fuhrman, B. E. Shindel, J. K. Leader, W. F. Good, Univ. of Pittsburgh [6516-44]
 - ✓ **Integrated secure solution for electronic healthcare records sharing**, Y. Yao, C. Zhang, T. Ling, J. Zhang, Shanghai Institute of Technical Physics (China) [6516-45]
 - ✓ **Comparison of fingerprint, iris, and facial biometric verification technologies for user access and patient identification in a clinical environment**, B. Guo, J. R. Documet, B. J. Liu, J. Lee IV, R. Shrestha, K. Wang, H. K. Huang, Univ. of Southern California; Y. Zhang, Georgia Institute of Technology [6516-46]

- ✓ **A digital library for medical imaging activities**, M. dos Santos, S. S. Furuie, Instituto do Coração do Hospital das Clínicas (Brazil) [6516-47]
- ✓ **Anonymization server system for DICOM images**, H. Suzuki, The Univ. of Tokushima (Japan); M. Amano, The Tokushima Univ. Hospital (Japan); M. Kubo, Y. Kawata, N. Niki, H. Nishitani, The Univ. of Tokushima (Japan) [6516-48]
- ✓ **Computer-aided diagnosis workstation and network system for chest diagnosis based on multislice CT images**, H. Satoh, Tokyo Health Care Univ. (Japan); N. Niki, The Univ. of Tokushima (Japan) [6516-49]
- ✓ **A method for assurance of image integrity in CAD-PACS integration**, Z. Z. Zhou, B. J. Liu, H. K. Huang, Univ. of Southern California [6516-50]
- ✓ **A new approach of objective quality evaluation on JPEG2000 lossy-compressed lung cancer CT images**, W. Cai, Y. Tan, J. Zhang, Shanghai Institute of Technical Physics (China) [6516-51]
- ✓ **Medical image compression using cubic spline interpolation with bit-plane compensation**, T. Lin, I-Shou Univ. (Taiwan); S. Chen, Shu-Te Univ. (Taiwan); T. Truong, I-Shou Univ. (Taiwan) [6516-52]
- ✓ **Is a Greulich and Pyle atlas still a good reference for bone age assessment?**, A. Zhang, S. Tsao, J. Sayre, A. Gertych, B. J. Liu, H. K. Huang, Univ. of Southern California; X. Zheng, Wenzhou Medical College (China) [6516-53]

See pp. 16–21 for the Sunday/Monday Poster Presentations

NOTE: Papers not removed at the designated times will be considered **UNWANTED** and will be discarded. SPIE assumes no responsibility for posters left on the poster boards after the designated times.

<p>Conference 6510 continued Physics of Medical Imaging Room: Town & Country</p>	<p>Conference 6514 continued Computer-Aided Diagnosis Room: Golden West</p>	<p>Conference 6515 continued Image Perception, Observer Performance, & Technology Assessment Room: San Diego</p>	<p>Conference 6516 continued PACS and Imaging Informatics Room: California</p>
<p>SESSION 14 Room: Town & Country . . . Thurs. 8:00 to 9:40 am Cone Beam Reconstruction <i>Chair: Jeffrey A. Fessler, Univ. of Michigan</i> 8:00 am: A Poisson likelihood iterative reconstruction algorithm for material decomposition in CT, J. Xu, E. C. Frey, K. Taguchi, B. M. W. Tsui, Johns Hopkins Univ. [6510-70] 8:20 am: Limited-view-angle tomographic image reconstruction via total variation minimization, J. V. Velikina, S. Leng, G. Chen, Univ. of Wisconsin/ Madison [6510-71] 8:40 am: Analytical cone-beam reconstruction using a multisource CT system, Z. Yin, B. De Man, J. Pack, GE Global Research [6510-72] 9:00 am: Gated cone-beam CT imaging of the thorax: a reconstruction study, S. Rit, Ctr. Léon-Bérard (France); D. Sarrut, Ctr. Léon-Bérard (France) and Ctr. de Recherche et d'Applications en Traitement de l'Image et du Signal (France); S. Miguet, Univ. Lumière Lyon 2 (France) [6510-73] 9:20 am: A practical reconstruction algorithm of noise variance map for CT images using FBP reconstruction, L. Zhu, Stanford Univ.; J. Star-Lack, Varian Medical Systems, Inc. [6510-74] Coffee Break 9:40 to 10:10 am 6510 continues on page 40 ►►</p>	<p>SESSION 10 Room: Golden West Thurs. 8:00 to 9:40 am Cardiac/ New Applications <i>Chair: Stephen Aylward, Univ. of North Carolina/Chapel Hill</i> 8:00 am: Segmentation of coronary arteries from CT angiography images, S. Fotin, A. Reeves, M. Cham, C. I. Henschke, D. Yankelevitz, Cornell Univ. [6514-43] 8:20 am: Anatomically constrained maximum likelihood estimation for estimating retinal thickness from scanning laser ophthalmoscope data, B. M. Northan, T. J. Holmes, Lickenbrock Engineering, Inc.; G. Zinser, Heidelberg Engineering GmbH (Germany); J. G. Flanagan, N. Hutchings, Univ. of Waterloo (Canada) [6514-44] 8:40 am: Computer-aided septal defect diagnosis and detection, S. Li, GE Healthcare (Canada); I. D. Ross, London Health Sciences Ctr. (Canada); S. Gill, GE Healthcare (Canada); T. M. Peters, Roberts Research Institute (Canada); R. N. Rankin, The Univ. of Western Ontario (Canada) [6514-45] 9:00 am: Computer-aided assessment of cardiac computed tomography images, M. King, M. L. Giger, K. Suzuki, X. M. Pan, The Univ. of Chicago [6514-46] 9:20 am: (ST) A method for extracting multi-organ from four-phase contrasted CT images based on CT value distribution estimation using EM-algorithm, M. Sakashita, T. Kitasaka, K. Mori, Y. Suenaga, Nagoya Univ. (Japan); S. Nawano, National Cancer Ctr. Hospital East (Japan) [6514-47] 9:30 am: (ST) Automatic polyp segmentation for colonoscopy image using watershed algorithm and ellipse fitting method, S. K. Hwang, The Univ. of Texas/Arlington; J. Oh, Univ. of North Texas; W. Tavanapong, J. S. Wong, Iowa State Univ.; P. C. de Groen, Mayo Clinic [6514-48] Coffee Break 9:40 to 10:10 am ST = Short Talk—Presenters have been selected to prepare short ten-minute presentations. 6514 continues on page 40 ►►</p>	<p>SESSION 5 Room: San Diego Thurs. 8:00 to 9:40 am FROC, LROC, and Other Analyses <i>Chair: Yulei Jiang, The Univ. of Chicago</i> 8:00 am: FROC curves using a model of visual search, D. P. Chakraborty, Univ. of Pittsburgh [6515-21] 8:20 am: A non-intuitive aspect of Swenson's LROC model, P. F. Judy, Brigham and Women's Hospital . . [6515-22] 8:40 am: Approximating the test statistic distribution and ALROC in signal detection tasks with signal location uncertainty, F. Shen, E. W. Clarkson, The Univ. of Arizona [6515-23] 9:00 am: A Bayesian interpretation of the proper binormal ROC model using a uniform prior distribution of the area under the curve: effects on parameter and index estimates with large, small, and perfectly separable degenerate datasets, R. M. Zur, L. L. Pesce, C. E. Metz, Y. Jiang, The Univ. of Chicago . . [6515-24] 9:20 am: An advanced system model for the prediction of the clinical task performance of radiographic systems, K. Topfer, B. W. Keelan, F. R. Sugiuro, Eastman Kodak Co. [6515-25] Coffee Break 9:40 to 10:10 am 6515 continues on page 40 ►►</p>	<p>SESSION 6 Room: California Thurs. 8:00 to 9:40 am Clinical Applications and Quality Assurance I <i>Chair: Khan M. Siddiqui, VA Maryland Health Care System</i> 8:00 am: Characterization of mobile display systems for use in medical imaging, A. Saha, H. Liang, A. Badano, U.S. Food and Drug Administration [6516-28] 8:20 am: Image quality evaluation of color displays using a Fovean color camera, H. Roehrig, J. Fan, W. J. Dallas, E. A. Krupinski, The Univ. of Arizona [6516-29] 8:40 am: Accurate color measurement methods for medical displays, A. Saha, H. Liang, A. Badano, U.S. Food and Drug Administration; E. F. Kelley, National Institute of Standards and Technology [6516-30] 9:00 am: Volumetric measurements of pulmonary nodules: variability in automated analysis tools, K. Juluru, VA Maryland Health Care System and Johns Hopkins Univ. School of Medicine; W. Kim, VA Maryland Health Care System and Hospital of the Univ. of Pennsylvania; W. W. Boonn, Univ. of Pennsylvania; T. King, Univ. of Maryland School of Medicine; J. M. Johnson, K. M. Siddiqui, E. L. Siegel, VA Maryland Health Care System [6516-31] 9:20 am: Utilization of a global data grid repository in CAD assessment of carotid wall thickness, M. A. Gutierrez, Instituto do Coração do Hospital das Clínicas (Brazil); J. Lee IV, Z. Z. Zhou, Univ. of Southern California; P. E. Pilon, S. G. Lage, Instituto do Coração do Hospital das Clínicas (Brazil) [6516-32] Coffee Break 9:40 to 10:10 am 6516 continues on page 40 ►►</p>



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<p>Conference 6510 continued Physics of Medical Imaging Room: Town & Country</p>	<p>Conference 6514 continued Computer-Aided Diagnosis Room: Golden West</p>	<p>Conference 6515 continued Image Perception, Observer Performance, & Technology Assessment Room: San Diego</p>	<p>Conference 6516 continued PACS and Imaging Informatics Room: California</p>
<p>SESSION 15 Room: Town & Country Thurs. 10:10 am to 12:10 pm Advanced Reconstruction <i>Chair: Katsuyuki Taguchi, Johns Hopkins Univ.</i></p> <p>10:10 am: A method for atlas-based volumetric registration with surface constraints for optical bioluminescence tomography in small animal imaging, A. J. Chaudhari, A. A. Joshi, F. Darvas, R. M. Leahy, Univ. of Southern California [6510-75]</p> <p>10:30 am: 3D bioluminescent source localization of different depth with spectrum information and adaptive finite element, Y. Lv, J. Tian, Institute of Automation (China); W. Cong, G. Wang, The Univ. of Iowa; W. Yang, M. Xu, Institute of Automation (China) [6510-76]</p> <p>☆10:50 am: An iterative method for the reconstruction of the coronary arteries from rotational X-ray angiography, E. Hansis, D. Schaefer, M. Grass, Philips Research Labs. (Germany); O. Dössel, Univ. Karlsruhe (Germany) [6510-77]</p> <p>11:10 am: Image reconstruction in digital breast tomosynthesis by total variation minimization, E. Y. Sidky, I. S. Reiser, R. M. Nishikawa, X. M. Pan, The Univ. of Chicago [6510-78]</p> <p>11:30 am: Planar tomosynthesis reconstruction in a parallel-beam framework via virtual object reconstruction, B. E. Nett, S. Leng, G. Chen, Univ. of Wisconsin/Madison [6510-79]</p> <p>11:50 am: Sub-pixel compounding from elasticity imaging data, Z. Yang, S. Sinha, R. Booi, M. A. Roubidoux, B. Ma, B. J. Fowlkes, J. LeCarpentier, P. L. Carson, Univ. of Michigan [6510-80]</p> <p>Lunch Break 12:10 to 1:20 pm</p>	<p>SESSION 11 Room: Golden West Thurs. 10:10 am to 12:10 pm Breast Imaging <i>Chair: Nico Karssemeijer, Radboud Univ. Nijmegen Medical Ctr. (Netherlands)</i></p> <p>10:10 am: The effect of image quality on the appearance of lesions on breast ultrasound: implications for CADx, K. Drukker, C. A. Sennett, M. L. Giger, The Univ. of Chicago [6514-49]</p> <p>10:30 am: Neural network vector quantization improves the diagnostic quality of computer-aided diagnosis in dynamic breast MRI, A. Wismueller, Univ. Muenchen (Germany) and Florida State Univ.; A. Meyer-Baese, Florida State Univ.; G. Leinsinger, O. Lange, T. Schlossbauer, Univ. Muenchen (Germany); M. Reiser, Ludwig-Maximilians-Univ. München (Germany) [6514-50]</p> <p>☆10:50 am: Joint feature selection and classification using a Bayesian neural network with "automatic relevance determination" priors: potential use in CAD of medical imaging, W. Chen, R. M. Zur, M. L. Giger, The Univ. of Chicago [6514-51]</p> <p>11:10 am: Learning distance metrics for interactive search-assisted diagnosis of mammograms, L. Yang, R. Jin, Michigan State Univ.; R. Sukthankar, Carnegie Mellon Univ.; B. Zheng, Univ. of Pittsburgh; L. Mummert, Intel Research Lab. Pittsburgh; M. Satyanarayanan, Carnegie Mellon Univ.; M. Chen, Intel Research Lab. Pittsburgh; D. Jukic, Univ. of Pittsburgh [6514-52]</p> <p>11:30 am: Determination of subjective and objective similarity for pairs of masses on mammograms for selection of similar images, C. Muramatsu, Q. Li, R. A. Schmidt, J. Shiraishi, K. Suzuki, G. M. Newstead, K. Doi, The Univ. of Chicago [6514-53]</p> <p>11:50 am: Classification of mammographic masses using support vector machines and Bayesian networks, M. R. Samulski, N. Karssemeijer, P. Lucas, P. Groot, Radboud Univ. Nijmegen Medical Ctr. (Netherlands) [6514-54]</p> <p>Lunch Break 12:10 to 1:20 pm</p>	<p>SESSION 6 Room: San Diego .. Thurs. 10:10 am to 12:10 pm Model Observers II <i>Chair: Matthew A. Kupinski, College of Optical Sciences/The Univ. of Arizona</i></p> <p>☆10:10 am: Perception of dim targets on dark backgrounds in MRI, M. D. Tisdall, M. S. Atkins, Simon Fraser Univ. (Canada) [6515-26]</p> <p>10:30 am: Evaluation of pi- and 3pi- scans in helical cone-beam CT based on a SKE/BKE detection task, E. Y. Sidky, D. C. Edwards, S. J. LaRoque, X. M. Pan, The Univ. of Chicago [6515-27]</p> <p>☆10:50 am: Perceptual difference model (PDM) for evaluation of MR images: validation and calibration, J. Miao, D. Huo, D. L. Wilson, Case Western Reserve Univ. [6515-28]</p> <p>11:10 am: Markov chain Monte Carlo (MCMC) based ideal observer estimation using a parameterized phantom and a pre-calculated dataset, X. He, B. S. Caffo, F. C. Frey, Johns Hopkins Univ. . [6515-29]</p> <p>11:30 am: Task-based evaluation of practical lens designs for lens-coupled digital mammography systems, L. Chen, The Univ. of Arizona; L. D. Foo, Optical Research Associates; H. H. Barrett, The Univ. of Arizona; K. P. Thompson, Optical Research Associates; R. L. Cortesi, Univ. of Rochester [6515-30]</p> <p>11:50 am: Tools and methods for exposure control optimization in digital mammography in presence of texture, B. Grosjean, GE Healthcare France (France) and Ecole Centrale Paris (France); S. L. Muller, H. Souchay, GE Healthcare France (France) [6515-31]</p> <p>Lunch Break 12:10 to 1:20 pm</p>	<p>SESSION 7 Room: California .. Thurs. 10:10 am to 12:10 pm Clinical Applications and Quality Assurance II <i>Chair: Katherine P. Andriole, Harvard Medical School</i></p> <p>10:10 am: When PACS goes down: optimizing radiology report turnaround time during scheduled PACS downtime, W. W. Boonn, J. Paulett, B. Murti, W. Kim, Univ. of Pennsylvania; K. M. Siddiqui, Veterans Affairs Medical Ctr.; R. O. Redfern, S. C. Horii, Univ. of Pennsylvania [6516-33]</p> <p>10:30 am: A knowledge-based imaging informatics approach to managing proton-beam therapy of brain tumor cases, B. J. Liu, H. K. Huang, Univ. of Southern California; M. Y. Y. Law, The Hong Kong Polytechnic Univ. (China); J. R. Documet, A. Gertych, Univ. of Southern California [6516-34]</p> <p>10:50 am: Effect of increased ambient lighting on detectability: a psychophysical study, A. S. Chawla, E. Samei, Duke Univ.; N. Hashimoto, Eizo Nanao Technologies [6516-35]</p> <p>11:10 am: Bone age assessment for young children from newborn to 7-years old using carpal bones, A. Zhang, A. Gertych, B. J. Liu, H. K. Huang, Univ. of Southern California [6516-36]</p> <p>11:30 am: A CAD system and quality assurance protocol for bone age assessment utilizing digital hand atlas, A. Gertych, B. Ferrara, A. Zhang, B. J. Liu, Univ. of Southern California [6516-37]</p> <p>11:50 am: Image migration: measured retrieval rates, R. M. Witt, Richard L. Roudebush VA Medical Ctr. [6516-38]</p> <p>Lunch Break 12:10 to 1:20 pm</p>
<p>WORKSHOP Theoretical and practical elements of tomosynthesis imaging <i>Town & Country Room · 1:20 to 3:00 pm</i> <i>Presenters: James T. Dobbins III, Duke Univ.; Tao Wu, Hologic, Inc.; Bernhard E. H. Claus, GE Global Research; Thomas Mertelmeier, Siemens AG (Germany)</i> <i>See p. 9 for full description.</i></p>	<p>6514 continues on page 41 ➡</p>	<p>6515 continues on page 41 ➡</p>	<p>6516 continues on page 41 ➡</p>

Conference 6514 continued
Computer-Aided Diagnosis
Room: Golden West

Conference 6515 continued
Image Perception, Observer Performance, & Technology Assessment
Room: San Diego

Conference 6516 continued
PACS and Imaging Informatics
Room: California

SESSION 12
Room: Golden West Thurs. 1:20 to 3:00 pm

Thoracic/Skeletal Imaging

Chair: Maryellen L. Giger, The Univ. of Chicago

1:20 pm: **Assessment of femoral bone quality using co-occurrence matrices and adaptive regions of interest**, K. D. Fritscher, B. Schuler, A. Grünerbl, Univ. für Gesundheitswissenschaften, Medizinische Informatik und Technik (Austria); M. Hänni, K. Schwieger, N. Suhm, AO Foundation (Switzerland); R. Schubert, Univ. für Gesundheitswissenschaften, Medizinische Informatik und Technik (Austria) [6514-55]

*1:40 pm: **Imputation methods for temporal radiographic texture analysis in the detection of periprosthetic osteolysis**, J. R. Wilkie, M. L. Giger, L. L. Pesce, The Univ. of Chicago; C. A. Engh, Sr., R. H. Hopper, Jr., Anderson Orthopaedic Research Institute; J. M. Martell, The Univ. of Chicago [6514-56]

2:00 pm: **Computer-aided root lesion detection using level-set and complex wavelets**, S. Li, GE Healthcare (Canada) [6514-57]

2:20 pm: **Computerized method for detection of vertebral fractures on lateral chest radiographs based on morphometric data**, S. Kasai, F. Li, J. Shiraiishi, Q. Li, T. J. Vokes, H. MacMahon, K. Doi, The Univ. of Chicago [6514-58]

2:40 pm: **Semi-automated location identification of catheters in digital chest radiographs**, B. M. Keller, A. P. Reeves, M. Cham, C. I. Henschke, D. F. Yankelevitz, Cornell Univ. [6514-59]

SESSION 7
Room: San Diego Thurs. 1:20 to 3:00 pm

Technology Assessment I

Chair: Berkman Sahiner, Univ. of Michigan

1:20 pm: **Performance analysis for computer-aided lung nodule detection on LIDC data**, R. Opfer, R. Wiemker, Philips Research Labs. (Germany) [6515-32]

1:40 pm: **Effect of CAD on radiologists' detection of lung nodules on thoracic CT scans: observer performance study**, B. Sahiner, L. M. Hadjiiski, H. Chan, J. Shi, P. N. Cascade, E. A. Kazerooni, C. Zhou, A. R. Chughtai, C. Poopat, T. Song, J. Wei, Univ. of Michigan [6515-33]

2:00 pm: **Reducing variability in the output of artificial neural networks through output calibration**, S. Gupta, W. C. Kan, T. C. Lin, M. K. Markey, Univ. of Texas at Austin Chapter [6515-34]

2:20 pm: **Technology assessment: observer study directly compares screen/film to CR mammography**, L. M. Fletcher-Heath, Eastman Kodak Co.; A. Richards, Eastman Kodak Co. (Canada); S. Ryan-Kron, Eastman Kodak Co. [6515-35]

2:40 pm: **Evaluation of hardware in a small-animal SPECT system using reconstructed images**, J. Y. Hesterman, M. A. Kupinski, E. W. Clarkson, D. W. Wilson, H. H. Barrett, The Univ. of Arizona [6515-36]

Coffee Break 3:00 to 3:30 pm

SESSION 8
Room: San Diego Thurs. 3:30 to 5:10 pm

Technology Assessment II

Chair: Claudia Mello-Thoms, Univ. of Pittsburgh

3:30 pm: **How should radiographic contrast detail curves be analyzed?**, K. M. Ogden, W. Huda, K. Shah, E. M. Scalzetti, R. L. Lavallee, M. L. Roskopf, Upstate Medical Univ./SUNY [6515-37]

3:50 pm: **WorkstationJ: workstation emulation software for medical image perception and technology evaluation research**, K. M. Schartz, The Univ. of Iowa; K. S. Berbaum, Univ. of Iowa Hospitals and Clinics; R. T. Caldwell, M. T. Madsen, The Univ. of Iowa [6515-38]

4:10 pm: **Automatic evaluation of uterine cervix segmentations**, S. Lotenberg, H. Greenspan, Tel-Aviv Univ. (Israel); S. Gordon, Tel Aviv Univ. (Israel); L. R. Long, National Library of Medicine; J. Jeronimo, National Cancer Institute; S. K. Antani, National Library of Medicine [6515-39]

4:30 pm: **Improved detection of coronary artery atherosclerosis using digital dual-energy subtraction radiography**, R. S. Lazebnik, Stanford Univ.; R. C. Gilkeson, Univ. Hospitals of Cleveland; P. B. Sachs, Case Western Reserve Univ. [6515-40]

4:50 pm: **Visual quality assessment of watermarked medical images**, J. A. Dowling, B. M. Planitz, A. J. Maeder, Commonwealth Scientific and Industrial Research Organisation (Australia); J. Du, Queensland Univ. of Technology (Australia); B. L. Pham, C. Boyd, Queensland Univ. of Technology (Australia) and National ICT Australia (Australia); S. Chen, Univ. of Queensland (Australia); A. P. Bradley, Univ. of Queensland (Australia) and National ICT Australia (Australia); S. Crozier, The Univ. of Queensland (Australia) and National ICT Australia (Australia) [6515-41]

SESSION 8
Room: California Thurs. 1:20 to 3:00 pm

Clinical Applications and Quality Assurance III

Chair: Steven C. Horii, Univ. of Pennsylvania

1:20 pm: **Observer Success Rates for Identification of 3D Surface Reconstructed Facial Images and Implications for Patient Privacy and Security**, J. J. Chen, Univ. of Maryland School of Medicine; K. M. Siddiqui, VA Maryland Health Care System; K. Juluru, VA Maryland Health Care System and Johns Hopkins Univ. School of Medicine; W. Kim, VA Maryland Health Care System; N. M. Safdar, Univ. of Maryland School of Medicine; E. L. Siegel, VA Maryland Healthcare System [6516-39]

1:40 pm: **Impact of Dose Reduction on Apparent Nodule Diameter and Volume Measured Using a Commercial Workstation**, J. M. Johnson, K. M. Siddiqui, VA Maryland Health Care System; R. Moffitt, TeraRecon, Inc. and VA Maryland Healthcare System; K. Juluru, VA Maryland Health Care System; E. L. Siegel, VA Maryland Health Care System and Univ. of Maryland Medical School [6516-40]

2:00 pm: **Radiology for non-radiologists, Part I: What we do and why we do it (Invited Paper)**, S. C. Horii, W. W. Boonn, Univ. of Pennsylvania [6516-41]

Coffee Break 3:00 to 3:30 pm

SPECIAL SESSION

Radiology for Non-Radiologists: Part II

Room: California · 3:30 to 5:00 pm

Chair: Steven C. Horii, Univ. of Pennsylvania

**Research opportunities:
 can you help us be more accurate and efficient?**

Dr. Horii will begin this session with a continuation of the "Radiology for non-radiologists" topic, concentrating on the challenges facing radiologists in multiple areas. He will then open the session to questions from the attendees about research areas and topics that are important and how research and engineering can help address the challenges he will describe.

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Digital Mammography and Computer-Aided Diagnosis SC356

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X-Ray Detector Performance: Principles and Measurements using a Linear Systems Approach SC358

Course level: Advanced
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Principles and Advancements in X-ray Computed Tomography SC471

Course level: Introductory
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 Saturday 8:30 am to 12:30 pm

Medical Image Analysis with ITK and Related Open-Source Software SC538

Course level: Intermediate
 CEU .65 \$460 / \$545 USD
 Saturday 8:30 am to 5:30 pm

Statistical Methods in Medical Imaging and Bioengineering with Applications to Observer Performance Evaluation SC613

Course level: Intermediate
 CEU .65 \$460 / \$545 USD
 Tuesday 8:30 am to 5:30 pm

Fundamental Principles and Statistical Analysis of Magnetic Resonance Imaging SC701

Course level: Intermediate
 CEU .65 \$460 / \$545 USD
 Saturday 8:30 am to 5:30 pm

Key:

Price = SPIE Member / Non-Member

Image Guided Procedures and Computer Aided Surgery SC704

Course level: Introductory
 CEU .35 \$280 / \$325 USD
 Saturday 8:30 am to 12:30 pm

Monte Carlo Simulation of Radiation Imaging Systems SC771

Course level: Intermediate
 CEU .35 \$280 / \$325 USD
 Saturday 8:30 am to 12:30 pm

Monte Carlo Simulation of Radiation Imaging Systems - Hands-on Tutorial WS815 **NEW**

Course level: Intermediate
 CEU .00 \$100 / \$150 USD
 Saturday 1:30 to 5:00 pm

An Introduction to Finite Elements for Medical Imaging SC828 **NEW**

Course level: Introductory
 CEU .35 \$345 / \$395 USD
 Saturday 1:30 to 5:30 pm

MIC-GPU: High-Performance Computing for Medical Imaging on Programmable Graphics Hardware (GPU) SC829 **NEW**

Course level: Intermediate
 CEU .35 \$280 / \$325 USD
 Saturday 1:30 to 5:30 pm

Early Career Professional Development in Medical Imaging WS757

Course level: Introductory
 CEU .35 \$100 / \$150 USD
 Sunday 1:30 to 5:30 pm

Writing for Publication in Medical Imaging WS776

Course level: Intermediate
 CEU .35 \$100 / \$150 USD
 Saturday 8:30 am to 12:30 pm

Registration is required.
 See SPIE Cashier to Register.

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SPIE Medical Imaging

17–22 February 2007
Town and Country Resort &
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Internet Access

Terrace Salon III Room

Sunday Noon to 9:00 pm
Monday through Wednesday 7:00 am to 9:00 pm
Thursday 7:00 am to 1:30 pm

The Terrace Salon III Room will be equipped with multiple workstations allowing attendees to access their internet e-mail during the conference and several Ethernet connections to use with your personal laptop. There will be a 10-minute time limit per each person's internet session.

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Guest rooms at the Town and Country Resort & Convention Center are equipped with high speed wireless internet, available at a special discounted rate of \$4.95 for 24 hours for attendees to the Medical Imaging Symposium. Laptops will need an appropriate wireless card and access is available in all guest room areas. Please contact internet call center at Ext. 1234 in order to get this discounted rate. You will need a credit card for this access. Note: WiFi service is not available in or near meeting rooms.

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Conference Center, Upper Level of Atlas Foyer
Monday through Thursday

The business center can make copies, print documents or transparencies from your laptop, fax services and offices supplies. Prices for services are posted on site.

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Due to copyright restrictions, strictly no recordings of any kind are permitted without prior written consent of the presenter in any conference session, short course or posters. Consent forms are available at the SPIE Audiovisual Desk and anyone wishing to record must have a written consent form signed and filed for each presenter being recorded. Individuals not complying with this policy will be asked to leave a given session and asked to surrender their film or recording media.

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Underage Persons on Show Floor

For safety and insurance reasons, no persons under the age of 16 will be allowed in the exhibition area during move-in and move-out. During open exhibition hours, only children over the age of 12 accompanied by an adult will be allowed in the exhibition area.

Onsite Registration Hours

Grand Foyer

Saturday 17 February 7:30 am to 4:00 pm
Sunday 18 February 7:15 am to 5:00 pm
Monday 19 February 7:30 am to 4:00 pm
Tuesday 20 February 7:30 am to 4:00 pm
Wednesday 21 February 7:30 am to 4:00 pm
Thursday 22 February 7:30 am to 1:30 pm

Exhibition Hours

Golden Pacific Ballroom

Monday 19 February 5:00 to 6:30 pm
Tuesday 20 February 9:30 am to Noon; 1:00 to 4:00 pm
Wednesday 21 February 9:30 am to Noon; 1:00 to 4:00 pm

Speakers Check-In Room

Terrace Salon I Room

Saturday through Thursday
17-22 February 7:30 am to 5:00 pm

SPIE will provide computers in all Medical Imaging conference rooms. Authors are required to check in at the Speakers Check-In Room, Terrace Salon I Room, by 5pm of the day prior to presentation to submit oral presentations and confirm compatibility. Oral presentations are best presented in PowerPoint or Adobe Acrobat PDF formats. Presentations can be accepted on pen drive, CD-Rom, or directly from your laptop. Audiovisual questions can be emailed to AVStaff@SPIE.org.

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Coffee and pastries may be purchased for takeout on Lion Fountain Court from 7:00 am to 9:00 am. Attendees may also try the Terrace Café or Trellises Restaurant, both serving a full breakfast, or the Sunshine Deli for other snack items. The Terrace Café is open at 6:00 am; the Sunshine Deli is open starting at 6:30 am and Trellises opens at 7:00 am.

Coffee Breaks

Coffee will be served at 9:30 am to 10:15 am; 3:00 pm to 3:30 pm each. Please check the individual technical conference listings for exact time and location.

SPIE-Hosted Lunches

SPIE-hosted lunches will be served Sunday through Thursday from 12:10 pm to 1:00 pm poolside at the Terrace Pavilion. Should inclement weather prevent outdoor lunches, they will be served downstairs. Complimentary tickets for lunches will be included in registration packets for full-conference registrants. Student attendees will receive a complimentary lunch ticket for Monday, Tuesday and Wednesday. Exhibitors and students may purchase lunch tickets from the cashier at the SPIE Registration Desk if tickets are available.

Attendees need to make their own lunch arrangements on Saturday.

Desserts

Desserts will be served in the Exhibition Hall, Golden Pacific Ballroom on Tuesday and Wednesday at 3:00 pm. Complimentary tickets for the dessert snacks will be included in the attendee registration packets.

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Poster Receptions

Golden Pacific Ballroom

Sunday/Monday Poster Session

(Visualization, Image-Guided Procedures; Physiology, Function, and Structure from Medical Imaging; Image Processing, Ultrasonic Imaging and Signal Processing)

Authors are requested to put up their posters on Sunday from Noon to 1:30 pm.

Sunday Poster Viewing 1:30 pm to 9:00 pm

Monday Poster Viewing 7:15 am to 9:00 pm

Poster area will be closed from 4:00 to 5:00 pm in preparation for poster reception.

Interactive Poster Reception,

Monday 5:00 pm to 6:30 pm

Authors will be in attendance to answer questions. Poster awards will be announced at 6:00 pm.

Extended Poster Viewing 6:30 pm to 9:00 pm

Authors must remove their posters between 6:30 pm to 9:00 pm on Monday. Posters not removed will be discarded.

Tuesday/Wednesday Poster Session

(Physics of Medical Imaging; PACS and Imaging Informatics; Image Perception, Observer Performance, and Technology Assessment; Computer-Aided Diagnosis)

Authors are requested to put up their poster on Tuesday beginning at 9:15 am.

Tuesday Poster Viewing 9:40 am to 9:00 pm

Wednesday Poster Viewing 7:30 am to 4:00 pm

Poster area will be closed from 4:00 to 5:30 pm in preparation for poster reception.

Interactive Poster Reception,

Wednesday 5:30 pm to 7:00 pm

Authors will be in attendance to answer questions. Poster awards will be announced at 6:30 pm.

Extended Poster Viewing 7:00 pm to 9:00 pm

Authors must remove their posters between 7:00 pm to 9:00 pm on Wednesday. Posters not removed will be discarded.

Papers not removed at the designated times will be considered UNWANTED and will be discarded. SPIE assumes no responsibility for posters left on the poster boards at the conclusion of poster sessions.



Hertz Car Rental is the official car rental agency for this Symposium. To reserve a car, identify yourself as a Medical Imaging Conference attendee using the Hertz Meeting Code CV# 029B0010.

In the United States call 1-800-654-2240.

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XPRESS SHUTTLE from the San Diego Airport to the Town & Country Resort is \$10 per person each way. Cash or credit cards accepted, no checks. Call on the courtesy phone from the "Shuttles for Hire" Island and the shuttle will pick you up within 10 minutes. Watch for the yellow & blue van. For further information from Xpress Shuttle call 1-800-900-7433.

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Taxi from San Diego Airport

Taxi service between the airport and the Town & Country Resort is approximately \$23 one-way.

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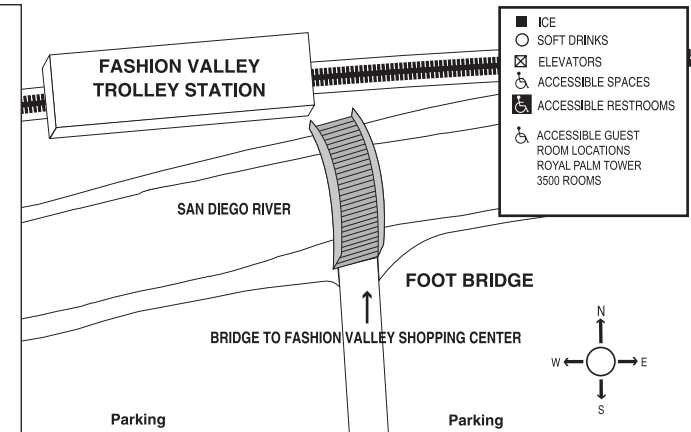
(Metropolitan Transit System)

The San Diego Trolley, i.e. the light rail, is referred to as the "moving landmark" and is a fun way to get around, serving a wide area from the International Border, to Centre City's shopping harbor, Mission Valley, Fashion Valley, Old Town, Downtown including the Gas Lamp Quarter, etc. Fares are based on the trip distance. The fare ranges from \$1.25 to \$3.00 depending on how many stations are traveled (fares are subject to change). Trolley cars are red, and they travel above ground on light rail lines. The closest trolley stop, the Fashion Valley Transit Center is located between the Hotel and the Fashion Valley Mall, handy to Old Town, Downtown and even Tijuana. Check the website www.sdcommute.com or call 619-233-3004 for schedule information.



The Town and Country Resort & Convention Center features 1,000 guest rooms spread over 40 lushly landscaped acres in San Diego's Mission Valley. The hotel has five restaurants providing diverse dining experiences and several lounges offer a relaxing retreat from the day's activities.

For casual dining, try the Terrace Café or for a quick bite visit the Seaport Village. Situated on 22 acres of parkland at the water's edge, over 60 shops, galleries, and boutiques along with restaurants are found in this unique village. At the Sunshine Deli you'll enjoy Charlie's for fun eats, a game of pool or the latest sports events on their big screen TV. Trellises Garden Grille features creative appetizers, healthy light entrees, a variety of pastas and pizzas, fish, vegetable entrees and lavish desserts. Kelly's Steakhouse & Irish Pub continues a tradition of serving some of the best slow-roasted prime rib you'll ever taste as well as hosting nightly sing-alongs in Kelly's famous piano bar. Three swimming pools, full service spa and health club, barber and beauty services, in-room movies, valet and room services, and a complimentary morning newspaper are available to each guest! Located in the heart of Mission Valley, the Town and Country Resort is ideally situated for attendees and their guests to enjoy the many adjacent and nearby attractions.



- ICE
- SOFT DRINKS
- ⊗ ELEVATORS
- ♿ ACCESSIBLE SPACES
- ♿ ACCESSIBLE RESTROOMS
- ♿ ACCESSIBLE GUEST ROOM LOCATIONS
- ROYAL PALM TOWER 3500 ROOMS

Parking

Discounted parking for hotel guests is \$5.00 per day. Local guests pay \$3.00 for the first hour, \$2.00 each additional hour, not to exceed \$14 per day.

Local Attractions

Attendees wishing to arrange for tours/sightseeing for themselves, or traveling guests, may contact the hotel concierge prior to the meeting to make arrangements concierge@towncountry.com. Concierge services are offered on-site in the main lobby. The hotel will also provide a special Concierge Services desk near SPIE registration for the convenience of SPIE's attendees, Sunday-Wednesday from 8:30 am to 10 am.

Services include:

- Discount tickets to San Diego Zoo and Seaworld
- Discount rates for Riverwalk Golf Course
- Priority seating at Hotel Restaurants and off property restaurants
- San Diego City, Mexico, wine tours or harbor excursions
- Public Transit Information, local driving directions/maps

Fashion Valley Mall

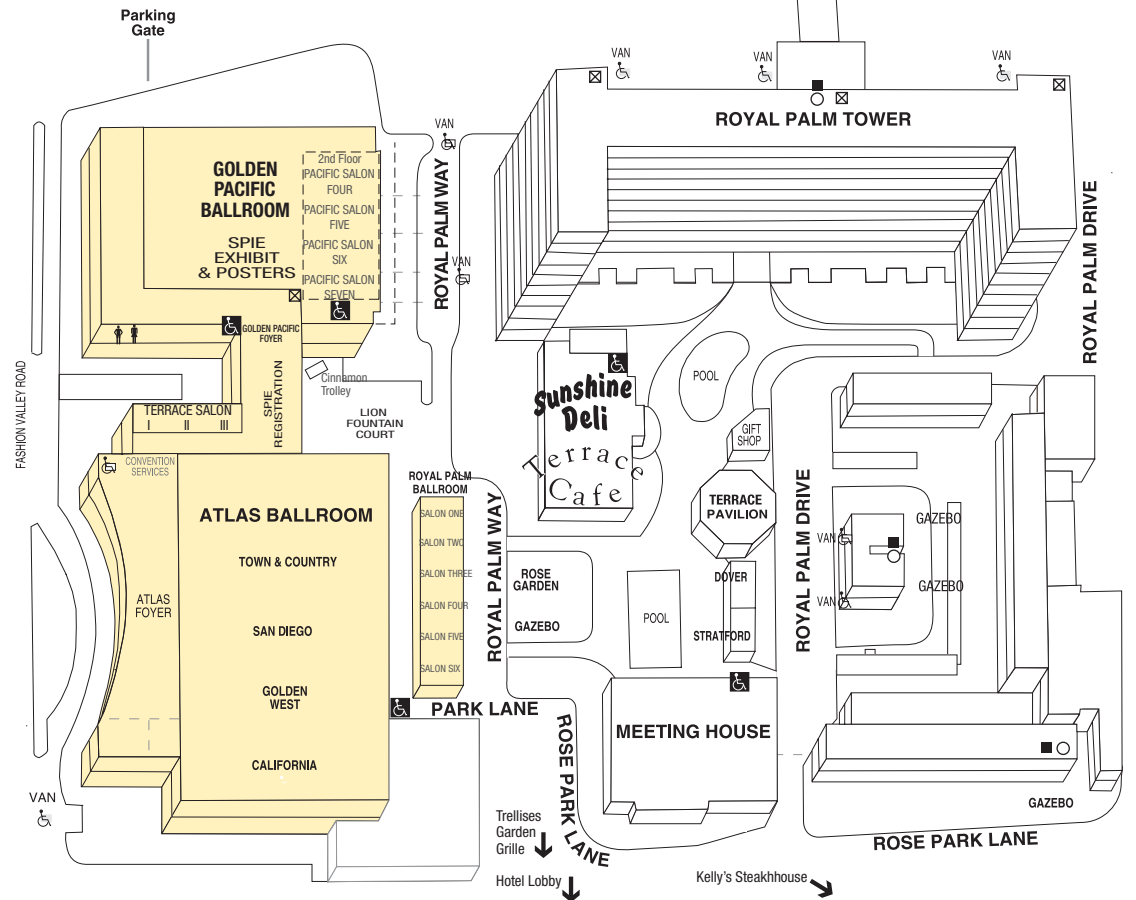
Located directly behind the hotel. Two level outdoor garden center featuring over 300 specialty shops and restaurants and an 18 screen movie complex. It is the largest shopping area in San Diego!

Old Town Mark

Take the Trolley or Hotel Shuttle to the founding site of San Diego with excellent Mexican dining and shopping.

Horton Plaza/Gas Lamp Quarter

Take the Trolley to downtown San Diego and enjoy shopping at Horton Plaza and/or the exciting nightlife of excellent restaurants and clubs of the Gas Lamp District.



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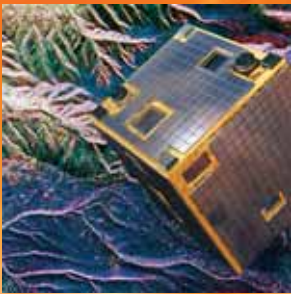
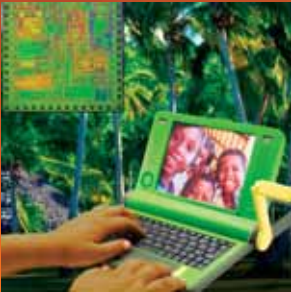
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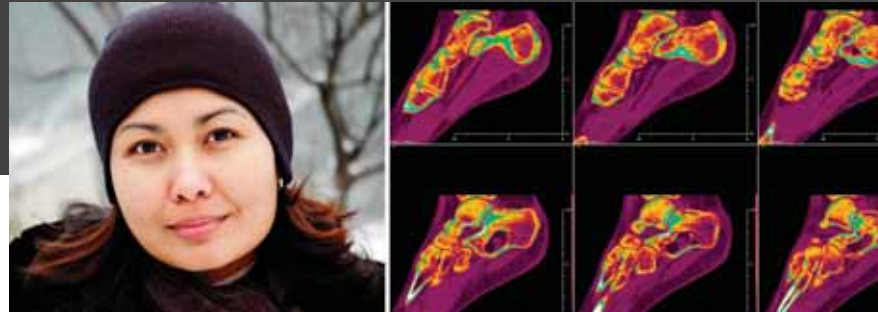
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