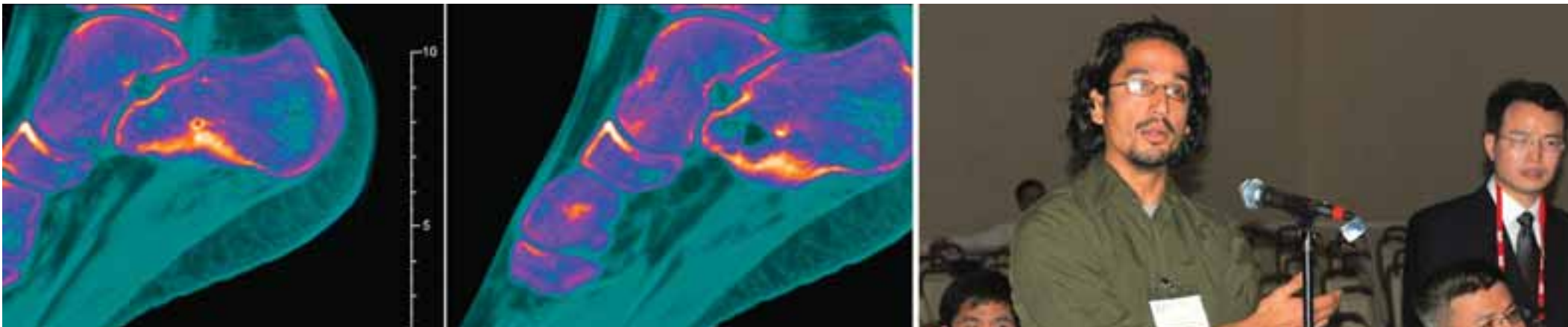




**Conferences: 8-12 February 2009**  
**Courses: 7-11 February 2009**  
**Exhibition: 9-11 February 2009**

Disney Coronado Springs Resort  
Lake Buena Vista (Orlando Area), Florida, USA



- ▶ **Physics of Medical Imaging**
- ▶ **Image Processing**
- ▶ **Computer-Aided Diagnosis**
- ▶ **Visualization, Image-guided Procedures and Modeling**
- ▶ **Biomedical Applications in Molecular, Structural, and Functional Imaging**
- ▶ **Image Perception, Observer Performance, and Technology Assessment**
- ▶ **Advanced PACS-based Imaging Informatics and Therapeutic Applications**
- ▶ **Ultrasonic Imaging and Signal Processing**



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## Technical Program



## Welcome!

Welcome to Medical Imaging 2009, 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 physics of medical imaging; image processing; computer-aided diagnosis; image visualization, and image-guided procedures; biomedical applications in molecular, structural and functional imaging; image perception, observer performance, and technology assessment; advanced PACS-based imaging informatics and therapeutic applications; and ultrasonic imaging and signal processing. Attend the many special events and workshops to enhance your conference experience.

Join Prof. Willi Kalender, Institute of Medical Physics, Univ. Erlangen (Germany) who will present "Advanced and New Directions in X-ray Computed Tomography" for the all symposium plenary presentation on Monday afternoon (see page 3).

Take time to learn more about the latest components and systems related to medical imaging by visiting the exhibition.

Learn, network, and enjoy your time in the Orlando area.

*2009 Symposium Chairs:*



**Armando Manduca,**  
Mayo Clinic College of  
Medicine (US)



**Kevin Cleary,**  
Georgetown Univ.  
Medical Ctr. (US)

SPIE gratefully acknowledges the following cooperating organizations:

- AAPM—American Association of Physicists in Medicine
- APS—American Physiological Society
- CARS—Computer Assisted Radiology and Surgery
- DICOM—Standards Committee
- 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

SPIE is an international society advancing an interdisciplinary approach to the science and application of light.

**SPIE**

International Headquarters  
 P.O. Box 10, Bellingham, WA 98227-0010 USA  
 Tel: +1 888 504 8171 or +1 360 676 3290  
 Fax: +1 360 647 1445  
 customerservice@spie.org • SPIE.org

Shipping Address  
 1000 20th St., Bellingham, WA 98225-6705 USA

**SPIE Europe**

2 Alexandra Gate, Ffordd Pengam,  
 Cardiff, CF24 2SA, UK  
 Tel: +44 29 20 89 4747 • Fax: +44 29 20 89 4750  
 spieeurope@SPIEeurope.org  
 SPIEeurope.org

**Special Events**

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Tues-Thurs	7260	<b>Computer-Aided Diagnosis</b> (Karssemeijer, Giger) ..... 8
Sun-Tues	7261	<b>Visualization, Image-guided Procedures and Modeling</b> (Miga, Wong) ..... 8
Sun-Tues	7262	<b>Biomedical Applications in Molecular, Structural, and Functional Imaging</b> (Clough, Hu) ..... 8
Weds-Thurs	7263	<b>Image Perception, Observer Performance, and Technology Assessment</b> (Sahiner, Manning) ..... 9
Weds-Thurs	7264	<b>Advanced PACS-based Imaging Informatics and Therapeutic Applications</b> (Siddiqui, Liu) ..... 9
Sun-Mon	7265	<b>Ultrasonic Imaging and Signal Processing</b> (D’hooge, McAleavey) ..... 9

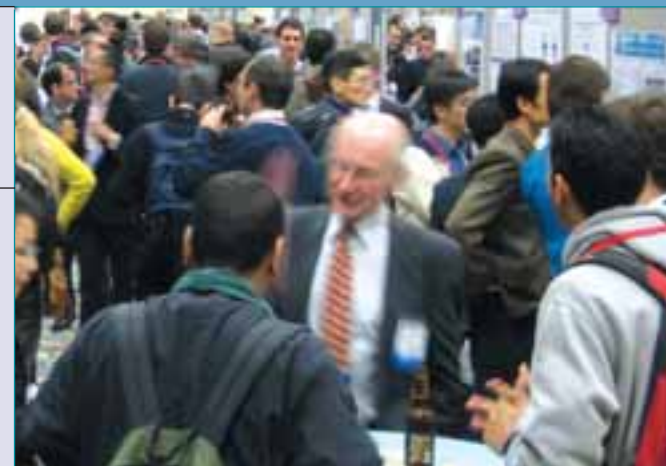
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# Daily Event Schedule

Saturday 7 February	Sunday 8 February	Monday 9 February	Tuesday 10 February	Wednesday 11 February	Thursday 12 February
<b>Courses</b>	<b>Technical Conferences</b>				
SC701 <b>Fundamental Principles and Statistical Analysis of Magnetic Resonance Imaging</b> (Lei, Song) 8:30 am to 5:30 pm, \$515 / \$610, p. 44	7262 <b>Biomedical Applications in Molecular, Structural, and Functional Imaging</b> (Clough, Hu) p. 8			7263 <b>Image Perception, Observer Performance, and Technology Assessment</b> (Sahiner, Manning) p. 9	
	7259 <b>Image Processing</b> (Pluim, Dawant) p. 8				
SC086 <b>Fundamentals of Medical Image Processing and Analysis</b> (Deserno) 8:30 am to 5:30 pm, \$515 / \$610, p. 44	7261 <b>Visualization, Image-guided Procedures and Modeling</b> (Miga, Wong) p. 8			7264 <b>Advanced PACS-based Imaging Informatics and Therapeutic Applications</b> (Siddiqui, Liu) p. 9	
	7265 <b>Ultrasonic Imaging and Signal Processing</b> (D'hooge, McAleavey) p. 9		7260 <b>Computer-Aided Diagnosis</b> (Karssemeijer, Giger) p. 8		
SC938 <b>Quantitative Characterization of Cancer Using in vivo Imaging</b> (Yankeelov) 8:30 am to 12:30 pm, \$310 / \$360, p. 44	WS757 <b>Early Career Professional Development in Medical Imaging</b> (Krupinski) 8:30 am to 12:30 pm, \$100 / \$150, p. 44	7258 <b>Physics of Medical Imaging</b> (Samei, Hsieh) p. 8			
SC884 <b>Validation in Medical Image Processing (VMIP)</b> (Jannin) 8:30 am to 12:30 pm, \$310 / \$360, p. 44	SC471 <b>Principles and Advancements in X-ray Computed Tomography</b> (Hsieh) 8:30 am to 12:30 pm, \$370 / \$420, p. 44		SC613 <b>Statistical Methods in Medical Imaging and Bioengineering with Applications to Observer Performance Evaluation</b> (Krupinski, Chakraborty) 8:30 am to 5:30 pm, \$515 / \$610, p. 44		
SC828 <b>An Introduction to Finite Elements for Medical Imaging</b> (Miga) 1:30 to 5:30 pm, \$375 / \$425, p. 44	SC939 <b>Exact Cone Beam Reconstruction: Theory and Practice</b> (Katsevich, Zamyatin) 1:30 to 5:30 pm, \$310 / \$360, p. 44				
SC829 <b>MIC-GPU: High-Performance Computing for Medical Imaging on Programmable Graphics Hardware (GPU)</b> (Mueller) 1:30 to 5:30 pm, \$310 / \$360, p. 44	SC358 <b>X-Ray Detector Performance: Principles and Measurements using a Linear Systems Approach</b> (Cunningham) 1:30 to 5:30 pm, \$310 / \$360, p. 44				
	<b>Special Events</b>				
WS776 <b>Writing for Publication in Medical Imaging</b> (Hanson) 1:30 to 5:30 pm, \$100 / \$150, p. 44	<b>Technical Workshop: Image Processing Challenges in Small Animal Imaging</b> (7259) 5:45 to 7:45 pm, p. 6	<b>Lunch with the NIH</b> , 12:10 to 1:20 pm (Lunch tickets are required), p. 4	<b>Free Exhibition</b> 9:30 am to Noon; 1:00 to 4:00 pm, p. 4	<b>Free Exhibition</b> 9:30 am to Noon; 1:00 to 4:00 pm, p. 4	
SC882 <b>Computer-Aided Diagnosis</b> (Giger, Karssemeijer, van Ginneken, Summers) 8:30 to 5:30 pm, \$515 / \$610, p. 44	<b>Technical Workshop: Elastography Directions and Applications for Ultrasound and MR Palpation</b> (7262) 5:45 to 6:45 pm, p. 6	<b>Plenary and Awards Session</b> , 4:00 to 5:00 pm, p.3	<b>Women's Networking Lunch</b> , 12:10 to 1:20 pm, p. 4	<b>Lunch with the NIH</b> , 12:10 to 1:20 pm (Lunch tickets are required), p. 4	
	<b>Special Workshop: Writing a Competitive NIH Application</b> 5:45 to 7:45 pm, p. 6	<b>Free Exhibition</b> 5:00 to 6:30 pm, p.3	<b>Technical Workshop: Photon Counting Technologies and Applications in Planar and Tomographic Imaging</b> (7258) 5:45 to 7:45 pm, p. 7	<b>Poster Viewing</b> , 7:30 am to 4:00 pm; 7:00 to 9:00 pm, p. 5	
	<b>Poster Viewing</b> , 1:30 to 9:00 pm, p. 5	<b>Poster Viewing</b> , 7:15 am to 4:00 pm; 6:30 to 9:00 pm, p. 5	<b>Technical Workshop: CAD Demonstrations</b> (7260) 5:45 to 7:45 pm, p. 7	<b>Interactive Poster Reception</b> , (Confs. 7258, 7260, 7263, 7264) 5:30 to 7:00 pm, p. 5	
		<b>Interactive Poster Reception</b> (Confs. 7259, 7261, 7262, 7265) 5:00 to 6:30 pm, p. 5	<b>Technical Workshop: Observer-Based Methodologies for Experiments in Medical Image Perception</b> (7263) 5:45 to 7:45 pm, p. 7		
		<b>Dessert with the Experts</b> (A Student Networking Event) 6:30 to 7:30 pm, p. 4	<b>Technical Workshop: DICOM</b> (7264) 5:45 to 7:45 pm, p.7		
			<b>Poster Viewing</b> , 9:40 am to 9:00 pm, p. 5		





## Plenary and Awards Session · Monday 9 February

Location: Coronado Ballroom H

Session Chairs: **Armando Manduca**, Mayo Clinic College of Medicine, (United States);  
**Kevin R. Cleary**, Georgetown Univ. Medical Ctr., (United States)

### Michael B. Merickel Student Paper Awards

**Time: 4:00 to 4:05 pm**

The first and second place winners of the Michael B. Merickel Student Paper Award will be announced.

### Dedication to Robert F. Wagner

**Time: 4:05 to 4:10 pm**



#### A short dedication to Robert F. Wagner is planned.

During more than forty years of professional life, Dr. Robert F. Wagner made numerous contributions to the field of medical imaging that significantly impacted academia, industry, and the regulatory science. Bob's early work was devoted to the application of statistical decision

theory to the evaluation of images degraded by measurement noise. He considered many modalities, tasks, and both human and machine observers, building broad consensus on a new, rigorous approach to the definition of image quality in medical imaging. Next, Bob and his colleagues took up the problem of patient variability, an additional source of "noise" in medical images. He then considered how to apply this same decision theoretic approach to the assessment of imaging systems confounded by artifacts. Most recently he was concerned with reader variability – where the readers could be doctors with a range of skills, or a set of computer algorithms trained with limited data. His unified approach created order out of the many problems of increasing complexity he tackled in his brilliant and memorable career.

### Advances and New Directions in X-ray Computed Tomography



**Time: 4:15 to 5:15 pm**

**Willi A. Kalender**,  
Institute of Medical Physics,  
Univ. Erlangen (Germany)

*Abstract:* X-ray computed tomography (CT) has undergone a remarkable development in the past two decades. Significant advances in the existing technology and new direc-

tions in its implementation and application have to be acknowledged.

The state of the art in clinical CT will be reviewed and recent development trends will be analysed briefly; 64-slice high-resolution spiral CT for whole-body imaging constitutes the standard today. It has been enhanced significantly by the introduction of dual source CT. Larger cone-angle CT and fast repetition spiral CT are offered for improved single-organ angiographic and perfusion measurements. Detector developments remain to be one of the key topics in CT.

C-arm-based flat-detector CT (FDCT) provides even higher spatial resolution and allows for improved applications such as interventional CT, but entails disadvantages with respect to image quality-to-dose relations when compared to standard CT. Robot-driven C-arms are the latest advance in this area and will also be presented.

Patient dose, which has become a serious topic of debate even in the public, will be discussed in detail. The patient dose per exam does not appear to be the problem. The point of concern must be if the ever increasing numbers of exams are indicated properly.

New CT applications such as combination imaging (PET/CT and 2D angiography/3D C-arm CT), dual energy CT, dedicated CT of the breast and micro CT will be reviewed briefly.

*Conclusion:* CT continues to be a very vital field of research and development in every respect.

*Biography:* Willi A. Kalender received his Ph.D. in Medical Physics from the University of Wisconsin, Madison, WI, in 1979. In 1988 he completed all postdoctoral lecturing qualifications (Habilitation) for Medical Physics at the University of Tübingen, Germany.

From 1979 to 1995 he worked in the research laboratories of Siemens Medical Systems in Erlangen, Germany. In 1995 he was appointed full Professor and Chairman of the Institute of Medical Physics at the University Erlangen, Germany.

Willi Kalender has worked mainly in diagnostic imaging. The development of spiral CT was a particular focus. His work is documented in more than 750 scientific papers with about 200 original publications among these.



## FREE Exhibition

Location: Veracruz C

## Stay up to date on industry trends

Attend the FREE Exhibition that focuses on the science and physics of medical imaging. Take advantage of the one-on-one interactions with top researchers in the field.

### Exhibition and Poster Reception

Monday 9 February . . . . . 5:00 to 6:30 pm

### Exhibition Hours

Tuesday 10 February . . . . . 9:30 am to Noon; 1:00 to 4:00 pm

Wednesday 11 February . . . . . 9:30 am to Noon; 1:00 to 4:00 pm

See top vendors in:

- ▶ Visual display
- ▶ Image navigation
- ▶ Radiation sensors and detectors
- ▶ Devices for generation and measurement of light
- ▶ Software solutions
- ▶ X-Ray detectors
- ▶ And much more!

## Lunch with the NIH

Monday 9 February and Wednesday 11 February

Time: 12:10 to 1:20 pm

Location: Yucatan 2

On Monday and Wednesday, during scheduled conference lunch breaks, you are invited to join the NIH staff, NIH Program Director, NIH grantees to have lunch, get tips, learn from the experts. Tables will be reserved in the lunch area. Lunch tickets are required.

### ASK QUESTIONS REGARDING:

- NIH support for scientific areas
  - Image processing, computer-aided diagnosis, image-guided procedures, imaging informatics, imaging technologies, structural/functional/molecular imaging, optical imaging, ultrasound, MRI, PET, etc.
- Grant mechanisms
  - R03, R21, R01, etc.
- Training grant opportunities
  - Career (K) and Pathway to Independence Awards (K99-R00), Fellowships (F awards), support for non-U.S. citizens
- Review and application process of the NIH.

### WHO SHOULD ATTEND:

- New investigators, early-career scientists and seasoned grant applicants who want to learn about new initiatives, funding opportunities and how to increase their possibilities of funding
- Grantees interested in hearing about changes in the NIH review system
- Academics interested in funding for critical programs and projects

These will be group discussions; ideal questions and topics are those that may have broad interest. Attendees should not plan to discuss specific research plans that they consider confidential. Participants can arrange other times to individually meet with NIH staff.

## Dessert with the Experts

A Student Networking Event

Monday 9 February · 6:30 to 7:30 pm

Location: La Mesa Patio

See Ticket for Location · Seating Limited

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.

Students receive one free ticket with registration.

## Women's Networking Lunch

Tuesday 10 February · 12:10 to 1:20 pm

Location: Casitas Courtyard

Join other women in the field for informal discussions and networking during the scheduled lunch on Tuesday. Sign up at registration required before coffee break on Tuesday.

**FREE**  
Students receive one complimentary ticket with registration.

## Poster Sessions

Location: Veracruz C

### Sunday/Monday Poster Session

Poster presentations from the *Image Processing; Visualization, Image-guided Procedures, and Modeling; Biomedical Applications in Molecular, Structural, and Functional Imaging; and Ultrasonic Imaging and Signal Processing* conferences will be included.

**Author Set-Up Time. . . . . Sunday from Noon to 1:30 pm**

Posters should remain on display until the end of the Interactive Poster Session on Monday.

**Interactive Poster Session . . . . . Monday from 5:00 to 6:30 pm**

### Tuesday/Wednesday Poster Session

Poster presentations from the *Physics of Medical Imaging; Computer-Aided Diagnosis; Image Perception, Observer Performance, and Technology Assessment; Advanced PACS-based Imaging Informatics and Therapeutic Applications* conferences will be included.

**Author Set-Up Time. . . . . Tuesday from 9:40 to 10:10 am**

Posters should remain on display until the end of the interactive poster session on Wednesday.

**Interactive Poster Session . . Wednesday from 5:30 to 7:00 pm**

**NOTE:** Posters must be on display by the start of the Interactive Poster Session to be considered presented. Posters not displayed at the suggested set-up times may not be considered for a poster award.

**Poster Viewing Times:** Posters may be viewed after set-up until 9:00 pm on session days. The poster area will be closed one hour prior to the poster receptions to prepare the food service.

**Poster Removal:** Papers not removed before 9:00 pm following the Interactive Poster Session 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.

## Poster Awards

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

Award recognition will occur in the conference meeting rooms. During the receptions, award ribbons will indicate the winning posters and personalized certificates will be distributed.

Basis for selection:

- 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.
- 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.
- A conference may give preference to first authors who are students or who are within five years of their terminal degrees.

## The Michael B. Merickel

### Best Student Paper Award

Join us on Monday at 4:00 pm in the Coronado Ballroom H for the announcement of the first and second place winners.

Congratulations to the following student authors whose papers were chosen from 34 submissions to advance to the final round in the competition.

Physics of Medical Imaging

**Adam S. Wang**, Stanford Univ. (US)

Optimal energy thresholds and weights for separating materials using photon counting x-ray detectors with energy discriminating capabilities (7258-72)

**Erik Fredenberg**, Kungliga Tekniska Högskolan (Sweden)

A photon-counting detector for dual-energy breast tomosynthesis (7258-54)

Image Processing

**Robert J. Toth**, Rutgers Univ. (US)

A boosted ensemble scheme for accurate landmark detection for active shape models (7259-4)

**Meng Ma**, Leids Univ. Medisch Ctr. (Netherlands)

Model driven quantification of left ventricular function from sparse single-beat 3D echocardiography (7259-6)

Visualization, Image-guided Procedures, and Modeling

**Maria Ayad**, The Johns Hopkins Univ. (US)

Prostate brachytherapy seed localization using a mobile C-arm without tracking (7261-55)

Biomedical Applications in Molecular, Structural, and Functional Imaging

**Qin Miao**, Univ. of Washington (US)

Multimodal Three-dimensional Imaging with Isometric High Resolution using Optical Projection Tomography (7262-30)

Image Perception, Observer Performance, and Technology Assessment

**Joel M. Witten**, Univ. of Maryland, College Park (US)

Using partial least squares to compute efficient channels for the Bayesian ideal observer (7263-25)

Ultrasonic Imaging and Signal Processing

**Pezhman Foroughi**, The John Hopkins Univ. (US)

Multi-modality fusion of CT, 3D ultrasound, and tracked strain for breast irradiation planning (7265-47)





## Sunday Workshops

8 February

### Image Processing

Conference 7259  
Time: 5:45 - 7:45 pm  
Location: Fiesta 6

### Image Processing Challenges in Small Animal Imaging

*Workshop Chair:*

**Boudewijn P. F. Lelieveldt**, Leids Univ. Medisch Ctr. (Netherlands)

*Panel Members:*

**Freek J. Beekman**, Univ. Medisch Ctr. Utrecht (Netherlands)

**David L. Wilson**, Case Western Reserve Univ. (United States)

With the rapid progress in molecular imaging technology, biomedical imaging is now covering a broad scale range, from the molecular level through the cellular level to the scale of the whole organism. Molecular processes can now be visualized with optical, nuclear (SPECT, PET) and MR imaging using targeted contrast agents, anatomical details with structural modalities (CT, MR, ultrasound), and functional information with e.g. specialized MR acquisitions. In pre-clinical research, the complementary information provided by these imaging techniques offers great potential for enhanced knowledge discovery and treatment development. However, many of the novel acquisition possibilities in small animal imaging are not available in clinical imaging, and the image heterogeneity and information richness in small animal imaging poses considerable novel challenges to image processing and analysis. In this workshop, a number of novel imaging modalities will be briefly introduced, and the speakers will provide a series of lectures on these novel image processing challenges; topics will cover a broad range of modalities (nuclear, optical, MR, CT, SPECT, microcryotome, etc.) and analysis algorithms (registration, segmentation, reconstruction, quantification).

### Biomedical Applications in Molecular, Structural, and Functional Imaging

Conference 7262  
Time: 5:45 - 7:45 pm  
Location: Fiesta 8-10

### Elastography Directions and Applications for Ultrasound and MR Palpation

*Workshop Chair:*

**John B. Weaver**, Dartmouth Hitchcock Medical Ctr. (United States)

*Panel Members:*

**Marvin M. Doyley**, Univ. of Rochester (United States)

**Michael F. Insana**, Univ. of Illinois at Urbana-Champaign (United States)

**Armando Manduca**, Mayo Clinic College of Medicine (United States)

**Michael I. Miga**, Vanderbilt Univ. (United States)

**Kevin J. Parker**, Univ. of Rochester (United States)

**Keith D. Paulsen**, Dartmouth College (United States)

Manual palpation has long been used in medicine because the mechanical properties of tissues are an important indicator of disease. In 1991, a group at the UTHSC introduced an ultrasound method of measuring the mechanical properties of tissue, termed elastography. A group at the Mayo clinic introduced an MRI version in 1996. Breast cancer detection was the primary application for many years. Especially in recent years the variety of applications has grown dramatically for both ultrasound and MR based elastography. This workshop will summarize the basic methods employed to image the mechanical properties of tissue and a panel of experts in the field will speculate about future applications and their impacts. The strengths and limitations of elastography based on ultrasound, MRI and other modalities will be explored.

### Writing a Competitive NIH Application

Time: 5:45 - 7:45 pm  
Location: Fiesta 1-3

*Workshop Chair:*

**John W. Haller**, National Institute of Biomedical Imaging and Bioengineering (United States)

This workshop will focus on writing a high-quality grant application. Participants will acquire the knowledge and skills needed to write competitive applications for funding from the NIH. The workshop will be led by the National Institute of Biomedical Imaging and Bioengineering (NIBIB) and the National Cancer Institute (NCI).

In the first hour of the workshop, informative talks will be presented, followed by ample time for questions and answers. Presentations will explore the peer review process - including recent changes in the review process at the NIH - and how to structure, write, and fine-tune a competitive application for funding consideration.

Topics will include:

- Suggestions for early career investigators as well as seasoned grant applicants
- What reviewers really want to know
- Contacting appropriate NIH Program staff
- Finding the right study section to review your application
- Developing a compelling problem statement or hypothesis
- Presenting a significant or innovative idea
- Technology-driven applications
- Varieties of grant mechanisms (R03, R21, R01, etc.)
- Presenting focused Specific Aims
- What to include in a cover letter
- Resubmitting your amended application

The second hour of the workshop will review how to write the critical Specific Aims of a high-quality application. Participants will be divided into small groups, according to their scientific interest. Each group, led by an experienced NIH grantee or NIH staff, will critique examples of Specific Aims. Finally, all participants will reconvene to discuss the lessons learned and insights gained from the critiquing session.



## Tuesday Workshops

10 February

**Physics of Medical Imaging**

Conference 7258

Time: 5:45 - 7:45 pm

Location: Fiesta 1-3

**Photon Counting Technologies and Applications in Planar and Tomographic Imaging***Workshop Chair:***Mats E. Danielsson**, Royal Institute of Technology (Sweden)

To detect the photons one by one at the ultimate quantum level may be one way of pushing the limits towards lower radiation dose and higher image quality. Photon counting is now close to clinical praxis in medical x-ray imaging such as CT, in fact in mammography several hundred thousand patients have already been examined with this technique. We will discuss the development of photon counting instrumentation and compare to standard current integrating schemes and outline opportunities as well as obstacles and pitfalls. In particular we will aim to quantify the usefulness of spectral information and compare the clinical values in knowing the energy for each x-ray to modalities with dual sources / dual spectra in for example imaging of contrast media such as Iodine. The workshop will be concluded with a, hopefully, heated debate.

Presentations:

- Count Photons and See the Light, **Mats Danielsson**, Royal Institute of Technology (Sweden)
- Physics and Outlook, **Andrew Maidment**, Univ. of Pennsylvania (US)
- Clinical Use of Photon Counting Detectors in Mammography **Matthew Wallis**, Cambridge Univ. (United Kingdom)
- Clinical Use of Photon Counting Detectors in CT **Reuven Levinson**, GE Healthcare (Israel)

These presentations will be followed by a debate presenting the opposing views.

**Computer-Aided Diagnosis**

Conference 7260

Time: 5:45 - 7:45 pm

Location: Fiesta 5

**CAD Demonstrations***Workshop Chairs:***Stephen R. Aylward**, Kitware, Inc. (United States)**Heang-Ping Chan**, Univ. of Michigan (United States)

This year's CAD workshop will continue the successful workshops organized at the previous meetings. Live demonstrations will be given by teams of CAD developers from mammography, lung CT, colon CT and others, showing their computer-aided detection and/or computer-aided diagnosis systems. The workshop will start with a short overview of the participating teams and systems. Next, the audience can interact with the researchers during live demonstrations of the systems.

Participation in this workshop provides a unique opportunity to see and experience how advanced CAD systems perform and to discuss their design and use with developers.

**Image Perception, Observer Performance, and Technology Assessment**

Conference 7263

Time: 5:45 - 7:45 pm

Location: Fiesta 6

**Observer-Based Methodologies for Experiments in Medical Image Perception***Workshop Chair:***David J. Manning**, Univ. of Cumbria (United Kingdom)

**Aim:** To provide 'hands-on' experience and demonstrate a variety of observer methodologies related to medical image perception.

**Format:** The format of the workshop will be a series of stations set up and hosted by applicants from the perception community. Each station will be free-standing and will involve delegate participation to demonstrate a particular principle, technique or data-collection method.

After a brief introduction and an explanation of the aims of the workshop, delegates will be invited to visit stations of their choice and to participate in the activities.

**Advanced PACS-based Imaging Informatics and Therapeutic Applications**

Conference 7264

Time: 5:45 - 7:45 pm

Location: Fiesta 8-10

**DICOM***Workshop Chair:***Robert J. Horn**, Agfa Corp. (United States)

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.



# Technical Conferences

## Conference 7258

Room: Fiesta 5

Monday-Thursday 9-12 Feb. 2009  
Proceedings of SPIE Vol. 7258

### Physics of Medical Imaging

*Conference Chairs:* **Ehsan Samei**, Univ. of Wisconsin, Madison; **Jiang Hsieh**, GE Healthcare (US)

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Posters for this conference will be on display Tuesday and Wednesday in the Veracruz Exhibit Hall. The interactive poster session with authors in attendance will be Wednesday evening from 5:30 to 7:00 pm. Poster awards will be announced in the conference meeting room on Thursday morning.

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## Conference 7259

Room: Fiesta 6

Sunday-Tuesday 8-10 Feb. 2009  
Proceedings of SPIE Vol. 7259

### Image Processing

*Conference Chairs:* **Josien P. W. Pluim**, Univ. Medisch Ctr. Utrecht (Netherlands); **Benoit M. Dawant**, Vanderbilt Univ. (US)

*Program Committee:* **Mostafa Analoui**, Pfizer Inc. (US); **Kyongtae Ty Bae**, Univ. of Pittsburgh (US); **Christian Barillot**, Institut de Recherche en Informatique et Systèmes Aléatoires (France); **Aaron Fenster**, Roberts Research Institute (Canada); **Bernd Fischer**, Univ. zu Lübeck (Germany); **Alejandro F. Frangi**, Univ. Pompeu Fabra (Spain); **James C. Gee**, Univ. of Pennsylvania (US); **Guido Gerig**, The Univ. of Utah (US); **David R. Haynor**, Univ. of Washington (US); **Tianhu Lei**, Univ. of Pennsylvania (US); **Boudewijn P. F. Lelieveldt**, Leids Univ. Medisch Ctr. (Netherlands); **Bostjan Likar**, Univ. v Ljubljani (Slovenia); **Murray H. Loew**, The George Washington Univ. (US); **Cristian Lorenz**, Philips Research Labs. (Germany); **Frederik Maes**, Katholieke Univ. Leuven (Belgium); **Vincent A. Magnotta**, The Univ. of Iowa (US); **Sunanda D. Mitra**, Texas Tech Univ. (US); **Kensaku Mori**, Nagoya Univ. (Japan); **Mads Nielsen**, IT Univ. of Copenhagen (Denmark); **Sébastien Ourselin**, CMIC/Univ. College London (UK); **Joseph M. Reinhardt**, The Univ. of Iowa (US); **Daniel Rueckert**, Imperial College London (UK); **Punam K. Saha**, The Univ. of Iowa (US); **Olivier Salvado**, Commonwealth Scientific and Industrial Research Organisation (Australia); **Julia A. Schnabel**, Univ. of Oxford (UK) and St. Hilda's College (UK); **Colin Studholme**, Univ. of California (US), San Francisco (US); **Martin A. Styner**, The Univ. of North Carolina at Chapel Hill (US); **Philippe Thevenaz**, Ecole Polytechnique Fédérale de Lausanne (Switzerland); **Jayaram K. Udupa**, Univ. of Pennsylvania (US); **Andreas Wahle**, The Univ. of Iowa (US)

Posters for this conference will be on display Sunday and Monday in the Veracruz Exhibit Hall. The interactive poster session with authors in attendance will be Monday evening from 5:00 to 6:30 pm. Poster awards will be announced in the conference meeting room on Tuesday morning.

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## Conference 7260

Room: Fiesta 1-3

Tuesday-Thursday 10-12 Feb. 2009  
Proceedings of SPIE Vol. 7260

### Computer-Aided Diagnosis

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

*Program Committee:* **Samuel G. Armato III**, The Univ. of Chicago (US); **Stephen R. Aylward**, Kitware, Inc. (US); **Kyongtae Ty Bae**, Univ. of Pittsburgh (US); **J. Michael Brady**, Univ. of Oxford (UK); **Heang-Ping Chan**, Univ. of Michigan (US); **Marleen de Bruijne**, Copenhagen Univ. (Denmark); **Simon Duchesne**, Univ. Laval Robert-Giffard (Canada); **Hiroshi Fujita**, Gifu Univ. (Japan); **Horst K. Hahn**, MeVis Research GmbH (Germany); **Joseph Y. Lo**, Duke Univ. Medical Ctr. (US); **Shih-Chung B. Lo**, Georgetown Univ. Medical Ctr. (US); **Michael F. McNitt-Gray**, Univ. of California, Los Angeles (US); **Kensaku Mori**, Nagoya Univ. (Japan); **Noboru Niki**, The Univ. of Tokushima (Japan); **Carol L. Novak**, Siemens Corporate Research (US); **Mary S. Pastel**, Pastel Consulting, LLC (US); **Ronald M. Summers**, National Institutes of Health (US); **Bram van Ginneken**, Univ. Medisch Ctr. Utrecht (Netherlands); **Rafael Wiemker**, Philips Research Labs. (Germany); **Axel Wismueller**, Univ. of Rochester (US)

Posters for this conference will be on display Tuesday and Wednesday in the Veracruz Exhibit Hall. The interactive poster session with authors in attendance will be Wednesday evening from 5:30 to 7:00 pm. Poster awards will be announced in the conference meeting room on Thursday morning.

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## Conference 7261

Room: Monterey 1-3

Sunday-Tuesday 8-10 Feb. 2009  
Proceedings of SPIE Vol. 7261

### Visualization, Image-guided Procedures and Modeling

*Conference Chairs:* **Michael I. Miga**, Vanderbilt Univ. (US); **Kenneth H. Wong**, Georgetown Univ. (US)

*Program Committee:* **Purang Abolmaesumi**, Queen's Univ. (Canada); **Wolfgang Birkfellner**, Medizinische Univ. Wien (Austria); **Kevin R. Cleary**, Georgetown Univ. Medical Ctr. (US); **Alexandre Xavier Falcao**, Univ. Estadual de Campinas (Brazil); **Baowei Fei**, Case Western Reserve Univ. (US); **Robert L. Galloway, Jr.**, Vanderbilt Univ. (US); **George J. Grevera**, St. Joseph's Univ. (US); **Steven L. Hartmann**, Medtronic Navigation (US); **David R. Haynor**, Univ. of Washington (US); **William E. Higgins**, The Pennsylvania State Univ. (US); **David R. Holmes III**, Mayo Clinic (US); **Pierre Jannin**, INSERM, Univ. de Rennes I (France); **Terry M. Peters**, Roberts Research Institute (Canada); **Frank Sauer**, Siemens Corporate Research (US); **Eric J. Seibel**, Univ. of Washington (US); **Guy Shechter**, Philips Research (US); **Yeong Gil Shin**, Seoul National Univ. (South Korea); **Jayaram K. Udupa**, Univ. of Pennsylvania (US); **Jay B. West**, Accuray, Inc. (US); **Ivo Wolf**, German Cancer Research Ctr. (Germany); **Ziv R. Yaniv**, Georgetown Univ. (US)

Posters for this conference will be on display Sunday and Monday in the Veracruz Exhibit Hall. The interactive poster session with authors in attendance will be Monday evening from 5:00 to 6:30 pm. Poster awards will be announced in the conference meeting room on Tuesday morning.

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## Conference 7262

Room: Fiesta 8-10

Sunday-Tuesday 8-10 Feb. 2009  
Proceedings of SPIE Vol. 7262

### Biomedical Applications in Molecular, Structural, and Functional Imaging

*Conference Chairs:* **Anne V. Clough**, Marquette Univ. (US); **Xiaoping P. Hu**, Emory Univ. (US)

*Program Committee:* **Amir A. Amini**, Univ. of Louisville (US); **Juan R. Cebral**, George Mason Univ. (US); **Andreas H. Hielscher**, Columbia Univ. (US); **Eric A. Hoffman**, The Univ. of Iowa Hospitals and Clinics (US); **Armando Manduca**, Mayo Clinic College of Medicine (US); **Robert C. Molthen**, Medical College of Wisconsin (US); **Erik L. Ritman**, Mayo Clinic College of Medicine (US); **Ronald M. Summers**, National Institutes of Health (US); **Merryn H. Tawhai**, The Univ. of Auckland (New Zealand); **John B. Weaver**, Dartmouth College (US); **Felix W. Wehrli**, Univ. of Pennsylvania (US); **Axel Wismueller**, Univ. of Rochester (US)

Posters for this conference will be on display Sunday and Monday in the Veracruz Exhibit Hall. The interactive poster session with authors in attendance will be Monday evening from 5:00 to 6:30 pm. Poster awards will be announced in the conference meeting room on Tuesday morning.

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## Conference 7263

Room: Fiesta 6

Wednesday-Thursday 11-12 Feb. 2009  
Proceedings of SPIE Vol. 7263

### Image Perception, Observer Performance, and Technology Assessment

*Conference Chairs:* **Berkman Sahiner**, Univ. of Michigan; (US) **David J. Manning**, Univ. of Cumbria (UK)

*Program Committee:* **Craig K. Abbey**, Univ. of California, Santa Barbara (US); **Kevin S. Berbaum**, The Univ. of Iowa Hospitals and Clinics (US); **Darrin C. Edwards**, The Univ. of Chicago (US); **Brandon D. Gallas**, U.S. Food and Drug Administration (US); **Matthew A. Kupinski**, College of Optical Sciences/The Univ. of Arizona (US); **Anthony J. Maeder**, Univ. of Western Sydney (Australia); **Claudia Mello-Thoms**, Univ. of Pittsburgh (US); **David L. Wilson**, Case Western Reserve Univ. (US)

#### WORKSHOP

### Observer-Based Methodologies for Experiments in Medical Image Perception

Fiesta Room 6 · Tues. 5:45 to 7:45 pm  
**David J. Manning**, Univ. of Cumbria (UK)

Posters for this conference will be on display Tuesday and Wednesday in the Veracruz Exhibit Hall. The interactive poster session with authors in attendance will be Wednesday evening from 5:30 to 7:00 pm. Poster awards will be announced in the conference meeting room on Thursday morning.

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## Conference 7264

Room: Fiesta 8-10

Wednesday-Thursday 11-12 Feb. 2009  
Proceedings of SPIE Vol. 7264

### Advanced PACS-based Imaging Informatics and Therapeutic Applications

*Conference Chairs:* **Khan M. Siddiqui**, VA Maryland Health Care System (US); **Brent J. Liu**, Univ. of Southern California (US)

*Program Committee:* **Adil Alaoui**, Georgetown Univ. (US); **Katherine Patricia Andriole**, Harvard Medical School (US); **William W. Boonn**, Univ. of Pennsylvania (US); **Kevin R. Cleary**, Georgetown Univ. Medical Ctr. (US); **Janice C. Honeyman-Buck**, Univ. of Florida (US); **Steven C. Horii**, Univ. of Pennsylvania (US); **Heinz U. Lemke**, Technische Univ. Berlin (Germany); **John B. Strauss**, FUJIFILM Medical Systems USA, Inc. (US); **Wyatt Tellis**, Univ. of California, San Francisco (US)

#### WORKSHOP DICOM

Fiesta Room 8-10 · Tues. 5:45 to 7:45 pm  
**Robert J. Horn III**, Agfa Corp. (US)

Posters for this conference will be on display Tuesday and Wednesday in the Veracruz Exhibit Hall. The interactive poster session with authors in attendance will be Wednesday evening from 5:30 to 7:00 pm. Poster awards will be announced in the conference meeting room on Thursday morning.

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## Conference 7265

Room: Fiesta 1-3

Sunday-Monday 8-9 Feb. 2009  
Proceedings of SPIE Vol. 7265

### Ultrasonic Imaging and Signal Processing

*Conference Chairs:* **Jan D'hooge**, Katholieke Univ. Leuven (Belgium); **Stephen A. McAleavey**, Univ. of Rochester (US)

*Program Committee:* **Jeffrey C. Bamber**, Univ. of London (UK); **Stanislav Y. Emelianov**, The Univ. of Texas at Austin (US); **James F. Greenleaf**, Mayo Clinic (US); **Michael F. Insana**, Univ. of Illinois at Urbana-Champaign (US); **Jorgen A. Jensen**, Danmarks Tekniske Univ. (Denmark); **Kathryn R. Nightingale**, Duke Univ. (US); **K. Kirk Shung**, Univ. of Southern California (US); **Kai E. Thomenius**, General Electric Co. (US); **William F. Walker**, Univ. of Virginia (US)

Posters for this conference will be on display Sunday and Monday in the Veracruz Exhibit Hall. The interactive poster session with authors in attendance will be Monday evening from 5:00 to 6:30 pm. Poster awards will be announced in the conference meeting room on Monday afternoon.

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Conference 7259 continued  
Image Processing

Room: Fiesta 6

SESSION 1

Room: Fiesta 6 ..... Sun. 8:00 to 9:40 am

Segmentation I

Session Chair: **Cristian Lorenz**,  
Philips Research (Germany)

8:00 am: **Hierarchical parsing and semantic navigation of full body CT data**, Sascha Seifert, Siemens AG (Germany); Adrian Barbu, Florida State Univ. (US); Shaohua K. Zhou, David Liu, Siemens Corporate Research (US); Johannes Feulner, Martin Huber, Michael Sühling, Siemens AG (Germany); Alexander Cavallaro, Univ. Hospital Erlangen (Germany); Dorin Comaniciu, Siemens Corporate Research (US) ..... [7259-01]

8:20 am: **Probabilistic Markov random fields: application to prostate cancer detection**, James P. Monaco, Anant Madabhushi, Rutgers Univ. (US); Michael Feldman, Univ. of Pennsylvania (US); John Tomaszewski, Univ. of Pennsylvania (US); Mehdi Moradi, Parvin Mousavi, Purang Abolmaesumi, Alexander Boag, Chris Davidson, Queen's Univ. (Canada) ..... [7259-02]

8:40 am: **Tissue probability map constrained CLASSIC for increased accuracy and robustness in serial image segmentation**, Zhong Xue, The Methodist Hospital Research Institute (US); Dinggang Shen, The Univ. of North Carolina School of Medicine (US); Stephen T. Wong, Methodist Hospital Research Institute (US) ..... [7259-138]

9:00 am: **A boosted ensemble scheme for accurate landmark detection for active shape models**, Robert J. Toth, Scott Doyle, Rutgers Univ. (US); Mark A. Rosen, The Univ. of Pennsylvania Health System (US); Sona Pungavkar M.D., Dr. Balabhai Nanavati Hospital (India); Arjun Kalyanpur M.D., Teleradiology Solutions Pvt. Ltd. (India); Anant Madabhushi, Rutgers Univ. (US) ..... [7259-04]

9:20 am: **Automatic left ventricle detection in MRI images using marginal space learning and component-based voting**, Yefeng Zheng, Xiaoguang Lu, Bogdan Georgescu, Siemens Corporate Research (US); Arne Littmann, Edgar Mueller, Siemens AG (Germany); Dorin Comaniciu, Siemens Corporate Research (US) ..... [7259-05]

Coffee Break ..... 9:40 to 10:10 am

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Conference 7261 continued  
Visualization, Image-guided  
Procedures and Modeling

Room: Monterey 1-3

SESSION 1

Room: Monterey 1-3 ..... Sun. 8:00 to 9:40 am

Neuro

Session Chairs: **Steven L. Hartmann**,  
Medtronic Navigation; **Pierre Jannin**,  
Univ. de Rennes I (France)

8:00 am: **Fiducial registration error and target registration error are uncorrelated**, J. Michael Fitzpatrick, Vanderbilt Univ. (US) ..... [7261-01]

8:20 am: **Brain tumor resection guided by fluorescence imaging co-registered with MRI**, Frederic Leblond, Dartmouth College (US); David W. Roberts M.D., Dartmouth Hitchcock Medical Ctr. (US); Keith D. Paulsen, Alexander Hartov, Brian W. Pogue, Kathryn Fontaine, Pablo A. Valdes, Dartmouth College (US) ..... [7261-02]

8:40 am: **Automatic segmentation of cortical vessels in pre- and post-resection laser range images**, Siyi Ding, Michael I. Miga, Reid C. Thompson M.D., Ishita Garg, Benoit M. Dawant, Vanderbilt Univ. (US) ..... [7261-03]

9:00 am: **Toward real-time guide wire detection and tracking in the field of neuroradiology**, Martin Spiegel, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Marcus Pfister, Siemens AG (Germany); Dieter A. Hahn, Volker Daum, Joachim M. Hornegger, Gregor Richter, Arnd Dörfler, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) ..... [7261-04]

9:20 am: **Spinal cord stress injury assessment (SCOSIA): clinical applications of mechanical modeling of the spinal cord and brainstem**, Kenneth H. Wong, Jae J. Choi, Georgetown Univ. (US); William Wilson, Joel L. Berry, Fraser C. Henderson M.D., Computational Biodynamics, LLC (US) ..... [7261-05]

Coffee Break ..... 9:40 to 10:10 am

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Conference 7262 continued  
Biomedical Applications in Molecular,  
Structural, and Functional Imaging

Room: Fiesta 8-10

SESSION 1

Room: Fiesta 8-10 ..... Sun. 8:00 to 9:40 am

MR Brain Imaging

Session Chair: **Armando Manduca**,  
Mayo Clinic College of Medicine (US)

8:00 am: **Improved T1 mapping by motion correction and template based B1 correction in 3T MRI brain studies**, Marcelo A. Castro, Jianhua Yao, Christabel Lee, Yuxi Pang, Eva H. Baker, John A. Butman, David Thomasson, National Institutes of Health (US) ..... [7262-01]

8:20 am: **Using CSF as an internal quality assurance tool in diffusion tensor imaging studies of brain tumor**, Jihong Wang, The Univ. of Texas M.D. Anderson Cancer Ctr. (US); Yufei Shen, Old Dominion Univ. (US); John F. de Groot, The Univ. of Texas M.D. Anderson Cancer Ctr. (US); Yuzhong Shen, Jiang Li, Old Dominion Univ. (US) ..... [7262-02]

8:40 am: **Approximating high angular resolution apparent diffusion coefficient profiles using spherical harmonics under bi-Gaussian assumption**, Ning Cao, Xuwei Liang, Qi Zhuang, Jun Zhang, Univ. of Kentucky (US) ..... [7262-03]

9:00 am: **Acupuncture induce the different modulation patterns of the default mode network: an fMRI study**, Peng Liu, Northeastern Univ. (China); Wei Qin, Xidian Univ. (China); Jie Tian, Institute of Automation (China); Yi Zhang, Xidian Univ. (China) ..... [7262-04]

9:20 am: **A computational framework for exploratory data analysis in biomedical imaging**, Axel Wismueller, Univ. of Rochester (US) ..... [7262-05]

Coffee Break ..... 9:40 to 10:10 am

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Conference 7265 continued  
Ultrasonic Imaging and  
Signal Processing

Room: Fiesta 1-3

SESSION 1

Room: Fiesta 1-3 ..... Sun. 8:00 to 9:40 am

Experimental Ultrasound Systems

Session Chair: **Jan D'hooge**,  
Katholieke Univ. Leuven (Belgium)

8:00 am: **Experimental validation of A-mode ultrasound acquisition system for computer assisted orthopaedic surgery**, Danilo De Lorenzo, Elena De Momi, Elisa Beretta, Pietro Cerveri, Politecnico di Milano (Italy); Franco Perona, I.R.C.C.S. Istituto Ortopedico Galeazzi (Italy); Giancarlo Ferrigno, Politecnico di Milano (Italy) ..... [7265-01]

8:20 am: **The ultrasound brain helmet: feasibility study of multiple simultaneous 3D scans of cerebral vasculature**, Brooks D. Lindsey, Nikolas M. Ivancevich, John Whitman, Edward D. Light, Matthew P. Fronheiser, Heather A. Nicoletto, Daniel T. Laskowitz M.D., Stephen W. Smith, Duke Univ. (US) ..... [7265-02]

8:40 am: **High-frequency 3D echodentographic imaging modality for early assessment of periodontal diseases: in vitro study**, Ahmed M. Mahmoud, Peter Ngan, Richard Crout, Osama M. Mukdadi, West Virginia Univ. (US) ..... [7265-03]

9:00 am: **Dedicated ultrasound speckle tracking to study tendon displacement**, Jan-Wiebe H. Korstanje, Ruud W. Selles, Henk J. Stam M.D., Steven E. R. Hovius M.D., Johan G. Bosch, Univ. Medisch Ctr. Rotterdam (Netherlands) ..... [7265-04]

9:20 am: **Breast ultrasound tomography with total-variation regularization**, Cuiping Li, Nebojsa Duric, Karmanos Cancer Institute (US); Lianjie Huang, Los Alamos National Lab. (US) ..... [7265-05]

Coffee Break ..... 9:40 to 10:10 am

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Conference 7259 continued  
Image Processing

Room: Fiesta 6

**SESSION 2**

Room: Fiesta 6 . . . . . Sun. 10:10 am to 12:10 pm

**Statistical Models**

*Session Chair: Martin A. Styner,*  
The Univ. of North Carolina at Chapel Hill (US)

10:10 am: **Model driven quantification of left ventricular function from sparse single-beat 3D echocardiography**, Meng Ma, Leids Univ. Medisch Ctr. (Netherlands); Marijn van Stralen, Erasmus MC (Netherlands); Johan H. C. Reiber, Leids Univ. Medisch Ctr. (Netherlands); Johan G. Bosch, Erasmus MC (Netherlands); Boudewijn P. F. Lelieveldt, Leids Univ. Medisch Ctr. (Netherlands) . . . . . [7259-06]

10:30 am: **Shape-based diagnosis of the aortic valve**, Razvan I. Ionasec, Siemens Corporate Research (US); Alexey Tsybal, Dime Vitanovski, Siemens AG (Germany); Bogdan Georgescu, Shaohua K. Zhou, Siemens Corporate Research (US); Nassir Navab, Technische Univ. München (Germany); Dorin Comaniciu, Siemens Corporate Research (US) . . . . . [7259-07]

10:50 am: **RABBIT: rapid alignment of brains by building intermediate templates**, Songyuan Tang, Yong Fan, Dinggang Shen, The Univ. of North Carolina at Chapel Hill (US) . . . . . [7259-08]

11:10 am: **Bayes estimation of shape-models with application to vertebrae boundaries**, Alessandro Crimi, Copenhagen Univ. (Denmark); Anarta Ghosh, Nordic Bioscience A/S (Denmark); Jon Sporring, Mads Nielsen, Copenhagen Univ. (Denmark) . . . . . [7259-09]

11:30 am: **Automated vertebra identification in CT images**, Matthias Ehm, Philips Research (Germany); Tobias Klinder, Univ. Hannover (Germany); Reinhard Kneser, Christian Lorenz, Philips Research (Germany) . . . . . [7259-10]

11:50 am: **GC-ASM: synergistic integration of active shape modeling and graph-cut methods**, Xinjian Chen, Jayaram K. Udupa, Abass Alavi, Drew A. Torigian, Univ. of Pennsylvania (US) . . . . . [7259-11]

Lunch Break . . . . . 12:10 to 1:20 pm

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Conference 7261 continued  
Visualization, Image-guided  
Procedures and Modeling

Room: Monterey 1-3

**SESSION 2**

Room: Monterey 1-3. Sun. 10:10 am to 12:10 pm

**Minimally Invasive I**

*Session Chairs: William E. Higgins,*  
The Pennsylvania State Univ. (US);  
**Alexandre Xavier Falcao,**  
Univ. Estadual de Campinas (Brazil)

10:10 am: **Fusion of MDCT-based endoluminal renderings and endoscopic video**, Lav Rai, William E. Higgins, The Pennsylvania State Univ. (US) . . . . . [7261-06]

10:30 am: **A method for accelerating bronchoscope tracking based on image registration by using GPU**, Takamasa Sugiura, Daisuke Deguchi, Marco Feuerstein, Nagoya Univ. (Japan); Takayuki Kitasaka, Aichi Institute of Technology (Japan); Yasuhito Suenaga, Kensaku Mori, Nagoya Univ. (Japan) . . . . . [7261-07]

10:50 am: **Fusion of stereoscopic video and laparoscopic ultrasound for minimally invasive partial nephrectomy**, Carling L. Cheung, Christopher Wedlake, John T. Moore, Robarts Research Institute (Canada); Stephen E. Pautler, The Univ. of Western Ontario (Canada); Anis Ahmad, Terry M. Peters, Robarts Research Institute (Canada) . . . . . [7261-08]

11:10 am: **Automatic classification of minimally invasive instruments based on endoscopic image sequences**, Stefanie Speidel, Julia Benzko, Gunther Sudra, Pedram Azad, Univ. Karlsruhe (Germany); Beat Peter Müller-Stich, Carsten N. Gutt, Ruprecht-Karls- Univ. Heidelberg (Germany); Rüdiger Dillmann, Univ. Karlsruhe (Germany) . . . . . [7261-09]

11:30 am: **Absolute length measurement using manually decided stereo correspondence for endoscopy**, Mai Sasaki, Takeshi Koishi, Toshiya Nakaguchi, Norimichi Tsumura, Yoichi Miyake, Chiba Univ. (Japan) . . . . . [7261-10]

11:50 am: **Validation of CT-video registration for guiding a novel ultrathin bronchoscope to peripheral lung nodules using electromagnetic tracking**, Timothy D. Soper, David R. Haynor, Robb W. Glenn, Eric J. Seibel, Univ. of Washington (US) . . . . . [7261-11]

Lunch Break . . . . . 12:10 to 1:20 pm

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Conference 7262 continued  
Biomedical Applications in Molecular,  
Structural, and Functional Imaging

Room: Fiesta 8-10

**SESSION 2**

Room: Fiesta 8-10. . . Sun. 10:10 am to 12:10 pm

**Keynote and Neuroimaging**

*Session Chair: Xiaoping P. Hu,*  
Emory Univ. (US)

10:10 am: **Engineering contrast for magnetic resonance imaging of the brain** (*Keynote Presentation*), Alan P. Koretsky, National Institutes of Health (US) . . . . . [7262-06]

11:10 am: **An MRI-based attenuation correction method for combined PET/MRI applications**, Baowei Fei, Xiaofeng Yang, Hesheng Wang, Case Western Reserve Univ. (US) . . . . . [7262-07]

11:30 am: **Hyperpolarized magnetic resonance 129Xe imaging of a rat model of transient ischemic stroke**, Ronn P. Walvick, Univ. of Massachusetts Medical School (US) and Worcester Polytechnic Institute (US); Birgul Bastan, Austin Reno, Joey Mansour, Yanping Sun, Univ. of Massachusetts Medical School (US); Xin Zhou, Lawrence Berkeley National Lab. (US); Mary Mazzani, Marc Fisher, Univ. of Massachusetts Medical School (US); Christopher H. Sotak, Worcester Polytechnic Institute (US); Mitchell S. Albert, Univ. of Massachusetts Medical School (US) . . . . . [7262-08]

11:50 am: **MR elastography of hydrocephalus**, Adam J. Pattison, Dartmouth College (US); S. Scott Lollis, Dartmouth Hitchcock Medical Ctr. (US); Phillip R. Perrine, Dartmouth College (US); John B. Weaver, Dartmouth Hitchcock Medical Ctr. (US); Keith D. Paulsen, Dartmouth College (US) . . . . . [7262-09]

Lunch Break . . . . . 12:10 to 1:20 pm

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Conference 7265 continued  
Ultrasonic Imaging and  
Signal Processing

Room: Fiesta 1-3

**SESSION 2**

Room: Fiesta 1-3. . . . Sun. 10:10 am to 12:10 pm

**Ultrasound System Design**

*Session Chair: Kai E. Thomenius,*  
General Electric Co. (US)

10:10 am: **The first harmonic as a known source for wavefront correction**, Scott W. Dianis, Olaf T. von Ramm, Duke Univ. (US) . . . . . [7265-06]

10:30 am: **A new CMOS ultrasound sensor array and its potential in medical applications: an update with projection and reflection prototypes**, Shih-Chung B. Lo, Georgetown Univ. Medical Ctr. (US); Chu-Chuan Liu, Virginia Polytechnic Institute and State Univ. (US); Seong Ki Mun, Georgetown Univ. Medical Ctr. (US); Marvin E. Lasser, Imperium, Inc. (US); Yue J. Wang, Virginia Polytechnic Institute and State Univ. (US) . . . . . [7265-42]

10:50 am: **Simulation and experimental analysis of ultrasonic clutter in fundamental and harmonic imaging**, Jeremy J. Dahl, Gianmarco F. Pinton, Muyinatu Lediju, Gregg E. Trahey, Duke Univ. (US) . . . . . [7265-08]

11:10 am: **Ultrasonic array beamforming with iterative spatial filters**, Nghia Nguyen, Univ. of Illinois at Urbana-Champaign (US); Craig K. Abbey, Univ. of California, Santa Barbara (US); Michael F. Insana, Univ. of Illinois at Urbana-Champaign (US) . . . . . [7265-09]

11:30 am: **Efficient implementations of ultrasound color Doppler algorithms on VLIW architectures**, Udayan Dasgupta, David P. Magee, Murtaza Ali, Texas Instruments Inc. (US) . . . . . [7265-10]

11:50 am: **Waveform synthesis for the design and image reconstruction of FMCW ultrasound imaging systems with flexible conformal arrays**, Michael Lee, Univ. of California, Los Angeles (US); Rahul S. Singh, Univ. of California, Santa Barbara (US); Martin O. Culjat, Shyam Natarajan, Brian P. Cox, Univ. of California, Los Angeles (US); Elliott R. Brown, Univ. of California, Santa Barbara (US); Warren S. Grundfest M.D., Univ. of California, Los Angeles (US); Hua Lee, Univ. of California, Santa Barbara (US) . . . . . [7265-11]

Lunch Break . . . . . 12:10 to 1:20 pm

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Conference 7259 continued  
Image Processing

Room: Fiesta 6

SESSION 3

Room: Fiesta 6 ..... Sun. 1:20 to 3:00 pm

Statistical Methods

Session Chair: **Mads Nielsen**,  
Copenhagen Univ. (Denmark)

1:20 pm: **Comparing the sensitivity of wavelets, Minkowski functionals, and scaling indices to higher order correlations in MR images of the trabecular bone using surrogates**, Christoph W. R ath, Max-Planck-Institut f ur Extraterrestrische Physik (Germany); Jan S. Bauer, Dirk M uller, Technische Univ. M unchen (Germany); Irina N. Sidorenko, Max-Planck-Institut f ur Extraterrestrische Physik (Germany); Thomas M. Link, Univ. of California, San Francisco (US); Roberto A. Monetti, Max-Planck-Institut f ur Extraterrestrische Physik (Germany) ..... [7259-12]

1:40 pm: **A similarity retrieval method for functional magnetic resonance imaging (fMRI) statistical maps**, Rosalia F. Tungaraza, Linda G. Shapiro, Jinyan Guan, Indriyati Atmosukarto, Sara M. Rolfe, Univ. of Washington (US); Jeffrey Ojemann, Children's Hospital & Regional Medical Ctr. (US); Andrew Poliakov, Elizabeth Aylward, Natalia M. Kleinhans, James F. Brinkley M.D., Univ. of Washington (US) ..... [7259-13]

2:00 pm: **Longitudinal analysis of neuroimaging data**, Yimei Li, Hongtu Zhu, Yasheng Chen, Hongyu An, The Univ. of North Carolina at Chapel Hill (US); John H. Gilmore, Weili Lin, Dinggang Shen, The Univ. of North Carolina School of Medicine (US) ..... [7259-73]

2:20 pm: **Medical X-ray image enhancement by intra-image and inter-image similarity**, Andr e Goo en, Technische Univ. Hamburg-Harburg (Germany); Thomas Pralow, Philips Medizin Systeme GmbH (Germany); Rolf-Rainer Grigat, Technische Univ. Hamburg-Harburg (Germany) ..... [7259-15]

2:40 pm: **Optimization of thresholds and gradients for difference tissue interfaces using class uncertainty**, Yinxiao Liu, Punam K. Saha, The Univ. of Iowa (US) ..... [7259-16]

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

7259 continues on page 13 ➔

Conference 7261 continued  
Visualization, Image-guided  
Procedures and Modeling

Room: Monterey 1-3

SESSION 3

Room: Monterey 1-3 ..... Sun. 1:20 to 3:00 pm

Liver

Session Chairs: **Robert L. Galloway, Jr.**,  
Vanderbilt Univ.; **Purang Abolmaesumi**,  
Queen's Univ. (Canada)

1:20 pm: **Automated RFA planning for complete coverage of large tumors**, Karen Trovato, Sandeep Dalal, Jochen Kr ucker, Philips Research North America (US); Aradhana Venkatesan, Bradford J. Wood, National Institutes of Health (US) ..... [7261-12]

1:40 pm: **A novel technique for the three-dimensional visualization of radio-frequency ablation lesions using delayed enhancement magnetic resonance imaging**, Benjamin R. Knowles, Dennis Caulfield, Matthew Ginks, King's College London (UK); Michael Cooklin, Julian Bostock, Aldo Rinaldi, Guy's and St Thomas' NHS Foundation Trust (UK); Reza Razavi, Tobias Schaeffter, Kawal S. Rhode, King's College London (UK) ..... [7261-13]

2:00 pm: **Fast registration of pre- and peri-interventional CT images for targeting support in radiofrequency ablation of hepatic tumors**, Jennifer Bieberstein, Christian Schumann, Andreas Weihsen, Tobias Boehler, Stefan Wirtz, MeVis Research GmbH (Germany); Christoph Trumm M.D., Ludwig-Maximilians-Univ. M unchen (Germany); Philipp Bruners M.D., RWTH Aachen (Germany); Diethard Schmidt M.D., Univ. Hospital T ubingen (Germany); Matthias U. Niethammer, Gabriel Haras, Siemens Medical Solutions GmbH (Germany); Heinz-Otto Peitgen, MeVis Research GmbH (Germany) ..... [7261-14]

2:20 pm: **Matching CT and ultrasound data of the liver by landmark constrained image registration**, Janine Olesch, Nils Papenberg, Univ. zu L ubeck (Germany); Thomas Lange, Charit  Universit atsmedizin Berlin (Germany); Matthias Conrad, Emory Univ. (US); Bernd Fischer, Univ. zu L ubeck (Germany) ... [7261-15]

2:40 pm: **A variational method for vessels segmentation: algorithm and application to liver vessels visualization**, Moti Freiman, Leo Joskowicz, The Hebrew Univ. of Jerusalem (Israel); Jacob Sosna M.D., Hadassah Hebrew Univ. Medical Ctr. (Israel) ..... [7261-16]

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

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Conference 7262 continued  
Biomedical Applications in Molecular,  
Structural, and Functional Imaging

Room: Fiesta 8-10

SESSION 3

Room: Fiesta 8-10 ..... Sun. 1:20 to 3:00 pm

Lung

Session Chair: **Merryn H. Tawhai**,  
The Univ. of Auckland (New Zealand)

1:20 pm: **Fast Murine airway segmentation and reconstruction in micro-CT images**, Xabier Artaechevarria, Arrate Mu oz-Barrutia, Univ. de Navarra (Spain); Bram van Ginneken, Univ. Medisch Ctr. Utrecht (Netherlands); Carlos Ortiz-de-Sol orzano, Univ. de Navarra (Spain) ..... [7262-10]

1:40 pm: **Local tissue-weight-based nonrigid registration of lung images with application to regional ventilation**, Youbing Yin, Eric A. Hoffman, Ching-Long Lin, The Univ. of Iowa (US) ..... [7262-11]

2:00 pm: **Registration-based regional lung mechanical analysis: retrospectively reconstructed dynamic imaging versus static breath-hold image acquisition**, Kai Ding, Kunlin Cao, Gary E. Christensen, Eric A. Hoffman, Joseph M. Reinhardt, The Univ. of Iowa (US) ..... [7262-12]

2:20 pm: **Image-based dynamic lung models for model-guided real-time lung radiotherapy**, Anand P. Santhanam, Jannick P. Rolland, College of Optics & Photonics/Univ. of Central Florida (US); Twyla Willoughby, Patrick Kupelian M.D., M.D. Anderson Cancer Ctr. Orlando (US) ..... [7262-13]

2:40 pm: **Pulmonary uptake of SPECT agents in rat models of lung injury**, Anne V. Clough, Marquette Univ. (US); Steven T. Haworth, Medical College of Wisconsin (US); Said Audi, Marquette Univ. (US); David T. Roerig, Medical College of Wisconsin (US) ..... [7262-102]

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

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Conference 7265 continued  
Ultrasonic Imaging and  
Signal Processing

Room: Fiesta 1-3

SESSION 3

Room: Fiesta 1-3 ..... Sun. 1:20 to 3:00 pm

Image Processing in Ultrasound

Session Chair: **Johan G. Bosch**,  
Erasmus Univ. Rotterdam (Netherlands)

1:20 pm: **Automatic alignment of standard views in 3D echocardiograms using real-time tracking**, Fredrik Orderud, Hans Torp, Norwegian Univ. of Science and Technology (Norway); Stein I. Rabben, GE Healthcare (Norway) ..... [7265-12]

1:40 pm: **Real-time kidney ultrasound images segmentation: a prospective study**, Sonia Dahdouh, Emmanuelle Frenoux, Angel Osorio y Sainz, Ctr. National de la Recherche Scientifique (France) ..... [7265-13]

2:00 pm: **Fetal skull analysis in ultrasound images based on iterative randomized Hough transform**, Yufei Shen, Old Dominion Univ. (US); Jinhua Yu, Fudan Univ. (China); Yuzhong Shen, Old Dominion Univ. (US); Yuanyuan Wang, Fudan Univ. (China) ..... [7265-14]

2:20 pm: **Automated ultrasound measurement of artery thickness**, Dave Tahmouh, Univ. of Maryland, College Park (US); Yu-Bu Lee, Myoung-Hee Kim, Ewha Womans Univ. (Korea, Republic of) ..... [7265-15]

2:40 pm: **A Markov-random-field based filter for speckle reduction in ultrasound imagery**, Ousseini Lankoande, Instrument Technology, Inc. (US); Majeed M. Hayat, Balu Santhanam, The Univ. of New Mexico (US) ..... [7265-16]

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

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## Conference 7259 continued Image Processing

Room: Fiesta 6

### SESSION 4

Room: Fiesta 6 ..... Sun. 3:30 to 5:30 pm

#### Registration I

*Session Chair: Bernd Fischer,*  
Univ. zu Lübeck (Germany)

3:30 pm: **Overlap invariance of cumulative residual entropy measures for multimodal image alignment.** Nathan D. Cahill, Carestream Health, Inc. (US) and Univ. of Oxford (UK); Julia A. Schnabel, Allison Noble, Univ. of Oxford (UK); David J. Hawkes, Univ. College London (UK) ..... [7259-17]

3:50 pm: **Improved fMRI time-series registration using joint probability density priors.** Roshni Bhagalia, Jeffrey A. Fessler, Boklye Kim, Univ. of Michigan (US); Charles R. Meyer, Univ. of Michigan Health System (US) ..... [7259-18]

4:10 pm: **Automatic detection of registration errors for quality assessment in medical image registration.** Sascha E. A. Muenzing, Keelin Murphy, Bram van Ginneken, Josien P. W. Pluim, Univ. Medisch Ctr. Utrecht (Netherlands) ..... [7259-19]

4:30 pm: **A parallel-friendly normalized mutual information gradient for registration: comparison with the analytic gradient.** Marc Modat, Gerard R. Ridgway, Zeike A. Taylor, David J. Hawkes, Nick C. Fox, Sebastien Ourselin, Univ. College London (UK) ..... [7259-20]

4:50 pm: **Curvelet-based sampling for accurate and efficient multimodal image registration.** Moshe N. Safran, Moti Freiman, Michael Wermer, Leo Joskowicz, The Hebrew Univ. of Jerusalem (Israel) ..... [7259-21]

5:10 pm: **Group-wise registration of large image dataset by hierarchical clustering and alignment.** Qian Wang, Liya Chen, Shanghai Jiao Tong Univ. (China); Dinggang Shen, The Univ. of North Carolina at Chapel Hill (US) ..... [7259-22]

#### WORKSHOP

### Image Processing Challenges in Small Animal Imaging

*Fiesta Room 6 · Sun. 5:45 to 7:45 pm*

**Boudewijn P. F. Lelieveldt,**  
Leids Univ. Medisch Ctr. (Netherlands)

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## Conference 7261 continued Visualization, Image-guided Procedures and Modeling

Room: Monterey 1-3

### SESSION 4

Room: Monterey 1-3 ..... Sun. 3:30 to 5:30 pm

#### CT Guidance

*Session Chairs: Baowei Fei,*  
Case Western Reserve Univ. (US); **Kevin R. Cleary,** Georgetown Univ. Medical Ctr. (US)

3:30 pm: **Fiducial localization in C-arm based Cone-Beam CT.** Ziv R. Yaniv, Georgetown Univ. (US) ..... [7261-17]

3:50 pm: **High-performance intraoperative cone-beam CT on a mobile C-Arm: an integrated system for guidance of head and neck surgery.** Jeffrey H. Siewerdsen, Univ. of Toronto (Canada) and Princess Margaret Hospital (Canada); Michael J. Daly, Harley Chan, Princess Margaret Hospital (Canada); Sajendra Nithiananthan, Nathaniel Hamming, Kristy K. Brock, Univ. of Toronto (Canada); Jonathan C. Irish M.D., Princess Margaret Hospital (Canada) ..... [7261-18]

4:10 pm: **Automated segmentation of muscle and adipose tissue on CT images for human body composition analysis.** Howard Chung, Dana Cobzas, Laura Birdsell, Jessica Liefers, Vickie Baracos, Univ. of Alberta (Canada) ..... [7261-19]

4:30 pm: **C-Arm cone-beam CT guidance of sinus and skull base surgery: quantitative surgical performance evaluation with a novel high-fidelity phantom.** Allan Vescan, Univ. of Toronto (Canada); Harley Chan, Michael J. Daly, Princess Margaret Hospital (Canada); Ian Witterick, Jonathan C. Irish M.D., Univ. of Toronto (Canada); Jeffrey H. Siewerdsen, Univ. of Toronto (Canada) and Princess Margaret Hospital (Canada) ..... [7261-20]

4:50 pm: **Experimental comparison of landmark-based methods for 3D elastic registration of pre- and postoperative liver CT data.** Thomas Lange, Charité Universitätsmedizin Berlin (Germany); Stefan Wörz, Karl Rohr, Ruprecht-Karls-Univ. Heidelberg (Germany) and Deutsches Krebsforschungszentrum (Germany); Peter M. Schlag M.D., Charité Universitätsmedizin Berlin (Germany) ..... [7261-21]

5:10 pm: **Disablement of a surgical drill via CT guidance to protect vital anatomy.** Christopher C. Heath, Ramya Balachandran, Omid Majdani, Vanderbilt Univ. Medical Ctr. (US); Andrew Jurik, Univ. of Virginia (US); Thomas Edwards, The Univ. of North Carolina at Chapel Hill (US); Robert F. Labadie M.D., Vanderbilt Univ. Medical Ctr. (US); J. Michael Fitzpatrick, Vanderbilt Univ. (US) ..... [7261-22]

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## Conference 7262 continued Biomedical Applications in Molecular, Structural, and Functional Imaging

Room: Fiesta 8-10

### SESSION 4

Room: Fiesta 8-10 ..... Sun. 3:30 to 5:30 pm

#### Blood Flow

*Session Chair: Juan R. Cebal,*  
George Mason Univ. (US)

3:30 pm: **Simulation-based validation and arrival-time correction for Patlak analyses of perfusion-CT scans.** Joerg Bredno, Philips Research (US); Jason Hom, Max Wintermark, Thomas Schneider, Univ. of California, San Francisco (US) ..... [7262-15]

3:50 pm: **Measurement of cerebral blood volume using angiographic C-arm systems.** Michael Zellerhoff, Yu Deuerling-Zheng, Siemens AG (Germany); Charles M. Strother, Azam Ahmed, Kari Pulfer, Univ. of Wisconsin, Madison (US); Thomas Redel, Siemens AG (Germany); Kevin Royalty, Siemens Medical Solutions USA, Inc. (US); Julie Grinde, Dan Consigny, Univ. of Wisconsin, Madison (US) ..... [7262-16]

4:10 pm: **Image-based modeling of the hemodynamics in cerebral arterial trees.** Fernando Mut, Susan Wright, George Mason Univ. (US); Christopher M. Putman, Inova Fairfax Hospital (US); Giorgio Ascoli, Juan R. Cebal, George Mason Univ. (US) ..... [7262-17]

4:30 pm: **Determination of coronary flow distributions using a 3D reconstructed model from planar x-ray images.** Gerbert A. ten Brinke, Cornelis H. Slump, Univ. Twente (Netherlands); Corstiaan J. Storm, Ziekenhuis Walcheren (Netherlands) ..... [7262-18]

4:50 pm: **Quantification of stenosis in coronary artery via CTA using fuzzy distance transform.** Yan Xu, The Univ. of Iowa (US) and Tsinghua University (China); Punam K. Saha, The Univ. of Iowa (US); Guangshu Hu, Tsinghua Univ. (China); Yan Yang, Georgia Institute of Technology (US); Jinzhao Geng, Tsinghua Univ. (China) ..... [7262-19]

5:10 pm: **Reproducibility of aortic pulsatility measurements from ECG-gated abdominal CTA in patients with abdominal aortic aneurysms.** Armando Manduca, Joel G. Fletcher, Robert J. Wentz, Raymond C. Shields, Terri J. Vrtiska, Hassan Siddiki, Theresa A. Nielson, Mayo Clinic College of Medicine (US) ..... [7262-20]

#### WORKSHOP

### Elastography Directions and Applications for Ultrasound and MR Palpation

*Fiesta Room 8-10 · Sun. 5:45 to 7:45 pm*

**John B. Weaver,** Dartmouth Hitchcock Medical Ctr. (US)

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## Conference 7265 continued Ultrasonic Imaging and Signal Processing

Room: Fiesta 1-3

### SESSION 4

Room: Fiesta 1-3 ..... Sun. 3:30 to 5:30 pm

#### Keynote and Photo-acoustics

*Session Chairs: Jan D'hooge,* Katholieke Univ. Leuven (Belgium); **Stanislav Y. Emelianov,** The Univ. of Texas at Austin (US)

3:30 pm: **Photoacoustic and ultrasound imaging: from molecular imaging to image-guided therapy (Keynote Presentation).** Stanislav Y. Emelianov, The Univ. of Texas at Austin (US) ..... [7265-17]

4:10 pm: **Simultaneous imaging of ultrasound attenuation, speed of sound and optical absorption in a photoacoustic setup.** Rene G. H. Willemlink, Srirang Manohar, Jithin Jose, Cornelis H. Slump, Ferdi van der Heijden, Ton G. C. van Leeuwen, Univ. Twente (Netherlands) ..... [7265-18]

4:30 pm: **Photoacoustic imaging with integrating line detectors.** Hubert Grün, Thomas Berer, Armin Hochreiner, Upper Austrian Research GmbH (Austria); Robert Nuster, Günther Palttauf, Karl-Franzens-Univ. Graz (Austria); Peter Burgholzer, Upper Austrian Research GmbH (Austria) ..... [7265-19]

4:50 pm: **Influence of inhomogeneity of optical absorbers on photoacoustic signals: a comparison between experiment and theory.** Andreas G. Gertsch, The Royal Marsden NHS Foundation Trust (UK); Michael Jaeger, Univ. Bern (Switzerland); Nigel L. Bush, The Royal Marsden NHS Foundation Trust (UK); Martin Frenz, Univ. Bern (Switzerland); Jeffrey C. Bamber, The Royal Marsden NHS Foundation Trust (UK) . . . [7265-20]

5:10 pm: **Quantitative acousto-optic imaging in tissue-mimicking phantoms.** Aliaksandr Bratchenia, Robert Molenaar, Rob P. H. Kooyman, Univ. Twente (Netherlands) ..... [7265-21]

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The following posters will be on display Sunday and Monday, 8-9 February in the Veracruz Exhibit Hall. The Interactive Poster Session with authors in attendance will be Monday evening from 5:00 to 6:30 pm. Poster awards will be presented in the conference meeting room on Tuesday morning.

## Conference 7259 Posters Image Processing

### Classification

**A way toward analyzing high-content bioimage data by means of semantic annotation and visual data mining**, Julia Herold, Univ. Bielefeld (Germany); Sylvie Abouna, Luxian Zhou, Stella Pelengaris, David B. A. Epstein, Michael Khan, Univ. of Warwick (UK); Tim W. Nattkemper, Univ. Bielefeld (Germany) . . . . .[7259-61]

**Classification of normal and rejected kidneys after transplantation using the medulla region**, Melih S. Aslan, Aly A. Farag, Univ. of Louisville (US) . . . . .[7259-62]

**A comparative study in ultrasound breast imaging classification**, Moi Hoon Yap, Eran A. Edirisinghe, Helmut E. Bez, Loughborough Univ. (UK) . . . . .[7259-63]

**Probabilistic grading of intracranial gliomas in digital microscope images based on EGFR quantity**, Marcin Grzegorzec, Univ. Koblenz-Landau (Germany); Marianna Buckan, Sigrid Horn, Johannes Gutenberg Univ. Mainz (Germany) . . . . .[7259-64]

**Integrated feature extraction and selection for neuroimage classification**, Yong Fan, Dinggang Shen, The Univ. of North Carolina School of Medicine (US) . . . . .[7259-65]

**Estimating the body portion of CT volumes by matching histograms of visual words**, Johannes Feulner, Univ. of Erlangen (Germany); Shaohua K. Zhou, Siemens Corporate Research (US); Sascha Seifert, Siemens AG (Germany); Alexander Cavallaro, Imaging Science Institute (Germany); Joachim M. Hornegger, Univ. of Erlangen (Germany); Dorin Comaniciu, Siemens Corporate Research (US) . . . . .[7259-66]

**Voxel-based discriminant map classification on brain ventricles for Alzheimer's disease**, Jingnan Wang, Gerard de Haan, Devrim Unay, Philips Research (Netherlands); Octavian Soldea, Sabanci Univ. (Turkey); Ahmet Ekin, Philips Research (Netherlands) . . . . .[7259-67]

**Fast unsupervised hot-spot detection in 1H-MR spectroscopy data using ICA**, Markus T. Harz, MeVis Research GmbH (Germany); Volker Diehl, MR and PET Ctr. Bremen (Germany) and MeVis Research GmbH (Germany); Bernd T. Merkel, MeVis Research GmbH (Germany); Burckhard Terwey, MR and PET Ctr. Bremen (Germany); Heinz-Otto Peitgen, MeVis Research GmbH (Germany) . . . . .[7259-68]

### Diffusion Tensor Imaging

**A comparative study of diffusion tensor field transformations**, Madhura A. Ingahalikar, Jinsuh Kim, Vincent A. Magnotta, The Univ. of Iowa (US); Andrew L. Alexander, Univ. of Wisconsin, Madison (US) . . . . .[7259-69]

**Real-time magnetic resonance Q-Ball imaging using Kalman filtering with Laplace-Beltrami regularization**, Rachid Deriche, INRIA Sophia Antipolis (France); Jeffrey W. Calder, Queen's Univ. (Canada) . . . . .[7259-70]

**Generalized analytic expressions for the b matrix of twice-refocused spin echo pulse sequence**, Qi Zhuang, Xuwei Liang, Ning Cao, Jun Zhang, Univ. of Kentucky (US) . . . . .[7259-71]

### Functional Imaging

**An independent component analysis based tool for exploring functional connections in the brain**, Sara M. Rolfe, Laura Finney, Rosalia F. Tungaraza, Jinyan Guan, Linda G. Shapiro, James F. Brinkley M.D., Andrew Poliakov, Natalia M. Kleinhans, Elizabeth Aylward, Univ. of Washington (US) . . . . .[7259-72]

### Filtering, Restoration, and Enhancement

**Optimized GPU framework for semi-implicit AOS scheme based speckle reducing nonlinear diffusion**, Tian Cao, Bo Wang, Dong C. Liu, Sichuan Univ. (China) . . . . .[7259-74]

**Enhanced detection in CT colonoscopy using adaptive diffusion filtering**, Abdel Douiri, Muhammad M. Siddique, Xujiang Ye, Gareth R. Beddoe, Greg Slabaugh, Medicsight PLC (UK) . . . . .[7259-75]

**Device boosting using rotational x-ray angiography**, Gert A. Schoonenberg, Philips Healthcare (Netherlands) and Technische Univ. Eindhoven (Netherlands); Peter W. van den Houten, Philips Medical Systems International B.V. (Netherlands); Raoul Florent, Pierre Lelong, Philips France (France); John D. Carroll M.D., Univ. of Colorado Health Sciences Ctr. (US); Bart M. ter Haar Romeny, Technische Univ. Eindhoven (Netherlands) . . . . .[7259-76]

**Parameter optimization for image denoising based on block matching and 3D collaborative filtering**, Jiang Li, Ramu Pedada, Old Dominion Univ. (US); Zhanfeng Yue, Medical Image Engine, LLC (US); Yuzhong Shen, Old Dominion Univ. (US) . . . . .[7259-77]

**Edge preserving image smoothing using nonlinear diffusion and a semi-local edge detection technique in digital mammography images**, Mark M. Roden, Univ. of California, Los Angeles (US); Lawrence W. Bassett M.D., UCLA School of Medicine (US); Daniel Valentino, iCRco, Inc. (US) . . . . .[7259-78]

**Contrast enhancement of subcutaneous blood vessel images by means of visible and near-infrared hyper-spectral imaging**, Jaka Katrašnik, Miran Bürmen, Franjo Pernuš, Boštjan Likar, Univ. v Ljubljani (Slovenia) . . . . .[7259-79]

**An MRI-guided partial volume correction method for PET images**, Hesheng Wang, Case Western Reserve Univ. (US); Baowei Fei, Univ. Hospitals Case Medical Ctr. (US) and Case Western Reserve Univ. (US) . . . . .[7259-80]

**Image quality improvement based on wavelet regularization for cone beam breast CT (CBBCT)**, Dong Yang, Ruola Ning, Xiaohua Zhang, Shaohua Liu, Univ. of Rochester (US) . . . . .[7259-81]

**An approach for automatic selecting of optimal data acquisition window for magnetic resonance coronary angiography**, Tetsuo Sato, Nara Institute of Science and Technology (Japan); Tomohisa Okada, Kyoto Univ. (Japan); Shigehide Kuhara, Toshiba Medical Systems Corp. (Japan); Kaori Togashi, Kyoto Univ. (Japan); Kotaro Minato, Nara Institute of Science and Technology (Japan) . . . . .[7259-84]

**Improved vessel enhancement for fully automatic coronary modeling**, Vincent Auvray, Raoul Florent, Philips Healthcare (France); Uwe Jandt, Dirk Schaefer, Philips Healthcare (Germany) . . . . .[7259-86]

### Motion

**Consistency of flow quantifications in tridirectional phase-contrast MRI**, Roland Unterhinninghofen, Univ. Karlsruhe (Germany); Sebastian Ley, Univ. Klinikum Heidelberg (Germany); Rüdiger Dillmann, Univ. Karlsruhe (Germany) . . . . .[7259-87]

**Detection of non-uniform multi-body motion in image time-series using saccades-enhanced phase correlation**, Evgeny Gladilin, Roland Eils, Deutsches Krebsforschungszentrum (Germany) . . . . .[7259-88]

**Motion-compensated post-processing of gated cardiac SPECT images using a deformable mesh model**, Thibault Marin, Miles N. Wernick, Yongyi Yang, Jovan G. Brankov, Illinois Institute of Technology (US) . . . . .[7259-89]

**GPU accelerated real-time estimation of bronchoscope 3D pose**, Mehdi Arezoomand, Sharif Univ. of Technology (Iran, Islamic Republic of); Vahid Tavakoli, Univ. of Louisville (US); Nima Sahba, Research Ctr. for Science and Technology In Medicine (Iran, Islamic Republic of) . . . . .[7259-90]

**A fast and accurate method for echocardiography strain rate imaging**, Vahid Tavakoli, Univ. of Tehran (Iran, Islamic Republic of) and Univ. of Louisville (US); Nima Sahba, Research Ctr. for Science and Technology In Medicine (Iran, Islamic Republic of); Mohammad Saleh Nambakhsh, King's College London (UK); Amir Makinian, Kish Univ. (Iran, Islamic Republic of) . . . . .[7259-91]

### Registration

**Automatic bone registration in MR knee images for the cartilage morphological analysis**, Ji Hyun Yoo, Soo Kyung Kim, Helen Hong, Seoul Women's Univ. (Korea, Republic of); Hackjoon Shim, C. Kent Kwoh, Kyongtae T. Bae, Univ. of Pittsburgh (US) . . . . .[7259-92]

**Evaluation of moving least squares as a technique for non-rigid medical image registration**, Vijayalakshmi Sathyanarayanan, Robert E. Bodenheimer, Vanderbilt Univ. (US) . . . . .[7259-93]

**Registration of EEG electrodes positions to PET and fMRI images**, Ziga Spiclin, Bostjan Likar, Franjo Pernus, Univ. v Ljubljani (Slovenia) . . . . .[7259-94]

**An image warping technique for rodent brain MRI-histology registration based on thin-plate splines with landmark optimization**, Yutong Liu, Mariano G. Uberti, Huanyu Dou, R. Lee Mosley, Howard Gendelman, Michael Boska, Univ. of Nebraska Medical Ctr. (US) . . . . .[7259-95]

**Optimized graph-based mosaicking of cervical slides for virtual microscopy**, Dirk G. Steckhan, Fraunhofer-Institut für Integrierte Schaltungen (Germany) and The International Max-Planck Research School for Optics and Imaging (Germany); Thomas M. Wittenberg, Fraunhofer-Institut für Integrierte Schaltungen (Germany) . . . . .[7259-96]

**Automatic alignment of MRI brain scan by anatomic landmarks**, Li Zhang, Siemens Corporate Research (US); Qing Xu, Vanderbilt Univ. (US); Chong Chen, Univ. of Illinois at Chicago (US); Carol L. Novak, Siemens Corporate Research (US) . . . . .[7259-97]

**COLLINARUS: collection of image-derived nonlinear attributes for registration using splines**, Jonathan C. Chappelow, Rutgers Univ. (US); B. Nicolas Bloch, Harvard Medical School (US); Anant Madabhushi, Rutgers Univ. (US); Neil Rofsky M.D., Elizabeth Genega M.D., Robert E. Lenkinski, William DeWolf, Harvard Medical School (US) . . . . .[7259-98]

**New GPU optimizations for intensity-based registration**, Razik Yousofi, Guillaume Bousquet, Christophe Chef'd'hotel, Siemens Corporate Research (US) . . . . .[7259-99]

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**Accuracy of X-ray image-based 3D localization from two C-arm views: A comparison between an ideal and a real system.** Alexander B. Brost, Chair of Pattern Recognition, Computer Science, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Norbert K. Strobel, Siemens AG (Germany); Liron Yatziv, Wesley Gilson, Siemens Corporate Research (US); Bernhard C. Meyer, Charité Universitätsmedizin Berlin (Germany); Joachim Hornegger, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Frank K. Wacker, Jonathan S. Lewin, The Johns Hopkins Hospital (US) .....[7261-70]

**A method for semi-automatic segmentation and evaluation of intracranial aneurysms in bone-subtraction computed tomography angiography (BSCTA) images.** Susanne Kraemer, Fern Univ. in Hagen (Germany); Hendrik Ditt, Siemens Healthcare (Germany); Christina Biermann, Siemens Healthcare (Germany) and Eberhard Karls Univ. Tübingen (Germany); Joerg Keller, Fern Univ. in Hagen (Germany); Michael Lell, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) .....[7261-71]

**Tumor correlated CT: a new paradigm for motion compensated CT for image-guided therapy.** Parag J. Parikh M.D., Kristen M. Lechleiter, Kathleen L. Malinowski, Ryan L. Smith, Jie Wen, Washington Univ. in St. Louis School of Medicine (US); Steve Dimmer, Calypso Medical Technologies, Inc. (US) .....[7261-72]

**Comparison of pre/post-operative CT image volumes to preoperative digitization of partial hepatectomies: a feasibility study in surgical validation.** Prashanth Dumpuri, Logan W. Clements, Vanderbilt Univ. (US); Jonathan M. Waite, Pathfinder Therapeutics, Inc. (US); Michael I. Miga, Benoit M. Dawant, Vanderbilt Univ. (US) .....[7261-73]

**Evaluating 'optimal CNR' as a preset criteria for nonlinear modal blending of dual energy CT data.** David R. Holmes III, Mayo Clinic (US); Anja Apel, Siemens Healthcare (US); Joel G. Fletcher, Luis Guimaraes, Mayo Clinic (US); Christian D. Eusemann, Siemens Healthcare (US); James E. Huprich M.D., Cynthia H. McCollough, Richard A. Robb M.D., Mayo Clinic (US) .....[7261-74]

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**Determining material properties of the breast for image-guided surgery.** Timothy J. Carter, Christine Tanner, David J. Hawkes, Univ. College London (UK) .....[7261-75]

**Recognition of surgical skills using hidden Markov models.** Stefanie Speidel, Tom Zentek, Gunther Sudra, Univ. Karlsruhe (Germany); Beat Peter Müller-Stich, Tobias Gehrig, Carsten N. Gutt, Ruprecht-Karls-Univ. Heidelberg (Germany); Rüdiger Dillmann, Univ. Karlsruhe (Germany) .....[7261-76]

**3D finite element model for treatment of cleft lip.** Dongming Hong, Hongbing Lu, Jianqi Wang, Qin Lin, Fourth Military Medical Univ. (China); Jerome Z. Liang, Stony Brook Univ. (US).....[7261-77]

**Deformable hollow organ models with inner-collision processing between self-surfaces.** Keiji Nishimura, Takeshi Koishi, Toshiya Nakaguchi, Shinya Morita, Norimichi Tsumura, Yoichi Miyake, Chiba Univ. (Japan) .....[7261-78]

**Accuracy of localization of prostate lesions using manual palpation and ultrasound elastography.** Carmen Kut, Johns Hopkins Medical Institutions (US); Caitlin Schneider, The Johns Hopkins Univ. (US); Naima Carter-Monroe M.D., Johns Hopkins Medical Institutions (US); Li-Ming Su M.D., Univ. of Florida College of Medicine (US); Emad M. Boctor, Johns Hopkins Medical Institutions (US); Russell H. Taylor, The Johns Hopkins Univ. (US) .....[7261-79]

**Curvature and shape variance based landmark tagging methods for building statistical object models.** Sylvia Rueda, The Univ. of Nottingham (UK); Jayaram K. Udupa, Univ. of Pennsylvania (US) .....[7261-80]

**Hybrid finite element modeling for reducing computation time in brain shift analysis.** Youhei Azuma, Kazuhiko Adachi, Yu Hasegawa, Atsushi Fujita, Eiji Kohmura, Hiroshi Kanki, Kobe Univ. (Japan).....[7261-81]

**Brain tissue retraction simulation for neurosurgical training system using haptic device.** Yu Hasegawa, Kazuhiko Adachi, Youhei Azuma, Atsushi Fujita, Eiji Kohmura, Hiroshi Kanki, Kobe Univ. (Japan).....[7261-82]

**Investigating an approach to identifying the biomechanical differences between intercostal cartilage in subjects with pectus excavatum and normals in vivo: preliminary assessment of normal subjects.** Krzysztof J. Rechowicz, Frederic McKenzie, Zhenzhen Yan, Sebastian Bawab, Stacie I. Ringleb, Old Dominion Univ. (US).....[7261-83]

**3D reconstruction of the human spine from radiograph(s) using a multibody statistical model.** Jonathan Boisvert, Queen's Univ. (Canada) and Ecole Polytechnique de Montréal (Canada) and INRIA Sophia Antipolis (France); Xavier Pennec, Nicholas Ayache, INRIA Sophia Antipolis (France); Farida Cheriet, Ecole Polytechnique de Montréal (Canada) .....[7261-84]

**Brain shift compensation through biomechanical modeling for clinical application.** Songbai Ji, Fenghong Liu, Xiaoyao Fan, Alexander Hartov, Dartmouth College (US); David W. Roberts M.D., Dartmouth Hitchcock Medical Ctr. (US); Keith D. Paulsen, Dartmouth College (US) .....[7261-85]

**A PDE approach for quantifying and visualizing tumor progression and regression.** Benjamin J. Sintay, J. Daniel Bourland, Wake Forest Univ. (US) .....[7261-86]

**Constrained hyperelastic parameters reconstruction of PVA phantom undergoing large deformation.** Hatem Mehrabian, Abbas Samani, The Univ. of Western Ontario (Canada) .....[7261-87]

#### Guidance and Technology

**Collision-free 6D non-holonomic planning for nested cannulas.** Karen Trovato, Aleksandra Popovic, Philips Research North America (US) .....[7261-88]

**Ultrasound elastography: enabling technology for image guided laparoscopic prostatectomy.** Ioana N. Fleming, Hassan Rivaz, The Johns Hopkins Univ. (US); Katarzyna Macura, Li-Ming Su M.D., Ulrike Hamper, Tamara Lotan, Johns Hopkins Medical Institutions (US); Russell H. Taylor, Gregory D. Hager, The Johns Hopkins Univ. (US); Emad M. Boctor, Johns Hopkins Medical Institutions (US) .....[7261-89]

**Improved navigation for image-guided bronchoscopy.** Rahul Khare, The Pennsylvania State Univ. (US); Kun-Chang Yu, Endographics Imaging Systems Inc. (US); William E. Higgins, The Pennsylvania State Univ. (US) .....[7261-90]

**Direct endoscopic video registration for sinus surgery.** Daniel Mirotta, Russell H. Taylor, The Johns Hopkins Univ. (US); Masaru Ishii M.D., Johns Hopkins Bayview Medical Ctr. (US); Gregory D. Hager, The Johns Hopkins Univ. (US) .....[7261-91]

**Using a wireless motion controller for 3D medical image catheter interaction.** Dime Vitanovski, Dieter A. Hahn, Volker Daum, Joachim Hornegger, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) .....[7261-92]

**Post-operative assessment in deep brain stimulation based on multimodal images: registration workflow and validation.** Florent Lalys, Claire Haegelen, Pierre Jannin, Institut de Recherche en Informatique et Systèmes Aléatoires (France) . . . .[7261-93]

**Optimal landmarks selection for minimal target registration error in image-guided neurosurgery.** Reuben R. Shamir, Leo Joskowicz, The Hebrew Univ. of Jerusalem (Israel); Sergey Spector M.D., Yigal Shoshan M.D., Hadassah Univ. Hospital (Israel) .....[7261-94]

**Fusion of intraoperative cortical images with preoperative models for neurosurgical planning and guidance.** An Wang, Robarts Research Institute (Canada); Seyed Mirsattari, Andrew Parrent, London Health Sciences Ctr. (Canada); Terry M. Peters, Robarts Research Institute (Canada) . . . . .[7261-96]

**A novel 3D nasal mask selection system.** Yanfen Cheng, Hongxia Wang, Wuhan Univ. of Technology (China); Huiping Li, Applied Media Analysis, Inc. (US) . . . . .[7261-97]

**Transbronchial needle aspiration with a new electromagnetically tracked TBNA needle.** Jae J. Choi, Teo R. Popa, Georgetown Univ. (US); Lucian G. Gruionu, Univ. of Craiova (Romania) . . . . .[7261-98]

**A compute node strategy for computational model-assisted therapeutic interventions.** Douglas Hackworth, Prashanth Dumpuri, Logan W. Clements, Michael I. Miga, Vanderbilt Univ. (US) . . . . .[7261-99]

**An open-source testing framework for tracking devices using Lego Mindstorms™.** Julien Jomier, Luis Ibanez, Andinet Enquobahrie, Kitware, Inc. (US); Danielle F. Pace, Robarts Research Institute (Canada); Kevin R. Cleary, Georgetown Univ. Medical Ctr. (US) . . . . .[7261-100]

**An improved method for compensating ultra-tiny electromagnetic tracker utilizing position and orientation information and its application to a flexible-neuroendoscopic surgery navigation system.** Zhengang Jiang, Kensaku Mori, Yukitaka Nimura, Nagoya Univ. (Japan); Takayuki Kitasaka, Aichi Institute of Technology (Japan); Yasuhito Suenaga, Yuichiro Hayashi, Eiji Ito, Masazumi Fujii, Tetsuya Nagatani, Yasukazu Kajita, Jun Yoshida, Nagoya Univ. (Japan) . . . . .[7261-101]

**Evaluation of dynamic electromagnetic tracking deviation.** Johann B. Hummel, Community Hospital Hietzing (Austria) and Medical Univ. of Vienna (Austria); Michael Figl, Medical Univ. of Vienna (Austria); Michael R. S. Bax, Stanford Univ. (US); Wolfgang Birkfellner, Helmar Bergmann, Medical Univ. of Vienna (Austria) . . . . .[7261-103]

**Elasticity-based three dimensional ultrasound real-time volume rendering.** Emad M. Boctor, Babak Matinfar, Omar M. Ahmad, Johns Hopkins Medical Institutions (US) . . . . .[7261-104]

**4D radiation therapy for the treatment of pancreatic cancer.** Yulin Song, Boris Mueller M.D., Borys Mychalczak M.D., Memorial Sloan-Kettering Cancer Ctr. (US) . . . . .[7261-122]

## Visualization and Geometry

**Reliability of vascular geometry factors derived from clinical MRA.** Payam B. Bijari, Univ. of Toronto (Canada); Luca Antiga, Istituto di Ricerche Farmacologiche Mario Negri (Italy); David A. Steinman, Univ. of Toronto (Canada) . . . . .[7261-105]

**Visualization of multiresolution model for volumetric medical data by using weighted alpha shapes.** Kun Lee, Handong Global Univ. (Korea, Republic of) . . . . .[7261-106]

**Interactive vessel-tracking with a hybrid model-based and graph-based approach.** Dominik Fritz, Michael Scheuring, Siemens AG (Germany) . . . . .[7261-107]

**A visualization system for CT-based pulmonary fissure analysis.** Jiantao Pu, Bin Zheng, Sang Cheol Park, Univ. of Pittsburgh (US); Mingxian Wang, Anyang Kaiyuan Co. Ltd. (China) . . . . .[7261-108]

**Quantitative and visual analysis of white matter integrity using diffusion tensor imaging.** Xuwei Liang, Qi Zhuang, Ning Cao, Jun Zhang, Univ. of Kentucky (US) . . . . .[7261-109]

**Evaluation of topology correction methods for the generation of the cortical surface.** Wen Li, Vincent A. Magnotta, The Univ. of Iowa (US) . . . . .[7261-110]

**Analysis and dynamic 3D visualization of cerebral blood flow combining 3D and 4D MR image sequences.** Nils Daniel Forkert, Dennis Saering, Jens Fiehler, Till Illies, Univ. Medical Ctr. Hamburg-Eppendorf (Germany); Dietmar Moeller, Univ. Hamburg (Germany); Heinz Handels, Univ. Medical Ctr. Hamburg-Eppendorf (Germany) . . . . .[7261-111]

**Visualization of risk structures for interactive planning of image-guided radiofrequency ablation of liver tumors.** Christian Rieder, Michael Schwieler, Andreas Weihsen, Stephan Zidowitz, Heinz-Otto Peitgen, MeVis Research GmbH (Germany) . . . . .[7261-112]

## Registration

**A contrast and registration template for magnetic resonance image data-guided dental implant placement.** Georg Eggers M.D., Raluca Cosgarea, Marcus Rieker, Ruprecht-Karls-Universität Heidelberg (Germany); Bodo Kress M.D., Krankenhaus Nordwest (Germany); Hartmut Dickhaus, Joachim Mühlberg M.D., Ruprecht-Karls-Universität Heidelberg (Germany) . . . . .[7261-113]

**Feature-driven deformation for dense correspondence.** Deboshmita Ghosh, Andrei Sharf, Nina Amenta, Univ. of California, Davis (US) . . . . .[7261-114]

**Reduction of multiframe fractures of the distal radius using atlas-based 2D/3D registration.** Ren-Hui Gong, James Stewart, Purang Abolmaesumi, Queen's Univ. (Canada) . . . . .[7261-115]

**Surface-based determination of the pelvic coordinate system.** Lorenz Fieten, Jörg Eschweiler, Stefan Heger, RWTH Aachen (Germany); Koroush Kabir, Sascha Gravius, Univ. Hospital Bonn (Germany); Matías de la Fuente, Klaus Radermacher, RWTH Aachen (Germany) . . . . .[7261-116]

**Intraoperative localization of brachytherapy implants using intensity-based registration.** Zahra KarimAghaloo, Purang Abolmaesumi, Narges Ahmadi, Thomas K. Chen, David G. Gobbi, Gabor Fichtinger, Queen's Univ. (Canada) . . . . .[7261-117]

**A deformation model for non-rigid registration of the kidney.** Rowena E. Ong, Courtenay L. Glisson, Stanley D. Herrell M.D., Michael I. Miga, Robert L. Galloway, Jr., Vanderbilt Univ. (US) . . . . .[7261-118]

**Real-time estimation of FLE for point-based registration.** Andrew D. Wiles, Terry M. Peters, Robarts Research Institute (Canada) and The Univ. of Western Ontario (Canada) . . . . .[7261-119]

**Computer-aided method for automated selection of optimal imaging plane for measurement of volumetric cerebral blood flow by MRI: A feasibility study.** Pang-yu Teng, Noam Alperin, Univ. of Illinois at Chicago (US) . . . . .[7261-120]

**Iterative solution for rigid-body point-based registration with anisotropic weighting.** Ramya Balachandran, J. Michael Fitzpatrick, Vanderbilt Univ. (US) . . . . .[7261-121]

## Conference 7262 Posters

### Biomedical Applications in Molecular, Structural, and Functional Imaging

#### Brain Imaging

**Mapping brain development during childhood, adolescence and young adulthood.** Xiaojuan Guo, Beijing Normal Univ. (China); Zhen Jin, 306th Hospital of Chinese P.L.A. (China); Kewei Chen, Banner Alzheimer's Institute (US); Danling Peng, Yao Li, Beijing Normal Univ. (China) . . . . .[7262-61]

**Automatic selection of arterial input function using tri-exponential models.** Jianhua Yao, Jeremy J. Chen, Castelo Marcelo, David Thomasson, National Institutes of Health (US) . . . . .[7262-62]

**Combination of DTI and fMRI reveals the white matter changes correlating with the decline of default-mode network activity in Alzheimer's disease.** Xianjun Wu, Yao Li, Xiaojie Zhao, Beijing Normal Univ. (China) . . . . .[7262-63]

**Variational Bayesian framework for estimating parameters of integrated E/MEG and fMRI model.** Abbas Babajani-Feremi, Susan M. Bowyer, John Moran, Kost V. Elisevich, Hamid Soltanian-Zadeh, Henry Ford Hospital (US) . . . . .[7262-64]

**Face processing pattern under top-down perception: a functional MRI study.** Jun Li, Jimin Liang, Xidian Univ. (China); Jie Tian, Institute of Automation (China); Jiangang Liu, Beijing Jiaotong Univ. (China); Jizheng Zhao, Xidian Univ. (China); Hui Zhang, Institute of Automation (China); Guangming Shi, Xidian Univ. (China) . . . . .[7262-65]

**Multi-area integrated E/MEG and fMRI modeling.** Abbas Babajani-Feremi, Susan M. Bowyer, John Moran, Kost V. Elisevich, Kenneth Podell, Hamid Soltanian-Zadeh, Henry Ford Hospital (US) . . . . .[7262-66]

**Effective connectivity analysis of default mode network based on the Bayesian network learning approach.** Rui Li, Xia Wu, Beijing Normal Univ. (China); Kewei Chen, Banner Alzheimer's Institute (US); Nan Zhang, Beijing Normal Univ. (China); Adam S. Fleisher, Banner Alzheimer's Institute (US); Yao Li, Beijing Normal Univ. (China) . . . . .[7262-67]

**Functional network connectivity analysis based on partial correlation in Alzheimer's disease.** Nan Zhang, Beijing Normal Univ. (China); Xiaoting Guan, Yumei Zhang, Jingjing Li, Hongyan Chen, Beijing Tiantan Puhua Hospital (China); Kewei Chen, Adam S. Fleisher, Banner Alzheimer's Institute (US); Yao Li, Xia Wu, Beijing Normal Univ. (China) . . . . .[7262-68]

**Adverse effects of template-based warping on spatial fMRI analysis.** Bernard Ng, Rafeef Abugharbieh, Martin J. McKeown, The Univ. of British Columbia (Canada) . . . . .[7262-69]

**Data-driven measures of functional connectivity.** Tianhu Lei, John Dell, Ralph Magee, Timothy P. L. Roberts, The Children's Hospital of Philadelphia (US) . . . . .[7262-70]

**Combinational method for focal brain activation detection using MEG signal.** Mehdi Rajabioun, Univ. of Tehran (Iran, Islamic Republic of); Abbas Babajani-Feremi, Hamid Soltanian-Zadeh, Henry Ford Hospital (US) . . . . .[7262-71]

**Hybrid input function estimation using a single-input-multiple-output (SIMO) approach.** Yi Su, Koresh I. Shoghi, Washington Univ. in St. Louis School of Medicine (US) . . . . .[7262-72]

**RV-coefficient and its significance test in mapping brain functional connectivity.** Hui Zhang, Jie Tian, Institute of Automation (China); Jun Li, Jizheng Zhao, Xidian Univ. (China) . . . . .[7262-73]

**Source counting in MEG neuroimaging.** Tianhu Lei, John Dell, Ralph Magee, Timothy P. L. Roberts, The Children's Hospital of Philadelphia (US) . . . . .[7262-74]

**Computational fluid dynamics and phase-contrast magnetic resonance of normal cerebral arteries.** Juan R. Cebal, Fernando Mut, George Mason Univ. (US); Christopher M. Putman, Inova Fairfax Hospital (US); Marcus Alley, Roland Bammer, Stanford Univ. School of Medicine (US); Fernando Calamante, Brain Research Institute (Australia) . . . . .[7262-75]

## Cardiac Imaging

**Micro-CT analysis of myocardial blood supply in young and adult rats.** Heather M. Schaefer, Patricia E. Beighley, Diane R. Eaker, Andrew J. Vercocke, Erik L. Ritman, Mayo Clinic College of Medicine (US) . . . . .[7262-33]

**Myocardial deformation from tagged MRI in hypertrophic cardiomyopathy using an efficient registration strategy.** Gemma Piella, Mathieu S. De Craene, Estanislao Oubel, Ignacio Larrabide, Bart Bijnens, Alejandro F. Frangi, Univ. Pompeu Fabra (Spain) . . . . .[7262-76]

**Systolic and diastolic assessment by 3D-ASM segmentation of gated-SPECT Studies: a comparison with MRI.** Catalina Tobon-Gomez, Bart Bijnens, Univ. Pompeu Fabra (Spain); Marina Huguet, CETIR Sant Jordi (Spain); Gloria Moragas, CETIR Unitat Teknon (Spain); Alejandro F. Frangi, Univ. Pompeu Fabra (Spain) . . . . .[7262-77]

**Identification of left pulmonary vein ostia using centerline tracking.** Maryam E. Rettmann, David R. Holmes III, Douglas L. Packer, Richard A. Robb M.D., Mayo Clinic (US) . . . . .[7262-78]



**Novel echocardiographic prediction of non-response to cardiac resynchronization therapy**, Raymond C. Chan, Philips Research (US); Francois C. Tournoux, Annabel Tournoux, V. Nandigam, Massachusetts General Hospital (US); Robert M. Manzke, Sandeep Dalal, Philips Research (US); J. Solis-Martin, David McCarty, Jeremy Ruskin, Michael H. Picard, Arthur E. Weyman, Jagmeet Singh, Massachusetts General Hospital (US) .....[7262-79]

## Optical Imaging

**Development of a dual-modality CT-optical contrast agent**, Naomi Matsuura, Melissa L. Hill, Ivan Gorelikov, Siqi Zhu, Kelvin Wan, James G. Mainprize, Martin J. Yaffe, John A. Rowlands, Sunnybrook Health Sciences Ctr. (Canada) ... [7262-80]

**Study of four regularization methods for the inverse problem in bioluminescence tomography**, Xiaowei He, Xidian Univ. (China); Jie Tian, Institute of Automation (China); Yan Wu, Yanbin Hou, Nunu Ren, Kuan Peng, Xidian Univ. (China) .....[7262-81]

**Three-dimensional localization of in vivo bioluminescent source based on multispectral imaging**, Jinchao Feng, Kebin Jia, Beijing Univ. of Technology (China); Jie Tian, Guorui Yan, Shouping Zhu, Institute of Automation (China) ... [7262-82]

**3-D segmentation of the rim and cup in spectral-domain optical coherence tomography volumes of the optic nerve head**, Kyungmoo Lee, Meindert Niemeijer, Mona K. Garvin, The Univ. of Iowa (US); Young H. Kwon, The Univ. of Iowa Hospitals and Clinics (US); Milan Sonka, The Univ. of Iowa (US); Michael D. Abrámoff M.D., The Univ. of Iowa Hospitals and Clinics (US) .....[7262-83]

**A hybrid P1-DPO diffusion theory for optical imaging**, Kai Liu, Jie Tian, Chenghu Qin, Dan Liu, Min Xu, Xin Yang, Institute of Automation (China) ..... [7262-84]

**Calibration of CCD-based redox imaging for biological tissues**, He N. Xu, Baohua Wu, Shoko Nioka, Britton Chance, Lin Z. Li, The Univ. of Pennsylvania Health System (US) ..... [7262-85]

**Improvement of a snapshot spectroscopic retinal multi-aperture imaging camera**, Paul Lemaillet, Jessica C. Ramella-Roman, The Catholic Univ. of America (US) ..... [7262-86]

**Robust image modeling technique with a bioluminescence image segmentation application**, Jianghong Zhong, Beijing Jiaotong Univ. (China) and Institute of Automation (China); Ruiping Wang, Beijing

Jiaotong Univ. (China); Jie Tian, Institute of Automation (China) ..... [7262-87]

**A posteriori correction for source decay in 3D bioluminescent source localization using multiview measured data**, Li Sun, Pu Wang, Beijing Univ. of Technology (China); Jie Tian, Dan Liu, Ruifang Wang, Institute of Automation (China) ..... [7262-89]

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**Micro-CT analysis of sea sponge pore architecture for a model image cell-populated synthetic tissue scaffold**, Amber S. Plath, Timothy L. Kline, Diane R. Eaker, Patricia E. Beighley, Andrew J. Vercnocke, Erik L. Rittman, Mayo Clinic College of Medicine (US) ..... [7262-25]

**Microwave imaging utilizing a soft prior constraint**, Amir H. Golnabi, Paul M. Meaney, Shireen D. Geimer, Keith D. Paulsen, Dartmouth College (US) ..... [7262-90]

**Multimodality image registration using ordinary procrustes analysis**, Sunwool Kim, Chonnam National Univ. (Korea, Republic of) ..... [7262-91]

**Molecules 3D Delaunay triangulation: a spectral study**, Joachim Giard, Benoît Macq, Univ. Catholique de Louvain (Belgium) ..... [7262-92]

**Automated labeling of anatomic segments of the colon in CT colonography**, Patric J. Glynn, Case Western Reserve Univ. (US); Ronald M. Summers M.D., National Institutes of Health (US) ..... [7262-94]

**The analysis of nanoparticle vibration using magnetic spectroscopy**, John B. Weaver, Dartmouth Hitchcock Medical Ctr. (US); Adam M. Rauwerdink, Eric W. Hansen, Dartmouth College (US) ..... [7262-95]

**An application of the complex general linear model to analysis of fMRI single subjects multiple stimuli input data**, Daniel E. Rio, Robert R. Rawlings, National Institutes of Health (US); Lawrence A. Woltz, Synergy Research Inc. (US); Jodi Gilman, Daniel W. Hommer, National Institutes of Health (US) ..... [7262-96]

**Automated liver segmentation using a normalized probabilistic atlas**, Marius G. Linguraru, Zhixi Li, Furhawn Shah, See Chin, Ronald M. Summers M.D., National Institutes of Health (US) ..... [7262-97]

**Model-based reconstruction for undersampled dynamic contrast enhanced MRI**, Ben K. Felsted, Edward V. R. DiBella, Ross T. Whitaker, Matthias C. Schabel, The Univ. of Utah (US) . . [7262-98]

**Registration of parametric dynamic F-18-FDG PET/CT breast images with parametric dynamic Gd-DTPA breast images**, Alphonso W. Magri, Syracuse Univ. (US); Andrzej Krol, David H. Feiglin, SUNY Upstate Medical Univ. (US); Edward D. Lipson, James A. Mandel, Syracuse Univ. (US); Wendy McGraw, Central New York PET, LLC (US); Wei Lee, Gwen M. Tillapaugh-Fay, SUNY Upstate Medical Univ. (US) ..... [7262-99]

**Validating electromagnetic breast imaging: correlating in vivo and ex vivo dielectric tissue properties**, Ryan J. Halter, Tian Zhou, Alexander Hartov, Paul M. Meaney, Dartmouth College (US); Richard J. Barth, Jr., Kari M. Rosenkrantz, Wendy A. Wells, Elizabeth Rizzo, Dartmouth Hitchcock Medical Ctr. (US); Keith D. Paulsen, Dartmouth College (US) ..... [7262-100]

**Enhanced volume rendering for high-resolution whole mouse cryo-image data**, Madhusudhana Gargasha, Case Western Reserve Univ. (US) and Visage Imaging Inc. (US); Mohammed Qutaish, Debashish Roy, Grant J. Steyer, Case Western Reserve Univ. (US); Hauke Bartsch, Visage Imaging Inc. (US); David L. Wilson, Case Western Reserve Univ. (US) ..... [7262-101]

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**Spatial compounding of large sets of 3D echocardiography images**, Cheng Yao, King's College London (UK); John M. Simpson, Evelina Children's Hospital (UK); Christian H. P. Jansen, Andrew P. King, Graeme P. Penney, King's College London (UK) ..... [7265-40]

**Tissue typing with ultrasound RF time series: phantom studies**, Mehdi Moradi, Parvin Mousavi, Queen's Univ. (Canada); Robert N. Rohling, The Univ. of British Columbia (Canada); Purang Abolmaesumi, Queen's Univ. (Canada) ..... [7265-41]

**Monitoring breast masses with ultrasound tomography in patients undergoing neoadjuvant chemotherapy**, Nebojsa Duric, Peter J. Littrup, Jessica Lupinacci, Amy Szczepanski, Bryan Ranger, Cuiping Li, Steven Schmidt, Olsi Rama, Lisa Bey-Knight R.N., Lukasz Myc, Karmanos Cancer Institute (US) ..... [7265-43]

**Operator guidance in 2D echocardiography via 3D model to image registration**, Navneeth Subramanian, Christoph Bergmeir, GE Global Research (India) ..... [7265-44]

**Super-resolution of ultrasound images by displacement, averaging, and Interlacing**, Sonia H. Contreras Ortiz, Univ. of Connecticut (US) and Univ. Tecnologica de Bolivar (Colombia); Martin D. Fox, James Macione, Tsucheng Chiu, Univ. of Connecticut (US) ..... [7265-45]

**Fusion of electromagnetic tracking with speckle-tracked 3D freehand ultrasound using an unscented Kalman filter**, Andrew Lang, Parvin Mousavi, Gabor Fichtinger, Purang Abolmaesumi, Queen's Univ. (Canada) ..... [7265-46]

**Multi-modality fusion of CT, 3D ultrasound, and tracked strain for breast irradiation planning**, Pezhman Foroughi, Csaba Csoma, Hassan Rivaz, The Johns Hopkins Univ. (US); Gabor Fichtinger, Queen's Univ. (Canada); Richard Zellars, Gregory D. Hager, The Johns Hopkins Univ. (US); Emad M. Bector, Johns Hopkins Medical Institutions (US) ..... [7265-47]

**Three-dimensional visualization of pulsatile tissue-motion in B-mode ultrasonogram of neonatal cranium**, Masayuki Fukuzawa, Hikari Kawaguchi, Masayoshi Yamada, Nobuyuki Nakamori, Kyoto Institute of Technology (Japan); Yoshiki Kitsunozuka, Saiseikai Hyogo-ken Hospital (Japan) ..... [7265-48]

**New flexible multi-volume rendering technique for ultrasound imaging**, Eung-Hun Kim, Univ. of Washington (US); Ravi A. Managuli, Univ. of Washington (US) and Hitachi Medical Systems America, Inc. (US); Yongmin Kim, Univ. of Washington (US) ..... [7265-49]

**Semiautomatic determination of the reconstruction volume for real-time freehand 3D ultrasound reconstruction**, Yakang Dai, Jie Tian, Jian Zheng, Institute of Automation (China) ..... [7265-50]

**Harmonic Golay coded excitation using mutually orthogonal Golay codes and pulse inversion**, Sang-Min Kim, Jae-Hee Song, Tai-Kyong Song, Sogang Univ. (Korea, Republic of) ..... [7265-51]

**Detection and characterization of breast masses with ultrasound tomography: clinical results**, Nebojsa Duric, Peter J. Littrup, Cuiping Li, Jessica Lupinacci, Steven Schmidt, Olsi Rama, Lisa Bey-Knight R.N., Yang Xu, Karmanos Cancer Institute (US) ..... [7265-52]

**Minimizing errors in ultrasound measurements**, Dave Tahmouh, Univ. of Maryland, College Park (US) ..... [7265-53]

**Reconstruction algorithms for interior and exterior spherical radon transform-based ultrasound imaging**, Ravi S. Vaidyanathan, Matthew A. Lewis, The Univ. of Texas Southwestern Medical Ctr. at Dallas (US); Gaik Ambartsoumian, Tuncay Aktosun, The Univ. of Texas at Arlington (US) ..... [7265-54]



Conference 7258 continued Physics of Medical Imaging	Conference 7259 continued Image Processing	Conference 7261 continued Visualization, Image-guided Procedures and Modeling	Conference 7262 continued Biomedical Applications in Molecular, Structural, and Functional Imaging	Conference 7265 continued Ultrasonic Imaging and Signal Processing
Room: Fiesta 5	Room: Fiesta 6	Room: Monterey 1-3	Room: Fiesta 8-10	Room: Fiesta 1-3
<p style="text-align: center;"><b>SESSION 1</b></p> <p>Room: Fiesta 5 . . . . . Mon. 8:00 to 9:40 am</p> <p style="text-align: center;"><b>Keynote and CT Dose (Tribute to Bruce Hasegawa)</b></p> <p style="text-align: center;"><i>Session Chairs: Ehsan Samei,</i> Duke Univ. (US); <b>Jiang Hsieh,</b> GE Healthcare (US)</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>8:00 am: <b>Dose and image quality</b> (<i>Keynote Presentation</i>), Donald P. Frush, Duke Univ. Medical Ctr. (US) . [7258-01]</p> </div> <p>9:00 am: <b>Low dose C-arm cone-beam CT based on prior image constrained compressed sensing: including compensation for image volume mismatch between multiple data acquisitions</b>, Brian E. Nett, Jie Tang, Guang-Hong Chen, Univ. of Wisconsin, Madison (US) . . . . . [7258-02]</p> <p>9:20 am: <b>Patient-specific dose estimation for pediatric CT</b>, Xiang Li, Ehsan Samei, W. Paul Segars, Gregory M. Sturgeon, Duke Univ. (US); James G. Colsher, GE Healthcare (US); Donald P. Frush, Duke Univ. Medical Ctr. (US) . . . . . [7258-03]</p> <p>Coffee Break . . . . . 9:40 to 10:10 am</p> <p style="text-align: right; font-size: small;">7258 continues on page 21 ➔</p>	<p style="text-align: center;"><b>SESSION 5</b></p> <p>Room: Fiesta 6 . . . . . Mon. 8:00 to 9:40 am</p> <p style="text-align: center;"><b>Registration II</b></p> <p style="text-align: center;"><i>Session Chair: Olivier Salvado,</i> Commonwealth Scientific and Industrial Research Organisation (Australia)</p> <p>8:00 am: <b>Toward local estimation of emphysema progression using image registration</b>, Marius Staring, Els Bakker, Denis Shamonin, Jan Stolk M.D., Hans Reiber, Berend C. Stoel, Leids Univ. Medisch Ctr. (Netherlands) . . . . . [7259-23]</p> <p>8:20 am: <b>Using statistical deformation models for the registration of multimodal breast images</b>, Christine Tanner, John H. Hipwell, David J. Hawkes, Univ. College London (UK) . . . . . [7259-24]</p> <p>8:40 am: <b>Nonrigid registration algorithm for longitudinal breast MR images</b>, Xia Li, Vanderbilt Univ. Institute of Imaging Science (US); Benoit M. Dawant, Vanderbilt Univ. (US); Brian Welch, Philips Healthcare, N.A. (US); Bapsi Chakravarthy, Darla Freehardt, Ingrid Mayer, Mark C. Kelley, Ingrid Meszoely, Vanderbilt Univ. Medical Ctr. (US); John C. Gore, Thomas E. Yankeelov, Vanderbilt Univ. Institute of Imaging Science (US) . . . . . [7259-25]</p> <p>9:00 am: <b>Feature-based nonrigid volume registration of serial coronary CT angiography</b>, Jonghye Woo, Univ. of Southern California (US); Byung-Woo Hong, Chung-Ang Univ. (Korea, Republic of); Damini Dey, Victor Cheng, Cedars-Sinai Medical Ctr. (US); Ganesh Sundaramoorthi, Univ. of California, Los Angeles (US); Amit Ramesh, Cedars-Sinai Medical Ctr. (US); C.-C. Jay Kuo, Univ. of Southern California (US); Daniel S. Berman, Guido Germano, Piotr J. Slomka, Cedars-Sinai Medical Ctr. (US) . . . . . [7259-26]</p> <p>9:20 am: <b>A method for registration and model-based segmentation of Doppler ultrasound images</b>, Hrvoje Kalinic, Univ. of Zagreb (Croatia) and Univ. Hospital Ctr Rebro (Croatia); Sven Loncaric, Maja Cikes M.D., Davor Milicic M.D., Ivo Cikes M.D., Univ. of Zagreb (Croatia); George Sutherland M.D., St. George's Hospital (UK); Bart Bijlens, Univ. Pompeu Fabra (Spain) . . . . . [7259-27]</p> <p>Coffee Break . . . . . 9:40 to 10:10 am</p> <p style="text-align: right; font-size: small;">7259 continues on page 21 ➔</p>	<p style="text-align: center;"><b>SESSION 5</b></p> <p>Room: Monterey 1-3 . . . Mon. 8:00 to 9:40 am</p> <p style="text-align: center;"><b>Cardiac</b></p> <p style="text-align: center;"><i>Session Chairs: Guy Shechter,</i> Philips Research (US); <b>Terry M. Peters,</b> Robarts Research Institute (Canada)</p> <p>8:00 am: <b>In vitro cardiac catheter navigation via augmented reality surgical guidance</b>, Cristian A. Linte, John T. Moore, Jennifer Lo, Andrew D. Wiles, Christopher Wedlake, Terry M. Peters, Robarts Research Institute (Canada) . . . . . [7261-23]</p> <p>8:20 am: <b>Computer-assisted LAD bypass grafting at the open heart</b>, Christine Hartung, Claudia Gnahn, Univ. Ulm (Germany); Reinhard Friedl, Martin H. Hoffmann, Univ. Hospital of Ulm (Germany); Klaus C. Dietmayer, Univ. Ulm (Germany) . . . . . [7261-49]</p> <p>8:40 am: <b>Echocardiography to magnetic resonance image registration for use in image-guide electrophysiology procedures</b>, Ying-Liang Ma, Kawal S. Rhode, Andrew P. King, Reza Razavi, Graeme P. Penney, Dennis Caulfield, Michael Cooklin, King's College London (UK) . . . . . [7261-25]</p> <p>9:00 am: <b>Model-driven physiological assessment of the mitral valve from 4D TEE</b>, Ingmar Voigt, Siemens AG (Germany) and Friedrick-Alexander-Univ. Erlangen-Nürnberg (Germany); Razvan I. Ionasec, Siemens AG (Germany) and Technische Univ. München (Germany); Bogdan Georgescu, Siemens Corporate Research (US); Houle Helene, Siemens Medical Solutions USA, Inc. (US); Martin Huber, Siemens AG (Germany); Joachim Hornegger, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Dorin Comaniciu, Siemens Corporate Research (US) . . . . . [7261-26]</p> <p>9:20 am: <b>Curve-based 2D-3D registration of coronary vessels for image guided procedure</b>, Luc Duong, Rui Liao, Hari Sundar, Benoit Tailhades, Chenyang Xu, Siemens Corporate Research (US) . . . . . [7261-27]</p> <p>Coffee Break . . . . . 9:40 to 10:10 am</p> <p style="text-align: right; font-size: small;">7261 continues on page 21 ➔</p>	<p style="text-align: center;"><b>SESSION 5</b></p> <p>Room: Fiesta 8-10 . . . . . Mon. 8:00 to 9:40 am</p> <p style="text-align: center;"><b>Tissue Microstructure and Function</b></p> <p style="text-align: center;"><i>Session Chair: Felix W. Wehrli,</i> Univ. of Pennsylvania (US)</p> <p>8:00 am: <b>Role of trabecular microfractures in failure of human vertebrae estimated by the finite element method</b>, Irina N. Sidorenko, Max-Planck-Institut für Extraterrestrische Physik (Germany); Jan S. Bauer, Technische Univ. München (Germany); Roberto A. Monetti, Max-Planck-Institut für Extraterrestrische Physik (Germany); Dirk Müller, Ernst J. Rummeny, Technische Univ. München (Germany); Felix Eckstein, Paracelsus Medizinische Privatuniversität (Austria); Maiko Matsuura, Eva-Maria Lochmüller, Ludwig-Maximilians-Univ. München (Germany); Philippe K. Zysset, Technische Univ. Wien (Austria); Christoph W. Räth, Max-Planck-Institut für Extraterrestrische Physik (Germany) . . . . . [7262-21]</p> <p>8:20 am: <b>Assessment of the human trabecular bone structure using Minkowski Functionals</b>, Roberto A. Monetti, Max- Planck-Institut für Extraterrestrische Physik (Germany); Jan S. Bauer, Technische Univ. München (Germany); Irina N. Sidorenko, Max- Planck-Institut für Extraterrestrische Physik (Germany); Dirk Müller, Ernst J. Rummeny, Technische Univ. München (Germany); Maiko Matsuura, Ludwig-Maximilians-Univ. München (Germany); Felix Eckstein, Paracelsus Medizinische Privatuniversität (Austria); Eva- Maria Lochmüller, Ludwig-Maximilians-Univ. München (Germany); Philippe K. Zysset, Technische Univ. Wien (Austria); Christoph W. Räth, Max-Planck-Institut für Extraterrestrische Physik (Germany) . . . . . [7262-22]</p> <p>8:40 am: <b>Fast 3D registration of multimodality tibial images with significant structural mismatch</b>, Chamith S. Rajapakse, Michael J. Wald, Univ. of Pennsylvania (US); Jeremy F. Magland, The Univ. of Pennsylvania Health System (US); Henry Zhang, Sherry Liu, Edward Guo, Columbia Univ. (US); Felix W. Wehrli, The Univ. of Pennsylvania Health System (US) . . . . . [7262-23]</p> <p>9:00 am: <b>Stochastic modeling of tissue microstructure for high-frequency ultrasound imaging simulations</b>, Mohammad I. Daoud, James C. Lacefield, Robarts Research Institute (Canada) and The Univ. of Western Ontario (Canada) . . . . . [7262-24]</p> <p style="text-align: right; font-size: small;">7262 continues on page 21 ➔</p>	<p style="text-align: center;"><b>SESSION 5</b></p> <p>Room: Fiesta 1-3 . . . . . Mon. 8:00 to 9:40 am</p> <p style="text-align: center;"><b>Ultrasound Surgery and Guidance</b></p> <p style="text-align: center;"><i>Session Chair: Gregg E. Trahey,</i> Duke Univ. (US)</p> <p>8:00 am: <b>2D array transducers for real-time 3D ultrasound guidance of interventional devices</b>, Edward D. Light, Stephen W. Smith, Duke Univ. (US) . . . . . [7265-22]</p> <p>8:20 am: <b>Real-time 3D Doppler ultrasound guidance of autonomous surgical robot for removal of magnetically vibrating foreign bodies: feasibility study</b>, Edward D. Light, Albert J. Rogers, Stephen W. Smith, Duke Univ. (US) . . . . . [7265-23]</p> <p>8:40 am: <b>CT-based clinical phantom validation for accurate 3D TRUS guided prostate biopsy</b>, Liyang Wei, Ram Narayanan, Yujun Guo, Jasjit S. Suri, Eigen (US) . . . . . [7265-24]</p> <p>9:00 am: <b>Temperature monitoring during tissue freezing using ultrasound speed measurements</b>, Ivana Jovanovic, Ali Hormati, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Peter J. Littrup, Nebojsa Duric, Olsi Rama, Karmanos Cancer Institute (US); Martin Vetterli, Ecole Polytechnique Fédérale de Lausanne (Switzerland) . . . . . [7265-25]</p> <p>9:20 am: <b>Three-dimensional heat-induced echo-strain imaging for monitoring interstitial high-intensity ablation</b>, Emad M. Boctor, Maria S. Ayad, The Johns Hopkins Univ. (US); Kris Dickie, Ultrasonix Medical Corp. (Canada); Everette C. Burdette, Acoustic MedSystems, Inc. (US) . . . . . [7265-26]</p> <p>Coffee Break . . . . . 9:40 to 10:10 am</p> <p style="text-align: right; font-size: small;">7265 continues on page 21 ➔</p>



<p>Conference 7258 continued Physics of Medical Imaging Room: Fiesta 5</p>	<p>Conference 7259 continued Image Processing Room: Fiesta 6</p>	<p>Conference 7261 continued Visualization, Image-guided Procedures and Modeling Room: Monterey 1-3</p>	<p>Conference 7262 continued Biomedical Applications in Molecular, Structural, and Functional Imaging Room: Fiesta 8-10</p>	<p>Conference 7265 continued Ultrasonic Imaging and Signal Processing Room: Fiesta 1-3</p>
<p><b>SESSION 2</b> Room: Fiesta 5 . . Mon. 10:10 am to 12:10 pm</p> <p><b>CT Performance</b> <i>Session Chairs: Ehsan Samei, Duke Univ.; Jiang Hsieh, GE Healthcare (US)</i></p> <p>10:10 am: <b>Analytical construction of 3D NPS for a cone beam CT system</b>, Jongduk Baek, Norbert J. Pelc, Stanford Univ. (US) . . . . . [7258-04]</p> <p>10:30 am: <b>Evaluation of the additive noise of a flat panel detector and its effect on cone-beam CT applications</b>, Kai Yang, Shih-Ying C. Huang, Nathan J. Packard, John M. Boone, Univ. of California, Davis (US) . . . . . [7258-05]</p> <p>10:50 am: <b>Noise analysis in intensity-weighted region-of-interest imaging for cone-beam CT</b>, Seungryoung Cho, Erik Pearson, Xiaochuan M. Pan, Charles A. Pelizzari, The Univ. of Chicago (US) . . . . . [7258-06]</p> <p>11:10 am: <b>Optimization of 4D cone-beam CT: evaluation of streaking artifacts and noise with various simulated gantry rotation speeds</b>, Moiz U. Ahmad, Peter Balter, The Univ. of Texas M.D. Anderson Cancer Ctr. (US); Peter Munro, Varian Medical Systems, Inc. (US); Jun Lu, Virginia Commonwealth Univ. (US); Tinsu Pan, The Univ. of Texas M.D. Anderson Cancer Ctr. (US) . . . . . [7258-07]</p> <p>11:30 am: <b>Measurement of spatial and density resolutions in x-ray nanocomputed tomography</b>, Yoshiki Kawata, Kouji Kageyama, Univ. of Tokushima (Japan); Yoshihiro Nakaya, Shizuoka Cancer Ctr. (Japan); Noboru Niki, Univ. of Tokushima (Japan); Hironobu Ohmatsu, National Cancer Ctr. Hospital East (Japan); Kenji Eguchi M.D., Teikyo Univ. (Japan); Masahiro Kaneko M.D., Noriyuki Moriyama M.D., National Cancer Ctr. Hospital (Japan) . . . . . [7258-08]</p> <p>11:50 am: <b>Simulation and analysis of image quality impact from single source, ultra-wide coverage CT scanner</b>, Baojun Li, Thomas L. Toth, Jiang Hsieh, Xiangyang Tang, Peter S. Crandall, Robert F. Senzig, GE Healthcare (US) . . . . . [7258-09]</p> <p>Lunch Break . . . . . 12:10 to 1:20 pm</p> <p style="text-align: right;">7258 continues on page 22 ➔</p>	<p><b>SESSION 6</b> Room: Fiesta 6 . . Mon. 10:10 am to 12:10 pm</p> <p><b>Motion Analysis</b> <i>Session Chair: Bram van Ginneken, Univ. Medisch Ctr. Utrecht (Netherlands)</i></p> <p>10:10 am: <b>Free-breathing intra- and intersubject respiratory motion capturing, modeling, and prediction</b>, Tobias Klinder, Univ. Hannover (Germany); Cristian Lorenz, Philips Research (Germany); Jörn Ostermann, Univ. Hannover (Germany) . . . . . [7259-28]</p> <p>10:30 am: <b>Validation and comparison of a biophysical modeling approach and non-linear registration for estimation of lung motion fields in thoracic 4D CT data</b>, Rene Werner, Jan Ehrhardt, Alexander Schmidt-Richberg, Heinz Handels, Univ. Medical Ctr. Hamburg-Eppendorf (Germany) . . . . . [7259-29]</p> <p>10:50 am: <b>Shortest path refinement For HARP motion tracking</b>, Xiaofeng Liu, Ying Bai, Jerry L. Prince, The Johns Hopkins Univ. (US) . . . . . [7259-30]</p> <p>11:10 am: <b>Tracking left ventricular borders in 3D echocardiographic sequences using motion-guided optical flow</b>, Esther Leung, Mikhail G. Danilouchkine, Marijn van Stralen, Nico de Jong, Antonius F. W. van der Steen, Johan G. Bosch, Erasmus MC (Netherlands) . . . . . [7259-31]</p> <p>11:30 am: <b>4D motion modeling of the coronary arteries from CT images for robotic assisted minimally invasive surgery</b>, Dong Ping Zhang, Eddie Edwards, Lin Mei, Daniel Rueckert, Imperial College London (UK) . . . . . [7259-32]</p> <p>11:50 am: <b>Coronary DSA: enhancing coronary tree visibility through discriminative learning and robust motion estimation</b>, Ying Zhu, Siemens Corporate Research (US); Simone Prummer, Siemens AG (Germany); Terrence Chen, Siemens Corporate Research (US); Martin Ostermeier, Siemens AG (Germany); Dorin Comaniciu, Siemens Corporate Research (US) . . . . . [7259-33]</p> <p>Lunch Break . . . . . 12:10 to 1:20 pm</p> <p style="text-align: right;">7259 continues on page 22 ➔</p>	<p><b>SESSION 6</b> Room: Monterey 1-3 Mon. 10:10 am to 12:10 pm</p> <p><b>Keynote and Modeling</b> <i>Session Chairs: Michael I. Miga, Vanderbilt Univ. (US); Kenneth H. Wong, Georgetown Univ. (US)</i></p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>10:10 am: <b>From medical images to virtual physiological humans (Keynote Presentation, Presentation Only)</b>, Nicholas Ayache, INRIA Sophia Antipolis (France) . . . . . [7261-28]</p> </div> <p>11:10 am: <b>Accelerated statistical shape model-based technique for tissue deformation estimation</b>, Iman Khalaji, The Univ. of Western Ontario (Canada); Kaamran Rahemifar, Ryerson Univ. (Canada); Abbas Samani, The Univ. of Western Ontario (Canada) and Ryerson Univ. (Canada) . . . . . [7261-29]</p> <p>11:30 am: <b>Effect of heterogeneous material of the lung of deformable image registration</b>, Adil Al-Mayah, Joanne Moseley, Mike Velec, Kristy K. Brock, Princess Margaret Hospital (Canada) . . . . . [7261-30]</p> <p>11:50 am: <b>Using a statistical appearance model to predict the fracture load of the proximal femur</b>, Benedikt Schuler, Karl D. Fritscher, Private Univ. für Gesundheitswissenschaften, Medizinische Informatik und Technik (Austria); Volker Kuhn, Innsbruck Medical Univ. (Austria); Felix Eckstein, Paracelsus Medizinische Privatuniversität (Austria); Rainer Schubert M.D., Private Univ. für Gesundheitswissenschaften, Medizinische Informatik und Technik (Austria) . . . . . [7261-31]</p> <p>Lunch Break . . . . . 12:10 to 1:20 pm</p> <p style="text-align: right;">7261 continues on page 22 ➔</p>	<p><b>SESSION 6</b> Room: Fiesta 8-10 Mon. 10:10 am to 12:10 pm</p> <p><b>Optical Imaging</b> <i>Session Chair: Andreas H. Hielscher, Columbia Univ. (US)</i></p> <p>10:10 am: <b>Bioluminescence tomography based on Bayesian approach</b>, Jinchao Feng, Kebin Jia, Beijing Univ. of Technology (China); Jie Tian, Guorui Yan, Chenghu Qin, Institute of Automation (China) . . . [7262-26]</p> <p>10:30 am: <b>Nonrigid alignment of multi-channel fluorescence microscopy images of live cells for improved classification of subcellular particle motion</b>, Il-Han Kim, Roland Eils, Karl Rohr, Ruprecht-Karls-Univ. Heidelberg (Germany) . . . . . [7262-27]</p> <p>10:50 am: <b>Meshless local Petrov-Galerkin method for bioluminescent photon propagation in the biological tissue</b>, Chenghu Qin, Jie Tian, Xin Yang, Kai Liu, Jinchao Feng, Min Xu, Institute of Automation (China) . . . . . [7262-28]</p> <p>11:10 am: <b>Automated segmentation of the optic disc margin in 3D optical coherence tomography images using a graph-theoretic approach</b>, Zhihong Hu, Meindert Niemeijer, Kyungmoo Lee, The Univ. of Iowa (US); Michael D. Abramoff M.D., The Univ. of Iowa Hospitals and Clinics (US); Milan Sonka, Mona K. Garvin, The Univ. of Iowa (US) . . . . . [7262-29]</p> <p>11:30 am: <b>Multimodal three-dimensional imaging with isotropic high resolution using optical projection tomography</b>, Qin Miao, Univ. of Washington (US); J. Richard Rahn, Ryland C. Bryant, Christy Lancaster, Anna V. Tourovskaia, VisionGate, Inc. (US); Eric J. Seibel, Univ. of Washington (US); Alan C. Nelson, VisionGate, Inc. (US) . . . . . [7262-30]</p> <p>11:50 am: <b>Cryo-imaging of fluorescently labeled single cells in a mouse</b>, Grant J. Steyer, David L. Wilson, Debashish Roy, Case Western Reserve Univ. (US); Olivier Salvado, Commonwealth Scientific and Industrial Research Organisation (Australia); Meredith E. Heinzl Stone, Case Western Reserve Univ. (US) . . . . . [7262-31]</p> <p>Lunch Break . . . . . 12:10 to 1:20 pm</p> <p style="text-align: right;">7262 continues on page 22 ➔</p>	<p><b>SESSION 6</b> Room: Fiesta 1-3. Mon. 10:10 am to 12:10 pm</p> <p><b>New Developments in Vascular Imaging</b> <i>Session Chair: Michael F. Insana, Univ. of Illinois at Urbana-Champaign (US)</i></p> <p>10:10 am: <b>Energy minimization for elastography</b>, Maria Abdelali, Michel J. Bertrand, Ecole Polytechnique de Montréal (Canada) . . . . . [7265-27]</p> <p>10:30 am: <b>Simple fast noninvasive technique for measuring brachial wall mechanics during flow mediated vasodilatation analysis</b>, Ahmed M. Mahmoud, Phoebe A. Stapleton, Jefferson C. Frisbee, Alexandre D'Audiffret, Osama M. Mukdadi, West Virginia Univ. (US) . . . . . [7265-28]</p> <p>10:50 am: <b>Understanding quantification of microvasculature with high-frequency power Doppler ultrasound</b>, Stephen Z. Pinter, James C. Laceyfield, The Univ. of Western Ontario (Canada) and Robarts Research Institute (Canada) . . . . [7265-29]</p> <p>11:10 am: <b>Color flow image segmentation</b>, Jun Zhang, Wen Hu, Univ. of Wisconsin, Milwaukee (US); Zhe Wu, GE Healthcare (US) . . . . . [7265-30]</p> <p>11:30 am: <b>Supercompound imaging with Weiner deconvolution</b>, Tsuicheng Chiu, James Macione, Sonia H. Contreras Ortiz, Eric Sirois, Wei Sun, Martin D. Fox, Univ. of Connecticut (US) . . . . . [7265-31]</p> <p>11:50 am: <b>IVUS coronary volume alignment for distinct phases</b>, Monica M. S. Matsumoto, Pedro A. Lemos, Heart Institute (InCor) do Hospital das Clínicas da Faculdade de Medicina Universidade de São Paulo (Brazil); Sérgio S. Furuie, Escola Politécnica da Universidade de São Paulo (Brazil) and Heart Institute (InCor) do Hospital das Clínicas da Faculdade de Medicina Universidade de São Paulo (Brazil) . . . . . [7265-32]</p> <p>Lunch Break . . . . . 12:10 to 1:20 pm</p> <p style="text-align: right;">7265 continues on page 22 ➔</p>



<p>Conference 7258 continued Physics of Medical Imaging Room: Fiesta 5</p>	<p>Conference 7259 continued Image Processing Room: Fiesta 6</p>	<p>Conference 7261 continued Visualization, Image-guided Procedures and Modeling Room: Monterey 1-3</p>	<p>Conference 7262 continued Biomedical Applications in Molecular, Structural, and Functional Imaging Room: Fiesta 8-10</p>	<p>Conference 7265 continued Ultrasonic Imaging and Signal Processing Room: Fiesta 1-3</p>
<p><b>SESSION 3</b> Room: Fiesta 5 . . . . . Mon. 1:20 to 3:40 pm</p> <p><b>CT Applications</b> <i>Session Chair: Norbert J. Pelc, Stanford Univ. (US)</i></p> <p>1:20 pm: <b>Four-dimensional cardiac reconstruction from rotational x-ray sequences: first results for 4D coronary angiography</b>, Eberhard Hansis, Philips Research (Germany) and Univ. of Karlsruhe (Germany); Hermann Schomberg, Klaus Erhard, Philips Research (Germany); Olaf Dössel, Univ. of Karlsruhe (Germany); Michael Grass, Philips Research (Germany) . . . . . [7258-10]</p> <p>1:40 pm: <b>High temporal resolution cardiac cone-beam CT using a slowly rotating C-arm gantry</b>, Guang-Hong Chen, Jie Tang, Brian E. Nett, Shuai Leng, Joseph N. Zambelli, Zhihua Qi, Nicholas Bevins, Scott B. Reeder, Howard A. Rowley, Univ. of Wisconsin, Madison (US) . . . . . [7258-11]</p> <p>2:00 pm: <b>Flash imaging in dual source CT (DSCT)</b>, Herbert K. Bruder, Martin Petersilka, Heiko Mehldau, Winrich Heidinger, Bernhard T. Schmidt, Carsten Thierfelder, Karl Stierstorfer, Thomas G. Flohr, Siemens Healthcare (Germany) . . . . . [7258-12]</p> <p>2:20 pm: <b>Kyphoplasty interventions using a navigation system and C-arm CT data: first clinical results</b>, Martin Hoheisel, Siemens Medical Solutions (Germany); Martin Skalej, Oliver Beuing, Univ. Hospital Magdeburg (Germany); Ulrich Bill, Klaus W. Klingenbeck-Regn, Siemens Medical Solutions (Germany); Ralf Petzold, Markus H. Nagel, CAS innovations GmbH &amp; Co. KG (Germany) . . . . . [7258-13]</p> <p>2:40 pm: <b>Cone beam CT using a C-arm system as front end and a spherical spiral as source trajectory</b>, Hermann Schomberg, Philips Research (Germany); Peter van de Haar, Wil Baaten, Philips Medical Systems International B.V. (Netherlands) . . . . . [7258-14]</p> <p>7258 continues on page 23 ➔</p>	<p><b>SESSION 7</b> Room: Fiesta 6 . . . . . Mon. 1:20 to 3:40 pm</p> <p><b>Vascular Image Processing</b> <i>Session Chair: Kyongtae Ty Bae, Univ. of Pittsburgh (US)</i></p> <p>1:20 pm: <b>Segmentation of arteries and veins on 4D CT perfusion scans for constructing arteriograms and venograms</b>, Adrienne Mendrik, Evert-jan P. A. Vonken M.D., Annet Waaijer M.D., Ewoud Smit, Mathias Prokop M.D., Bram van Ginneken, Univ. Medisch Ctr. Utrecht (Netherlands) . . . . . [7259-34]</p> <p>1:40 pm: <b>A novel multiscale topomorphometric approach for separating arteries and veins via pulmonary CT imaging</b>, Punam K. Saha, Zhiyun Gao, Sara Alford, Milan Sonka M.D., Eric A. Hoffman, The Univ. of Iowa (US) . . . . . [7259-35]</p> <p>2:00 pm: <b>A two-stage approach for fully automatic segmentation of venous vascular structures in liver CT images</b>, Jens N. Kaftan, RWTH Aachen (Germany) and Siemens Healthcare Sector, Computed Tomography (Germany); Hüseyin Tek, Siemens Corporate Research (US); Til Aach, RWTH Aachen (Germany) . . . . . [7259-36]</p> <p>2:20 pm: <b>Segmentation of lung vessel trees by global optimization</b>, Pieter Bruyninckx, Dirk Loeckx, Dirk Vandermeulen, Paul Suetens, Katholieke Univ. Leuven (Belgium) . . . . . [7259-37]</p> <p>2:40 pm: <b>Globally optimal 3D graph search incorporating both edge and regional information: application to aortic MR image segmentation</b>, Qi Song, Xiaodong Wu, Xin Dou, Milan Sonka, The Univ. of Iowa (US) . . . . . [7259-38]</p> <p>3:00 pm: <b>Flow-based segmentation of the large thoracic arteries in tridirectional phase-contrast-MRI</b>, Michael Schmidt, Roland Unterhinninghofen, Univ. Karlsruhe (Germany); Sebastian Ley, Univ. Klinikum Heidelberg (Germany); Rüdiger Dillmann, Univ. Karlsruhe (Germany) . . . . . [7259-39]</p> <p>7259 continues on page 23 ➔</p>	<p><b>SESSION 7</b> Room: Monterey 1-3 . . . Mon. 1:20 to 3:40 pm</p> <p><b>Robotics and Guidance Systems</b> <i>Session Chairs: David R. Holmes III, Mayo Clinic; (US) Wolfgang Birkfellner, Medizinische Univ. Wien (Austria)</i></p> <p>1:20 pm: <b>Development and evaluation of a new image-based user interface for robot assisted needle placements with the Robopsy™ system</b>, Alexander Seitel, Deutsches Krebsforschungszentrum (Germany); Conor J. Walsh, Nevan C. Hanumara, Massachusetts Institute of Technology (US); Jo-Anne Shepard, Massachusetts General Hospital (US); Alexander H. Slocum, Massachusetts Institute of Technology (US); Hans-Peter Meinzer, Deutsches Krebsforschungszentrum (Germany); Rajiv Gupta M.D., Massachusetts General Hospital (US); Lena Maier-Hein, Deutsches Krebsforschungszentrum (Germany) . . . . . [7261-32]</p> <p>1:40 pm: <b>Robotic-assisted versus computer guided needle insertion in percutaneous liver interventions</b>, Lena Maier-Hein, Deutsches Krebsforschungszentrum (Germany); Conor J. Walsh, Massachusetts Institute of Technology (US); Alexander Seitel, Deutsches Krebsforschungszentrum (Germany); Nevan C. Hanumara, Massachusetts Institute of Technology (US); Jo-Anne Shepard, Massachusetts General Hospital (US); Frank Pianka, Sascha A. Mueller, Bruno Schmied, Ruprecht-Karls-Univ. Heidelberg (Germany); Alexander H. Slocum, Massachusetts Institute of Technology (US); Rajiv Gupta M.D., Massachusetts General Hospital (US); Hans-Peter Meinzer, Deutsches Krebsforschungszentrum (Germany) . . . . . [7261-33]</p> <p>2:00 pm: <b>Real-time video fusion using a distributed architecture in robotic surgery</b>, David M. Kwartowitz, Maryam E. Rettmann, David R. Holmes III, Richard A. Robb M.D., Mayo Clinic (US) . . . [7261-34]</p> <p>7261 continues on page 23 ➔</p>	<p><b>SESSION 7</b> Room: Fiesta 8-10 . . . . Mon. 1:20 to 3:40 pm</p> <p><b>Small Animal Imaging</b> <i>Session Chair: Robert C. Molthen, Medical College of Wisconsin (US)</i></p> <p>1:20 pm: <b>Imaging radiation pneumonitis in a rat model of a radiological terrorism incident</b>, Robert C. Molthen, Qing-Ping Wu, Gary S. Krenz, Meetha M. Medhora, Elizabeth Jacobs, John E. Moulder, Medical College of Wisconsin (US) . . . . . [7262-32]</p> <p>1:40 pm: <b>Automated registration and quantification of biophotonic mouse images using a whole body atlas</b>, Michael D. Soria, Univ. of South Florida (US); Steven Eschrich, H. Lee Moffitt Cancer Ctr. &amp; Research Institute (US); Dmitry B. Goldgof, Univ. of South Florida (US) . . . . . [7262-88]</p> <p>2:00 pm: <b>3D registration of micro PET-CT for measurable correlates of dyspeptic symptoms in mice</b>, Jon J. Camp, Kathryn Simpson, Andrea Lorincz, Michael Bardsley, Val J. Lowe, Tamas Ordog, Richard A. Robb M.D., Mayo Clinic (US) . . . . . [7262-34]</p> <p>2:20 pm: <b>MicroPET/CT colonoscopy in the SWR Min Mouse using NM404</b>, Matthew B. Christensen, Richard B. Halberg, Melissa M. Schutten, Benjamin Y. Durkee, Jamey P. Weichert, Univ. of Wisconsin, Madison (US) . . . . . [7262-35]</p> <p>2:40 pm: <b>Choline molecular imaging with small-animal PET for monitoring tumor cellular response to photodynamic therapy</b>, Baowei Fei, Hesheng Wang, Chunying Wu, Joseph Meyers, Case Western Reserve Univ. (US) . . . . . [7262-36]</p> <p>3:00 pm: <b>Gene expression based mouse brain parcellation using Markov random field regularized non-negative matrix factorization</b>, Sayan D. Pathak, Allen Institute for Brain Science (US); David R. Haynor, Univ. of Washington (US); Carol L. Thompson, Michael J. Hawrylycz, Allen Institute for Brain Science (US) . . . [7262-37]</p> <p>7262 continues on page 23 ➔</p>	<p><b>SESSION 7</b> Room: Fiesta 1-3 . . . . . Mon. 1:20 to 2:20 pm</p> <p><b>Ultrasound Tomography</b> <i>Session Chair: Stephen A. McAleavey, Univ. of Rochester (US)</i></p> <p>1:20 pm: <b>A novel synthetic aperture technique for breast tomography with toroidal arrays</b>, Francesco Simonetti, Imperial College London (UK); Lianjie Huang, Los Alamos National Lab. (US); Nebojsa Duric, Karmanos Cancer Institute (US) . . . . . [7265-33]</p> <p>1:40 pm: <b>Enhancement of compounded reflection ultrasound images using spatial filtering</b>, Jakob Nebeker, Thomas R. Nelson, Univ. of California, San Diego (US) . . . . . [7265-34]</p> <p>2:00 pm: <b>Breast imaging with ultrasound tomography: a comparative study with MRI</b>, Peter J. Littrup, Bryan Ranger, Nebojsa Duric, Cuiping Li, Jessica Lupinacci, Steven Schmidt, Olsi Rama, Lisa Bey-Knight R.N., Yang Xu, Karmanos Cancer Institute (US) . . . . . [7265-35]</p> <p>7265 continues on page 23 ➔</p>

<p>Conference 7258 continued Physics of Medical Imaging</p> <p>Room: Fiesta 5</p>	<p>Conference 7259 continued Image Processing</p> <p>Room: Fiesta 6</p>	<p>Conference 7261 continued Visualization, Image-guided Procedures and Modeling</p> <p>Room: Monterey 1-3</p>	<p>Conference 7262 continued Biomedical Applications in Molecular, Structural, and Functional Imaging</p> <p>Room: Fiesta 8-10</p>	<p>Conference 7265 continued Ultrasonic Imaging and Signal Processing</p> <p>Room: Fiesta 1-3</p>
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<p><b>SESSION 3 continued</b></p> <p>3:00 pm: <b>Quantization of liver tissue in fast-switched dual kVp computed tomography using linear discriminant analysis</b>, John E. Tkaczyk, David A. Langan, Xiaoye Wu, Dan Xu, Thomas M. Benson, Jed D. Pack, Andrea M. Schmitz, GE Global Research (US); Amy K. Hara, William Palicek, Mayo Clinic Scottsdale (US); Paul Licato, Jayne Leverentz, GE Healthcare (US) .....[7258-15]</p> <p>3:20 pm: <b>Patient specific computerized phantoms to estimate dose in pediatric CT</b>, W. Paul Segars, Gregory M. Sturgeon, Duke Univ. (US); Steve L. Cheng, The Johns Hopkins Univ. (US); Xiang Li, Duke Univ. (US); Michael G. Stabin, Vanderbilt Univ. (US); Tilak Ratnanather, Michael I. Miller, Benjamin M. W. Tsui, The Johns Hopkins Univ. (US); Donald P. Frush, Duke Univ. Medical Ctr. (US); Ehsan Samei, Duke Univ. (US) .....[7258-16]</p> <p>Coffee Break .....:3:40 to 4:00 pm</p>	<p><b>SESSION 7 continued</b></p> <p>3:20 pm: <b>Optimal graph search based image segmentation for objects with complex topologies</b>, Xiaomin Liu, Danny Z. Chen, Univ. of Notre Dame (US); Xiaodong Wu, Milan Sonka, The Univ. of Iowa (US) .....[7259-40]</p> <p>Coffee Break .....:3:40 to 4:00 pm</p>	<p><b>SESSION 7 continued</b></p> <p>2:20 pm: <b>Time-of-flight sensor for patient positioning</b>, Christian Schaller, André Adelt, Jochen Penne, Joachim M. Hornegger, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) .....[7261-35]</p> <p>2:40 pm: <b>Application of an image-guided navigation system in breast cancer localization</b>, Tanja Alderliesten, Claudette Loo M.D., Angelique T. E. F. Schlieff, Anita Paape, Michiel van der Meer, Kenneth G. A. Gilhuijs, The Netherlands Cancer Institute (Netherlands) .....[7261-36]</p> <p>3:00 pm: <b>Implant alignment in total elbow arthroplasty: conventional vs. navigated techniques</b>, Colin P. McDonald, The Univ. of Western Ontario (Canada); James A. Johnson, Graham J. King, St. Joseph's Health Care London (Canada); Terry M. Peters, The Univ. of Western Ontario (Canada) .....[7261-37]</p> <p>3:20 pm: <b>Fast 3D vision with robust structured light coding</b>, Chadi Albitar, Pierre Graebbling, Christophe Doignon, Univ. Louis Pasteur (France) .....[7261-38]</p> <p>Coffee Break .....:3:40 to 4:00 pm</p>	<p><b>SESSION 7 continued</b></p> <p>3:20 pm: <b>Registration of in vivo MR to histology of rodent brains using blockface imaging</b>, Mariano G. Uberti, Yutong Liu, Huanyu Dou, R. Lee Mosley, Howard Gendelman, Michael Boska, Univ. of Nebraska Medical Ctr. (US) . . . .[7262-38]</p> <p>Coffee Break .....:3:40 to 4:00 pm</p>	<p><b>SESSION 8</b></p> <p>Room: Fiesta 1-3. . . . .Mon. 2:20 to 3:40 pm</p> <p><b>Ultrasound Elasticity Imaging</b></p> <p><i>Session Chair: Stephen A. McAleavey, Univ. of Rochester (US)</i></p> <p>2:20 pm: <b>Frequency compounding in multifrequency vibro-acoustography</b>, Matthew W. Urban, Azra Alizad, Mostafa Fatemi, Mayo Clinic College of Medicine (US) .....[7265-36]</p> <p>2:40 pm: <b>Acoustic radiation force-induced shear wave propagation in cardiac tissue</b>, Richard R. Bouchard, Patrick D. Wolf, Stephen J. Hsu, Douglas M. Dumont, Gregg E. Trahey, Duke Univ. (US) . . . .[7265-37]</p> <p>3:00 pm: <b>Prostate cancer detection using crawling wave sonoelastography</b>, Benjamin Castaneda, Liwei An, Univ. of Rochester (US); Kenneth Hoyt, The Univ. of Alabama at Birmingham (US); Laurie Baxter, Jorge Yao, Jean Joseph, Univ. of Rochester Medical Ctr. (US); John G. Strang, Deborah Rubens, Kevin J. Parker, Univ. of Rochester (US) .....[7265-38]</p> <p>3:20 pm: <b>Estimating elastic modulus of soft tissue from incomplete displacement measurement</b>, Yasuo Yamashita, Kazuaki Machida, Fei Yan, Nihon Univ. (Japan) . . . . .[7265-39]</p>
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**Best Student Paper Award and Plenary Presentation**

*Monday 9 February · 4:00 to 5:15 pm · Coronado H*

**Chairs: Armando Manduca**, Mayo Clinic College of Medicine; **Kevin R. Cleary**, Georgetown Univ. Medical Ctr. Michael B. Merickel Student Paper Award

Tribute to Robert "Bob" Wagner  
Michael B. Merickel Student Paper Award

Plenary Presentation: **Advances and New Directions in X-ray Computed Tomography** by Willi A. Kalender, Institute of Medical Physics, Univ. Erlangen

**Poster Award Announcements**

Room: Fiesta 1-3 . . . . .Tues. 3:40 to 3:45 pm

The Ultrasonic Imaging and Signal Processing conference poster award recipients will be recognized and certificates distributed.

Coffee Break .....:3:40 to 4:00 pm

Conference 7258 continued  
Physics of Medical Imaging  
Room: Fiesta 5

**SESSION 4**  
Room: Fiesta 5 . . . . . Tues. 8:00 to 9:40 am

**Breast CT**

*Session Chair: John A. Rowlands, Sunnybrook and Women's Health Sciences Ctr. (Canada)*

8:00 am: **Three-dimensional imaging properties of rotation-free square and hexagonal micro-CT systems**, Enzhuo Quan, David S. Lalush, North Carolina State Univ. (US) and The Univ. of North Carolina at Chapel Hill (US) . . . . . [7258-17]

8:20 am: **Enhanced computer simulation of CT mammography using a flat-panel imager**, Clay S. Didier, Univ. of Massachusetts Medical School (US) . . . . . [7258-18]

8:40 am: **Volume and tissue composition preserving deformation of breast CT images to simulate breast compression in mammographic imaging**, Tao Han, Lingyun Chen, Chao-Jen Lai, Xinming Liu, Youtao Shen, Yuncheng Zhong, Shuaiping Ge, Ying Yi, Tianpeng Wang, Chris C. Shaw, The Univ. of Texas M.D. Anderson Cancer Ctr. (US) . . . . . [7258-19]

9:00 am: **Breast density measurement: 3D cone beam computed tomography (CBCT) images versus 2D digital mammograms**, Tao Han, Chao-Jen Lai, Lingyun Chen, Xinming Liu, Youtao Shen, Yuncheng Zhong, Shuaiping Ge, Ying Yi, Tianpeng Wang, Chris C. Shaw, The Univ. of Texas M.D. Anderson Cancer Ctr. (US) . . . . . [7258-20]

9:20 am: **Visibility of microcalcifications in CCD-based cone beam CT: a preliminary study**, Youtao Shen, Lingyun Chen, Shuaiping Ge, Ying Yi, Tao Han, Yuncheng Zhong, Chao-Jen Lai, Xinming Liu, Tianpeng Wang, Chris C. Shaw, The Univ. of Texas M.D. Anderson Cancer Ctr. (US) . . . . . [7258-21]  
Coffee Break . . . . . 9:40 to 10:10 am

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Conference 7259 continued  
Image Processing  
Room: Fiesta 6

**SESSION 8**  
Room: Fiesta 6 . . . . . Tues. 8:00 to 9:40 am

**Atlas-based Methods**

*Session Chair: Sébastien Ourselin, CMIC/Univ. College London (UK)*

8:00 am: **Automatic segmentation of the optic nerves and chiasm in CT and MR using the atlas-navigated optimal medial axis and deformable-model algorithm**, Jack H. Noble, Benoit M. Dawant, Vanderbilt Univ. (US) . . . . . [7259-41]

8:20 am: **Statistical model of laminar structure for atlas-based segmentation of the fetal brain from in-utero MR images**, Piotr A. Habas, Kio Kim, Univ. of California, San Francisco (US); Dharshan Chandramohan, Univ. of California, Berkeley (US); Francois Rousseau, LSIIT/Univ. Louis Pasteur (France); Orit A. Glenn, Colin Studholme, Univ. of California, San Francisco (US) . . . . . [7259-42]

8:40 am: **System for definition of the central-chest vasculature**, William E. Higgins, Pinyo Taeprasartsit, The Pennsylvania State Univ. (US) . . . . . [7259-43]

9:00 am: **A comparison study of atlas-based image segmentation: the advantage of multiatlas based on shape clustering**, Xian Fan, Yiqiang Zhan, Gerardo Hermosillo, Siemens Medical Solutions USA, Inc. (US) . . . . . [7259-44]

9:20 am: **Automatic segmentation of brain MRIs and mapping neuroanatomy across the human lifespan**, Shiva Keihaninejad, Rolf A. Heckemann, Daniel Rueckert, Joseph V. Hajnal, Alexander Hammers, Imperial College London (UK) . . . . . [7259-45]

**Poster Award Announcements**

Room: Fiesta 6 . . . . . Tues. 9:40 to 9:45 am

The Image Processing conference poster award recipients will be recognized and certificates distributed.

Coffee Break . . . . . 9:40 to 10:10 am

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Conference 7260 continued  
Computer-Aided Diagnosis  
Room: Fiesta 1-3

**SESSION 1**  
Room: Fiesta 1-3 . . . . . Tues. 8:00 to 9:40 am

**Cardiac and Skeleton**

*Session Chair: Marleen de Bruijne, Copenhagen Univ. (Denmark)*

8:00 am: **Multi-scale feature extraction for learning-based classification of coronary artery stenosis**, Matthias A. Tessimann, Friedrich-Alexander-Univ. of Erlangen-Nürnberg (Germany); Fernando Vega-Higuera, Dominik Fritz, Michael Scheuring, Siemens AG (Germany); Günther Greiner, Friedrich-Alexander-Univ. of Erlangen-Nürnberg (Germany) . . . . . [7260-01]

8:20 am: **Automated coronary CT angiography plaque-lumen segmentation**, Harvey E. Cline, Karthik Krishnan, Kitware Inc. (US); Sandy Napel, Geoffrey D. Rubin M.D., Stanford Univ. (US); Wesley D. Turner, Ricardo S. Avila, Kitware Inc. (US) . . . . . [7260-02]

8:40 am: **Structural scene analysis and content-based image retrieval applied to bone age assessment**, Thomas M. Deserno, Benedikt Fischer, André Brosig, Bastian Ott, Rolf W. Günther, RWTH Aachen (Germany) . . . . . [7260-03]

9:00 am: **3D structural measurements of the proximal femur from 2D DXA images using a statistical atlas**, Omar M. Ahmad, The Johns Hopkins Univ. (US); Krishna Ramamurthi, Kevin E. Wilson, Hologic, Inc. (US); Klaus Engelke, Univ. Erlangen-Nuernberg (Germany); Russell H. Taylor, The Johns Hopkins Univ. (US) . . . . . [7260-04]

9:20 am: **Quantitative local topological texture properties obtained from radiographs of the proximal femur in patients with petrochanteric and transcervical hip fractures**, Holger F. Boehm, Juergen Lutz, Markus Körner, Mike Notohamiprodjo, Maximilian Reiser, Ludwig-Maximilians-Univ. München (Germany) . . . . . [7260-05]

Coffee Break . . . . . 9:40 to 10:10 am

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Conference 7261 continued  
Visualization, Image-guided Procedures and Modeling  
Room: Monterey 1-3

**SESSION 8**  
Room: Monterey 1-3 . . . Tues. 8:00 to 9:40 am

**Ultrasound**

*Session Chairs: Frank Sauer, Siemens Corporate Research (US); David R. Haynor, Univ. of Washington (US)*

8:00 am: **Fast hybrid freehand ultrasound volume reconstruction**, Athanasios Karamalis, Wolfgang Wein, Siemens Corporate Research (US); Oliver Kutter, Nassir Navab, Technische Univ. München (Germany) . . . . . [7261-39]

8:20 am: **Validation of four-dimensional ultrasound for targeting in minimally-invasive beating-heart surgery**, Danielle F. Pace, Andrew D. Wiles, Robarts Research Institute (Canada) and The Univ. of Western Ontario (Canada); John T. Moore, Christopher Wedlake, Robarts Research Institute (Canada); David G. Gobbi, Queen's Univ. (Canada); Terry M. Peters, Robarts Research Institute (Canada) and The Univ. of Western Ontario (Canada) . . . . . [7261-40]

8:40 am: **Ultrasound goes GPU: real-time simulation using CUDA**, Tobias Reichl, Josh Passenger, Oscar Acosta Tamayo, Olivier Salvado, Commonwealth Scientific and Industrial Research Organisation (Australia) . . . . . [7261-41]

9:00 am: **A GPU-based framework for simulation of medical ultrasound**, Oliver Kutter, Athanasios Karamalis, Technische Univ. München (Germany); Wolfgang Wein, Siemens Corporate Research (US); Nassir Navab, Technische Univ. München (Germany) . . . . . [7261-42]

9:20 am: **A guided wave technique for needle biopsy under ultrasound guidance**, Francesco Simonetti, Imperial College London (UK) . . . . . [7261-43]

**Poster Award Announcements**

Room: Monterey 1-3 Tues. 9:40 to 9:45 am

The Visualization, Image-guided Procedures and Modeling conference poster award recipients will be recognized and certificates distributed.

Coffee Break . . . . . 9:40 to 10:10 am

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Conference 7262 continued  
Biomedical Applications in Molecular, Structural, and Functional Imaging  
Room: Fiesta 8-10

**SESSION 8**  
Room: Fiesta 8-10 . . . . . Tues. 8:00 to 9:40 am

**Image-based Modeling**

*Session Chair: Axel Wismueller, Univ. of Rochester (US)*

8:00 am: **Efficient cross-modality cardiac four-dimensional active appearance model construction**, Honghai Zhang, Ademola K. Abiose, Elisabeth J. Buettner, Emily K. Birrer, Milan Sonka, James B. Martins, Andreas Wahle, The Univ. of Iowa (US) . . . . . [7262-39]

8:20 am: **Toward modeling of regional myocardial ischemia and infarction: generation of realistic coronary arterial tree for the heart model of the XCAT phantom**, George S. K. Fung, The Johns Hopkins Univ. (US); Paul W. Segars, Duke Univ. Medical Ctr. (US); Alexander I. Veress, Univ. of Washington (US); Grant T. Gullberg, Lawrence Berkeley National Lab. (US); Benjamin M. W. Tsui, The Johns Hopkins Univ. (US) . . . . . [7262-40]

8:40 am: **A linking framework for pixel classification based retinal vessel segmentation**, Meindert Niemeijer, The Univ. of Iowa (US); Bram van Ginneken, Univ. Medisch Ctr. Utrecht (Netherlands); Michael D. Abramoff M.D., The Univ. of Iowa Hospitals and Clinics (US) . . . . . [7262-41]

9:00 am: **Shape analysis of corpus callosum in autism subtype using planar conformal mapping**, Qing He, Ye Duan, Univ. of Missouri, Columbia (US); Xiaotian Yin, Xianfeng Gu, Stony Brook Univ. (US); Kevin Karsch, Univ. of Missouri, Columbia (US) . . . . . [7262-42]

9:20 am: **Quantification of inter-subject variability in human brain: a validation framework for probabilistic maps**, Amir M. Tahmasebi, Purang Abolmaesumi, Conor J. Wild, Ingrid S. Johnsrude, Queen's Univ. (Canada) . . . . . [7262-43]

**Poster Award Announcements**

Room: Fiesta 8-10 Tues. 9:40 to 9:45 am

The Biomedical Applications in Molecular, Structural, and Functional Imaging conference poster award recipients will be recognized and certificates distributed.

Coffee Break . . . . . 9:40 to 10:10 am

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Conference 7258 continued  
Physics of Medical Imaging  
Room: Fiesta 5

**SESSION 5**  
Room: Fiesta 5 . . Tues. 10:10 am to 12:10 pm  
**Breast Tomosynthesis**  
*Session Chair: Stephen J. Glick, Univ. of Massachusetts Medical School (US)*  
10:10 am: **To compress or not to compress? That is the question: revisiting the need for breast compression in FFD and DBT**, Ehsan Samei, Robert S. Saunders, Jr., Joseph Y. Lo, Duke Univ. (US); Jay A. Baker, Duke Univ. Medical Ctr. (US) . . . . . [7258-22]  
10:30 am: **Estimating breast tomosynthesis performance in detection tasks with variable-background phantoms**, Stefano Young, The Univ. of Arizona (US); Subok Park, U.S. Food and Drug Administration (US); Kyle Anderson, George Washington Univ. (US); Aldo Badano, Kyle J. Myers, U.S. Food and Drug Administration (US) . . . . . [7258-23]  
10:50 am: **Optimized lesion detection in digital breast tomosynthesis**, Amarpreet S. Chawla, Ehsan Samei, Joseph Y. Lo, Duke Univ. (US) . . . . . [7258-24]  
11:10 am: **Nonuniform angular dose distribution in digital breast tomosynthesis for increased conspicuity of small high contrast objects**, Yue-Houng Hu, Wei Zhao, Stony Brook Univ. (US) . . . . . [7258-25]  
11:30 am: **The effect of lag on image quality for a digital breast tomosynthesis system**, James G. Mainprize, Xinying Wang, Sunnybrook Health Sciences Ctr. (Canada); Martin J. Yaffe, Sunnybrook Health Sciences Ctr. (Canada) and Univ. of Toronto (Canada) . . . . . [7258-26]  
11:50 am: **Computerized 3D breast phantom with enhanced high-resolution detail**, Christina M. Li, W. Paul Segars, Joseph Y. Lo, Duke Univ. (US); Alexander I. Veress, Univ. of Washington (US); John M. Boone, Univ. of California, Davis (US); James T. Dobbins III, Duke Univ. (US) . . . . . [7258-27]  
Lunch Break . . . . . 12:10 to 1:20 pm

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Conference 7259 continued  
Image Processing  
Room: Fiesta 6

**SESSION 9**  
Room: Fiesta 6 . . Tues. 10:10 am to 12:10 pm  
**Keynote and Diffusion Tensor Imaging**  
*Session Chairs: Josien P. W. Pluim, Univ. Medisch Ctr. Utrecht (Netherlands); Benoit M. Dawant, Vanderbilt Univ. (US); James C. Gee, Univ. of Pennsylvania (US)*  
10:10 am: **Frontiers in diffusion imaging (Keynote Presentation)**, Peter J. Basser, National Institutes of Health (US) . . . . . [7259-46]  
11:10 am: **Regression analysis of diffusion tensor**, Yimei Li, Hongtu Zhu, Yasheng Chen, Joseph G. Ibrahim, Hongyu An, The Univ. of North Carolina at Chapel Hill (US); Weili Lin, Dinggang Shen, The Univ. of North Carolina School of Medicine (US) . . . . . [7259-47]  
11:30 am: **Fiber-to-bundle registration of white matter tracts**, Qing Xu, John C. Gore, Adam W. Anderson, Zhaohua Ding, Vanderbilt Univ. Institute of Imaging Science (US) . . . . . [7259-48]  
11:50 am: **Segmentation of DTI based on tensorial morphological gradient**, Leticia Rittner, Roberto A. Lotufo, Univ. Estadual de Campinas (Brazil) . . . . . [7259-49]  
Lunch Break . . . . . 12:10 to 1:20 pm

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Conference 7260 continued  
Computer-Aided Diagnosis  
Room: Fiesta 1-3

**SESSION 2**  
Room: Fiesta 1-3. Tues. 10:10 am to 12:10 pm  
**Lung Imaging I**  
*Session Chair: Samuel G. Armato III, The Univ. of Chicago (US)*  
10:10 am: **An adaptive knowledge-driven medical image search engine for interactive diffuse parenchymal lung disease quantification**, Yimo Tao, Virginia Polytechnic Institute and State Univ. (US); Xiang S. Zhou, Jinbo Bi, Anna Jerebkoa, Matthias Wolf, Marcos Salganicoff, Arun Krishnana, Siemens Medical Solutions USA, Inc. (US) . . . [7260-06]  
10:30 am: **Quantitative assessment of emphysema from whole lung CT scans: comparison with visual grading**, Brad M. Keller, Anthony P. Reeves, Cornell Univ. (US); Tatiyana V. Apanosovich, Thomas Jefferson Univ. (US); Jianwei Wang M.D., David Yankelevitz M.D., Claudia I. Henschke M.D., Weill Cornell Medical College (US) . . [7260-07]  
10:50 am: **A matched filter approach for the analysis of lung nodules in a volumetric CT phantom study**, Marios A. Gavrielides, Rongping Zeng, Lisa M. Kinnard, Kyle J. Myers, Nicholas A. Petrick, U.S. Food and Drug Administration (US) . . . . . [7260-08]  
11:10 am: **Bronchial segment matching in low-dose lung CT scan pairs**, Jaesung Lee, Anthony P. Reeves, Cornell Univ. (US); David F. Yankelevitz, Claudia I. Henschke, Weill Cornell Medical College (US) . . . . . [7260-09]  
11:30 am: **Evaluation of computerized detection of pulmonary embolism in independent data sets of computed tomographic pulmonary angiographic (CTPA) scans**, Chuan Zhou, Heang-Ping Chan, Berkman Sahiner, Lubomir M. Hadjiiski, Amer R. Chughtai, Smita Patel, Jun Wei, Philip N. Cascade, Ella A. Kazerooni, Univ. of Michigan (US) . . . . . [7260-10]  
11:50 am: **(ST) Bag-of-features approach for improvement of lung tissue classification in diffuse lung disease**, Noriji Kato, Motofumi Fukui, Takashi Isozaki, Fujii Xerox Co., Ltd. (Japan) . . . . . [7260-11]  
12:00 pm: **(ST) Automated extraction of pleural effusion in three-dimensional thoracic CT images**, Shoji Kido M.D., Akinori Tsunomori, Yamaguchi Univ. (Japan) . . . . . [7260-12]  
Lunch Break . . . . . 12:10 to 1:20 pm

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Conference 7261 continued  
Visualization, Image-guided Procedures and Modeling  
Room: Monterey 1-3

**SESSION 9**  
Room: Monterey 1-3 Tues. 10:10 am to 12:10 pm  
**Minimally Invasive II**  
*Session Chairs: Yeong Gil Shin, Seoul National Univ. (Korea, Republic of); Ziv R. Yaniv, Georgetown Univ. (US)*  
10:10 am: **A system for the registration of arthroscopic images to magnetic resonance images of the knee: for improved virtual knee arthroscopy**, Chengliang Hu, Giancarlo Amati, King's College London (UK); Nicola Gullick, Guy's and St Thomas' NHS Foundation Trust (UK); Stephen Oakley, The Royal Newcastle Ctr. (Australia); Vassilios Hurmusiadis, Primal Pictures Ltd. (UK); Tobias Schaeffter, Graeme P. Penney, Kaval S. Rhode, King's College London (UK) . . . . . [7261-44]  
10:30 am: **Remote vs. manual catheter navigation: a comparison study of operator performance using a 2D multipath phantom**, Yogesh Thakur, Robarts Research Institute (Canada) and The Univ. of Western Ontario (Canada); Chris J. Norley, Robarts Research Institute (Canada); David W. Holdsworth, Maria Drangova, Robarts Research Institute (Canada) and The Univ. of Western Ontario (Canada) . . . . . [7261-45]  
10:50 am: **New vision based navigation clue for a regular colonoscope's tip**, Anouar M. Mekaouer, REsearch Group on Intelligent Machines (Tunisia) and Institut National des Sciences Appliquées de Lyon (France); Chokri Ben Amar, REsearch Group on Intelligent Machines (Tunisia); Tanneguy H. Redarce, Institut National des Sciences Appliquées de Lyon (France) . . . . . [7261-46]  
11:10 am: **Swallowable capsule with air channel for improved image-guided cancer detection in the esophagus**, Eric J. Seibel, C. David Melville, Richard S. Johnston, Cameron Lee, Jonathan K. Lung, Alexander P. Babchanik, Univ. of Washington (US); Jason A. Dornitz, Veterans Affairs Puget Sound Health Care System (US) . . . . . [7261-47]  
11:30 am: **Direct global adjustment methods for endoscopic mosaicking**, Sharmishtaa Seshamani, Gregory D. Hager, The Johns Hopkins Univ. (US) . . . . . [7261-48]

Conference 7262 continued  
Biomedical Applications in Molecular, Structural, and Functional Imaging  
Room: Fiesta 8-10

**SESSION 9**  
Room: Fiesta 8-10 Tues. 10:10 am to 12:10 pm  
**Mechanics I**  
*Session Chair: John B. Weaver, Dartmouth Hitchcock Medical Ctr. (US)*  
10:10 am: **Correlation of breast image alignment using biomechanical modeling**, Angela W. C. Lee, Vijay Rajagopal, Jae-Hoon Chung, Poul M. F. Nielsen, Martyn P. Nash, The Univ. of Auckland (New Zealand) . . [7262-44]  
10:30 am: **A real-time method for breast cancer diagnosis using optical flow**, Hiran Karimi, The Univ. of Western Ontario (Canada); Aaron Fenster, Robarts Research Institute (Canada); Abbas Samani, The Univ. of Western Ontario (Canada) . . . . . [7262-45]  
10:50 am: **Accurate optical flow field estimation using mechanical properties of soft tissues**, Hatem Mehrabian, Hiran Karimi, Abbas Samani, The Univ. of Western Ontario (Canada) . . . . . [7262-46]  
11:10 am: **Dynamic characterization for tumor- and deformation-induced thermal contrasts on breast surface: a simulation study**, Li Jiang, The George Washington Univ. (US); Wang Zhan, Univ. of California, San Francisco (US); Murray H. Loew, The George Washington Univ. (US) . . . . . [7262-47]  
11:30 am: **Quantification and validation of soft tissue deformation**, Thomas H. Mosbech, Bjarne K. Ersbøll, Danmarks Tekniske Univ. (Denmark); Lars B. Christensen, Danish Meat Association (Denmark) . [7262-48]  
11:50 am: **Poroelastic reconstruction algorithm for use in MR elastography**, Phillip R. Perrine, Dartmouth College (US); S. Scott Lollis, Dartmouth Hitchcock Medical Ctr. (US); Francis E. Kennedy, Dartmouth College (US); John B. Weaver, Dartmouth Hitchcock Medical Ctr. (US); Keith D. Paulsen, Dartmouth College (US) . . . . . [7262-49]  
Lunch Break . . . . . 12:10 to 1:20 pm  
7262 continues on page 26 ➔  
11:50 am: **A planning system for transapical aortic valve implantation**, Michael Gessat, Univ. Leipzig (Germany); Denis R. Merk M.D., Univ. Leipzig (Germany) and Innovation Ctr. Computer Assisted Surgery (Germany); Volkmar Falk M.D., Thomas Walther M.D., Univ. Leipzig (Germany); Alois Nöttling, Siemens Medical Solutions GmbH (Germany); Oliver Burgert, Univ. Leipzig (Germany) . . . . . [7261-24]  
Lunch Break . . . . . 12:10 to 1:20 pm  
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Conference 7258 continued Physics of Medical Imaging Room: Fiesta 5	Conference 7259 continued Image Processing Room: Fiesta 6	Conference 7260 continued Computer-Aided Diagnosis Room: Fiesta 1-3	Conference 7261 continued Visualization, Image-guided Procedures and Modeling Room: Monterey 1-3	Conference 7262 continued Biomedical Applications in Molecular, Structural, and Functional Imaging Room: Fiesta 8-10
<p style="text-align: center;"><b>SESSION 6</b> Room: Fiesta 5 ..... Tues. 1:20 to 3:00 pm</p> <p style="text-align: center;"><b>Nuclear Medicine</b> <i>Session Chair: Katsuyuki Taguchi,</i> Johns Hopkins Univ. (US)</p> <p>1:20 pm: <b>Blind motion compensation for positron-emission-tomography</b>, Moritz Blume, Instituto de Fisica Corpuscular (Spain) and Technische Univ. München (Germany); Andreas Keil, Nassir Navab, Technische Univ. München (Germany); Magdalena Rafecas, Instituto de Fisica Corpuscular (Spain) ..... [7258-28]</p> <p>1:40 pm: <b>Joint image reconstruction and nonrigid motion estimation with a simple penalty that encourages local invertibility</b>, Se Young Chun, Jeffrey A. Fessler, Univ. of Michigan (US) ..... [7258-29]</p> <p>2:00 pm: <b>Direct reconstruction of PET receptor binding parametric images using simplified reference tissue model</b>, Guobao Wang, Jinyi Qi, Univ. of California, Davis (US) ..... [7258-30]</p> <p>2:20 pm: <b>Advanced reconstruction of attenuation maps using SPECT emission data only</b>, Andre Salomon, Andreas Goedicke, Philips Research (Germany); Til Aach, RWTH Aachen (Germany) ..... [7258-31]</p> <p>2:40 pm: <b>HyperSPECT: a new system for pre-clinical imaging in vivo</b>, Sandra Tibbelin, Kungliga Tekniska Högskolan (Sweden); Aldo Badano, U.S. Food and Drug Administration (US); Mats E. Danielsson, Peter Nillius, Björn Cederström, Kungliga Tekniska Högskolan (Sweden) ..... [7258-32]</p> <p>Coffee Break ..... 3:00 to 3:30 pm</p> <p style="text-align: right;">7258 continues on page 27 ➔</p>	<p style="text-align: center;"><b>SESSION 10</b> Room: Fiesta 6 ..... Tues. 1:20 to 3:00 pm</p> <p style="text-align: center;"><b>Registration III</b> <i>Session Chair: Murray H. Loew,</i> The George Washington Univ. (US)</p> <p>1:20 pm: <b>Non-stationary diffeomorphic registration: application to endo-vascular treatment monitoring</b>, Mathieu S. De Craene, Oscar Camara, Bart Bijmens, Alejandro F. Frangi, Univ. Pompeu Fabra (Spain) ..... [7259-50]</p> <p>1:40 pm: <b>Non-rigid registration of small animal skeletons from micro-CT using 3D shape context</b>, Di Xiao, Pierrick T. Bourgeat, Jurgen E. Fripp, Oscar Acosta Tamayo, CSIRO, Australian e-Health Research Ctr. (Australia); Marie Gregoire, Australian Nuclear Science and Technology Organisation (Australia); Olivier Salvado, CSIRO, Australian e-Health Research Ctr. (Australia) ..... [7259-51]</p> <p>2:00 pm: <b>Elastic registration of multiphase CT images of liver</b>, Stefan Heldmann, Univ. zu Lübeck (Germany); Stephan Zidowitz, MeVis Research GmbH (Germany) ..... [7259-52]</p> <p>2:20 pm: <b>Registration of 3D spectral OCT volumes using 3D SIFT featurepoint matching</b>, Meindert Niemeijer, Mona K. Garvin, Kyungmoo Lee, The Univ. of Iowa (US); Bram van Ginneken, Univ. Medisch Ctr. Utrecht (Netherlands); Michael D. Abràmoff M.D., Milan Sonka, The Univ. of Iowa (US) ..... [7259-53]</p> <p>2:40 pm: <b>Curvature orientation histograms for detection and matching of vascular landmarks in retinal images</b>, Keerthi Ram, Yogesh Babu, Jayanthi Sivaswamy, International Institute of Information Technology (India) ... [7259-54]</p> <p>Coffee Break ..... 3:00 to 3:30 pm</p> <p style="text-align: right;">7259 continues on page 27 ➔</p>	<p style="text-align: center;"><b>SESSION 3</b> Room: Fiesta 1-3. .... Tues. 1:20 to 3:00 pm</p> <p style="text-align: center;"><b>CAD Methodology</b> <i>Session Chair: Carol L. Novak,</i> Siemens Corporate Research (US)</p> <p>1:20 pm: <b>An analysis of two ground truth estimation methods</b>, Alberto M. Biancardi, Anthony P. Reeves, Artit C. Jirapatnakul, Sergei V. Fotin, Cornell Univ. (US); Tatiyana V. Apanasovich, Thomas Jefferson Univ. (US) ..... [7260-13]</p> <p>1:40 pm: <b>A comparative study of database reduction methods for case-based computer-aided detection systems: preliminary results</b>, Maciej A. Mazurowski, Jordan M. Malof, Jacek M. Zurada, Univ. of Louisville (US); Georgia D. Tourassi, Duke Univ. (US) ..... [7260-14]</p> <p>2:00 pm: <b>The exploration machine: a novel method for analyzing high-dimensional data in computer-aided diagnosis</b>, Axel Wismueller, Univ. of Rochester (US) ..... [7260-15]</p> <p>2:20 pm: <b>Agreement of CAD features with expert observer ratings for characterization of pulmonary nodules in CT using the LIDC-IDRI database</b>, Rafael Wiemker, Martin Bergtholdt, Philips Research (Germany); Ekta Dharaia, Philips Healthcare CT (US); Sven Kabus, Philips Research (Germany); Michael C. Lee, Philips Research North America (US) ... [7260-16]</p> <p>2:40 pm: <b>Scale focusing of statistical shape models for breast region segmentation and pectoral muscle suppression</b>, Naga P. K. R. Dandu, Nordic Bioscience A/S (Denmark); Mads Nielsen, Nordic Bioscience A/S (Denmark) and DIKU (Denmark) ..... [7260-17]</p> <p>Coffee Break ..... 3:00 to 3:30 pm</p> <p style="text-align: right;">7260 continues on page 27 ➔</p>	<p style="text-align: center;"><b>SESSION 10</b> Room: Monterey 1-3. . . Tues. 1:20 to 3:00 pm</p> <p style="text-align: center;"><b>Visualization and Geometry</b> <i>Session Chairs: Jayaram Koteshwar</i> <b>Udupa</b>, Univ. of Pennsylvania (US); <b>George J. Grevera</b>, St. Joseph's Univ. (US)</p> <p>1:20 pm: <b>Uniscale multi-view registration using double dog-leg method</b>, Chao-I Chen, Dustin Sargent, Chang-Ming Tsai, Yuan-Fang Wang, Univ. of California, Santa Barbara (US); Daniel Koppel, STI Medical Systems (US) ..... [7261-50]</p> <p>1:40 pm: <b>Optimal search guided by partial active shape model for prostate segmentation in TRUS images</b>, Pingkun Yan, Sheng Xu, Philips Research North America (US); Baris Turkbey, National Cancer Institute (US); Jochen Kruecker, Philips Research North America (US) ..... [7261-51]</p> <p>2:00 pm: <b>3D annotation and manipulation of medical anatomical structures</b>, Dime Vitanovski, Christian Schaller, Dieter A. Hahn, Volker Daum, Joachim Hornegger, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) ..... [7261-52]</p> <p>2:20 pm: <b>nD statistical shape model building via recursive boundary subdivision</b>, Sylvia Rueda, The Univ. of Nottingham (UK); Jayaram K. Udupa, Univ. of Pennsylvania (US) ..... [7261-53]</p> <p>2:40 pm: <b>A GPU-based fiber tracking framework using geometry shaders</b>, Alexander Köhn, Jan Klein, Florian Weiler, Heinz-Otto Peitgen, MeVis Research GmbH (Germany) ..... [7261-54]</p> <p>Coffee Break ..... 3:00 to 3:30 pm</p> <p style="text-align: right;">7261 continues on page 27 ➔</p>	<p style="text-align: center;"><b>SESSION 10</b> Room: Fiesta 8-10. .... Tues. 1:20 to 3:00 pm</p> <p style="text-align: center;"><b>Mechanics II</b> <i>Session Chair: Erik L. Ritman,</i> Mayo Clinic College of Medicine (US)</p> <p>1:20 pm: <b>Computational biomechanics and experimental validation of vessel deformation based on 4D-CT imaging of the porcine aorta</b>, Dilana Hazer, Univ. Karlsruhe (Germany) and Carnegie Mellon Univ. (US); Ender A. Finol, Carnegie Mellon Univ. (US); Michael Kostrzewa, Goetz-Martin Richter, UniversitätsKlinikum Heidelberg (Germany); Rüdiger Dillmann, Univ. Karlsruhe (Germany) ..... [7262-50]</p> <p>1:40 pm: <b>Image-based analysis of blood flow modification in stented aneurysms</b>, Juan R. Cebal, Fernando Mut, Sunil Appanaboyina, Rainald Lohner, George Mason Univ. (US); Carlos Miranda, Esteban Escrivano, Pedro Lylyk, ENERI (Argentina); Christopher M. Putman, Inova Fairfax Hospital (US) ..... [7262-51]</p> <p>2:00 pm: <b>Angiographic analysis of animal model aneurysms treated with novel polyurethane asymmetric vascular stent (P-AVS): feasibility study</b>, Ciprian N. Ionita, Andreea C. Dohatcu, Andrey Sinelnikov, Jason Sherman, Christos M. Keleshis, Ann M. Paciorek, Kenneth R. Hoffmann, Daniel R. Bednarek, Stephen Rudin, Univ. at Buffalo (US) ..... [7262-52]</p> <p>2:20 pm: <b>Radial basis function strain estimators</b>, Marvin M. Doyley, Univ. of Rochester (US); David Manegold, Dartmouth College (US); Arvind Bhasker, Univ. of Rochester (US); Minh Q. Phan, Dartmouth College (US) ..... [7262-53]</p> <p>2:40 pm: <b>A novel cardiac MR chamber volume model for mechanical dyssynchrony assessment</b>, Ting Song, Maggie Fung, GE Healthcare (US); Jeffrey A. Stainsby, GE Healthcare (Canada); Maureen N. Hood, Vincent B. Ho, Uniformed Services Univ. of the Health Sciences (US) ..... [7262-54]</p> <p>Coffee Break ..... 3:00 to 3:30 pm</p> <p style="text-align: right;">7262 continues on page 27 ➔</p>



Conference 7258 continued  
Physics of Medical Imaging  
Room: Fiesta 5

**SESSION 7**  
Room: Fiesta 5 ..... Tues. 3:30 to 5:30 pm

**Non-X-ray Imaging**

*Session Chairs:* **Hee-Joung Kim**, Yonsei Univ. (Korea, Republic of); **Jinyi Qi**, Univ. of California, Davis (US)

3:30 pm: **Novel insight into magnetic resonance through a spherical coordinate framework for the Bloch equation**, Bahman Tahayori, Leigh A. Johnston, Iven M. Y. Mareels, Peter M. Farrell, The Univ. of Melbourne (Australia) ..... [7258-33]

3:50 pm: **Regularization of parallel MRI reconstruction using in vivo coil sensitivities**, Qi Duan, Ricardo Otazo, New York Univ. Medical Ctr. (US); Jian Xu, Siemens Medical Solutions USA, Inc. (US); Daniel Sodickson, New York Univ. Medical Ctr. (US) ..... [7258-34]

4:10 pm: **Quantification of three-dimensional tongue motion during speech using zHARP**, Xiaofeng Liu, The Johns Hopkins Univ. (US); Jianchen L. Zhuo, Univ. of Maryland Medical Ctr. (US); Harsh K. Agarwal, Khaled Z. Abd-Elmoniem, The Johns Hopkins Univ. (US); Emi Z. Murano, Maureen L. Stone, Univ. of Maryland Dental School (US); Rao L. Gullapalli, Univ. of Maryland Medical Ctr. (US); Jerry L. Prince, The Johns Hopkins Univ. (US) . . . . [7258-35]

4:30 pm: **Detection of iron overload through neutron stimulated emission computed tomography: a sensitivity analysis study**, Anuj J. Kapadia, Greeshma Agasthya, Georgia D. Tourassi, Duke Univ. Medical Ctr. (US) ..... [7258-36]

4:50 pm: **Iterative finite-element-based inversion for quantified detection of molecular targets using optoacoustic tomography**, Thomas Jetzfellner, Daniel Razansky, Ralf Schulz, Karl-Hans Englmeier, Vasilis Ntziachristos, Helmholtz Zentrum München, GmbH (Germany) . . . . [7258-37]

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Conference 7259 continued  
Image Processing  
Room: Fiesta 6

**SESSION 11**  
Room: Fiesta 6 ..... Tues. 3:30 to 5:30 pm

**Segmentation II**

*Session Chair:* **Vincent A. Magnotta**, The Univ. of Iowa (US)

3:30 pm: **User-constrained guidewire localization in fluoroscopy**, Philippe Mazouer, Terence Chen, Ying Zhu, Peng Wang, Siemens Corporate Research (US); Peter Durlak, Siemens Medical Solutions GmbH (Germany); Jean-Philippe Thiran, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Dorin Comaniciu, Siemens Corporate Research (US) ..... [7259-55]

3:50 pm: **Guidewire tracking in fluoroscopic sequences**, Peng Wang, Ying Zhu, Wei Zhang, Terrence Chen, Siemens Corporate Research (US); Peter Durlak, Ulrich Bill, Siemens Medical Solutions GmbH (US); Dorin Comaniciu, Siemens Corporate Research (US) ..... [7259-56]

4:10 pm: **A comparison of line enhancement techniques: applications to guide-wire detection and respiratory motion tracking**, Vincent Bismuth, Sébastien Gorges, Laurence Vancamberg, GE Healthcare France (France) . . [7259-57]

4:30 pm: **3D variational brain tumor segmentation on a clustered feature set**, Karteek Popuri, Dana Cobzas, Martin Jagersand, Sirish L. Shah, Albert Murtha, Univ. of Alberta (Canada) ..... [7259-58]

4:50 pm: **Simultaneous segmentation of the bone and cartilage surfaces of a knee joint in 3D**, Yin Yin, Milan Sonka, The Univ. of Iowa (US); Xiangmin Zhang, Medical Imaging Applications, LLC (US); Donald D. Anderson, Christopher Hofweggen, Thomas Brown, The Univ. of Iowa (US) . . [7259-59]

5:10 pm: **Segmentation of 3D tubular structures based on 3D intensity models and particle filter tracking**, Stefan Wörz, William J. Godinez, Karl Rohr, Ruprecht-Karls-Univ. Heidelberg (Germany) ..... [7259-60]

Conference 7260 continued  
Computer-Aided Diagnosis  
Room: Fiesta 1-3

**SESSION 4**  
Room: Fiesta 1-3. .... Tues. 3:30 to 5:30 pm

**Breast Imaging**

*Session Chair:* **Joseph Y. Lo**, Duke Univ. (US)

3:30 pm: **Using three-class BANN classifier in the automated analysis of breast cancer lesions in DCE-MRI**, Neha Bhooshan, Maryellen L. Giger, Darrin C. Edwards, The Univ. of Chicago (US); Sanaz A. Jansen, The Univ. of Chicago (Albania); Hui Li, Li Lan, Gillian M. Newstead, The Univ. of Chicago (US) ..... [7260-18]

3:50 pm: **Assessment of texture analysis on DCE-MRI data for the differentiation of breast tumor lesions**, Jennifer Loose, Markus T. Harz, Hendrik Laue, MeVis Research GmbH (Germany); Thorsten Twellmann, MeVis Medical Solutions AG (Germany); Ulrich Bick, Charité Universitätsmedizin Berlin (Germany); Marga B. Rominger, Philipps-Univ. Marburg (Germany); Horst K. Hahn, MeVis Research GmbH (Germany) and Jacobs Univ. Bremen gGmbH (Germany); Heinz-Otto Peitgen, MeVis Research GmbH (Germany) ..... [7260-19]

4:10 pm: **A computer-aided diagnosis system for prediction of the probability of malignancy of breast masses on ultrasound images**, Jing Cui, Berkman Sahiner, Heang-ping Chan, Jiazheng Shi, Alexis Nees, Chintana Paramagul, Hadjiiski Lubomir, Univ. of Michigan (US) ..... [7260-20]

4:30 pm: **Noise model for microcalcification detection in reconstructed tomosynthesis slices**, Guido van Schie, Nico Karssemeijer, Radboud Univ. Nijmegen Medical Ctr. (Netherlands) ..... [7260-21]

4:50 pm: **Computerized breast parenchymal analysis on DCE-MRI**, Hui Li, Maryellen L. Giger, Sanaz A. Jansen, Li Lan, Neha Bhooshan, Yading Yuan, Gillian M. Newstead, The Univ. of Chicago (US) ..... [7260-22]

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Conference 7261 continued  
Visualization, Image-guided Procedures and Modeling  
Room: Monterey 1-3

**SESSION 11**  
Room: Monterey 1-3. . . Tues. 3:30 to 5:30 pm

**Registration**

*Session Chairs:* **Ivo Wolf**, Deutsches Krebsforschungszentrum (Germany); **Jay B. West**, Accuray, Inc. (US)

3:30 pm: **Prostate brachytherapy seed localization using a mobile C-arm without tracking**, Maria S. Ayad, Junghoon Lee, Jerry L. Prince, The Johns Hopkins Univ. (US); Gabor Fichtinger, Queen's Univ. (Canada) ..... [7261-55]

3:50 pm: **Atlas-driven scan planning for high-resolution  $\mu$ SPECT scanning from multiview photographs: a pilot study**, Martin Baiker, Leids Univ. Medisch Ctr. (Netherlands); Brendan Vastenhouw, Univ. Medisch Ctr. Utrecht (Netherlands) and Mllabs. BV (Netherlands); Woutjan Branderhorst, Univ. Medisch Ctr. Utrecht (Netherlands); Johan H. C. Reiber, Leids Univ. Medisch Ctr. (Netherlands); Freek J. Beekman, Technische Univ. Delft (Netherlands) and Univ. Medisch Ctr. Utrecht (Netherlands); Boudewijn P. F. Lelieveldt, Leids Univ. Medisch Ctr. (Netherlands) and Technische Univ. Delft (Netherlands) ..... [7261-56]

4:10 pm: **Conoscopic holography for image registration: a feasibility study**, Ray Lathrop, Robert Webster, Vanderbilt Univ. (US) ..... [7261-57]

4:30 pm: **Cluster of workstation based nonrigid image registration using free-form deformation**, Xiaofen Zheng, Jayaram K. Udupa, Xinjian Chen, Univ. of Pennsylvania (US) ..... [7261-58]

4:50 pm: **Group-wise registration of ultrasound to CT images of human vertebrae**, Sean Gill, Parvin Mousavi, Gabor Fichtinger, David Pichora, Purang Abolmaesumi, Queen's Univ. (Canada) ..... [7261-59]

5:10 pm: **Accuracy of nonrigid registration for local analysis of elasticity restrictions of the lungs**, Daniel Stein, Ralf Tetzlaff M.D., Ivo Wolf, Hans-Peter Meinzer, Deutsches Krebsforschungszentrum (Germany) ..... [7261-60]

Conference 7262 continued  
Biomedical Applications in Molecular, Structural, and Functional Imaging  
Room: Fiesta 8-10

**SESSION 11**  
Room: Fiesta 8-10. .... Tues. 3:30 to 5:30 pm

**Clinical Applications**

*Session Chair:* **Ronald M. Summers**, National Institutes of Health (US)

3:30 pm: **Predicting human decisions in socioeconomic interaction using real-time functional magnetic resonance imaging (rtfMRI)**, Maurice Hollmann, Tobias Moench, Charles Mueller, Johannes Bernarding, Otto-von-Guericke-Univ. Magdeburg (Germany) ..... [7262-55]

3:50 pm: **Early detection of foot ulcers through asymmetry analysis**, Naima Kaabouch, Yi Chen, Julie Anderson, Forrest Ames, Univ. of North Dakota (US) ..... [7262-56]

4:10 pm: **Hip fracture risk estimation based on principal component analysis of QCT atlas: a preliminary study**, Wenjun Li, John Kornak, Univ. of California, San Francisco (US); Tamara Harris, National Institute on Aging (US); Ying Lu, Univ. of California, San Francisco (US); Xiaoguang Cheng, Beijing Jishuitan Hospital (China); Thomas Lang, Univ. of California, San Francisco (US) ..... [7262-57]

4:30 pm: **Visualization and enhancement patterns of radiofrequency ablation lesions with iodine contrast-enhanced cardiac C-arm CT**, Erin Girard-Hughes, Stanford Univ. (US); Amin Al-Ahmad, Stanford Univ. School of Medicine (US); Teri Moore, Siemens Medical Solutions USA, Inc. (US); Guenter Lauritsch, Jan Boese, Siemens AG, Healthcare Sector (Germany); Rebecca Fahrig, Stanford Univ. (US) ..... [7262-58]

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Conference 7258 continued  
Physics of Medical Imaging

Room: Fiesta 5

**SESSION 7 continued**

5:10 pm: **Simulating ultra-wideband imaging for the early detection of tissue injury**, Kelan Hlavaty, Central Michigan Univ. (US); Daria Tanska, Nancy Tseng, Univ. of Michigan (US); Jia Li, Barbara Penprase, Oakland Univ. (US) . . . [7258-38]

**WORKSHOP**

**Photon Counting Technologies and Applications in Planar and Tomographic Imaging Image Perception**

*Fiesta Room 1-3 · Tues. 5:45 to 7:45 pm*

**Mats E. Danielsson**, Kungliga Tekniska Högskolan (Sweden)

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Conference 7260 continued  
Computer-Aided Diagnosis

Room: Fiesta 1-3

**SESSION 4 continued**

5:10 pm: **Breast lesion classification using mammography and DCE-MRI**, Yading Yuan, Maryellen L. Giger, Hui Li, Charlene A. Sennett, The Univ. of Chicago (US) . . . [7260-23]

**WORKSHOP**

**CAD Demonstrations**

*Fiesta Room 5 · Tues. 5:45 to 7:45 pm*

**Stephen R. Aylward**, Kitware, Inc. (US); **Heang-Ping Chan**, Univ. of Michigan (US)

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Conference 7262 continued  
Biomedical Applications in Molecular, Structural, and Functional Imaging

Room: Fiesta 8-10

**SESSION 11 continued**

4:50 pm: **Alzheimer's disease detection using 11C-PiB with improved partial volume effect correction**, Parnesh Raniga, Commonwealth Scientific and Industrial Research Organisation (Australia) and The Univ. of Sydney (Australia); Pierrick T. Bourgeat, Jurgen E. Fripp, Oscar Acosta Tamayo, Commonwealth Scientific and Industrial Research Organisation (Australia); Sebastien Ourselin, Univ. College London (UK) and Commonwealth Scientific and Industrial Research Organisation (Australia); Christopher Rowe, Victor L. Villemagne, Austin Hospital (Australia); Olivier Salvado, Commonwealth Scientific and Industrial Research Organisation (Australia) . [7262-59]

5:10 pm: **Clinical applications of image-based airway computational fluid dynamics: assessment of inhalation medication and endobronchial devices**, Jan W. De Backer, Wim Vos, Paul Germonpre, Rodrigo Salgado, Paul M. Parizel, Wilfried De Backer, Univ. Hospital Antwerp (Belgium) . . . [7262-60]

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The following posters will be on display Tuesday and Wednesday, 10-11 February in the Veracruz Exhibition Hall. The Interactive Poster Session with authors in attendance will be Wednesday evening from 5:30 to 7:00 pm. Poster awards will be announced in the conference meeting room on Thursday morning.

## Conference 7258 Posters Physics of Medical Imaging

### Algorithms

**Effect of detector time delay and its correction in multiple source computed tomography**, Axel Thran, Peter Forthmann, Roland M. Proksa, Philips Research (Germany) . . . . .[7258-83]

**Noise correlation in CBCT projection data and its application for noise reduction in low-dose CBCT**, Jing Wang, Anwei Chai, Lei Xing, Stanford Univ. (US) . . . . .[7258-84]

**Geometric calibration of detectors with discrete irregularities for computed tomography**, Kevin M. Holt, Varian Medical Systems, Inc. (US) . . . . .[7258-85]

**Simultaneous activity and attenuation reconstruction in PET: applying partial known attenuation**, Sérgio S. Furuie, Escola Politécnica da USP (Brazil) and Instituto do Coração (InCor) do HC.FMUSP (Brazil) . . . . .[7258-86]

**Numerical 3D models used for an evaluation of software tools dedicated to an automatic quality control of EPID images**, Tarraf J. Torfeh, Univ. de Nantes (France); Stéphane Beaumont, QualiFormeD SARL (France); Jean-Pierre V. Guédon, Univ. de Nantes (France); David Bonnet, Eloïse Denis, Ludwig David, QualiFormeD SARL (France) . . . . .[7258-87]

**Real-time compression of raw computed tomography data: technology, architecture, and benefits**, Albert W. Wegener, Samplify Systems Inc. (US); Robert F. Senzig, Naveen Chandra, GE Healthcare (US); Yi Ling, Samplify Systems Inc. (US) . . . . .[7258-88]

**Perfusion from angiogram and a priori (PAP) with temporal regularization**, Katsuyuki Taguchi, Jean-Francois H. Geschwind M.D., The Johns Hopkins Univ. (US) . . . . .[7258-89]

**Bronchial wall regions extraction algorithm using multi slice CT images**, Kengo Akashi, Shinsuke Saita, Mitsuru Kubo, Yoshiaki Kawata, Noboru Niki, Univ. of Tokushima (Japan); Yasutaka Nakano, Shiga Univ. of Medical Science (Japan); Hiromu Nishitani M.D., Univ. of Tokushima (Japan); Hironobu Ohmats, National Cancer Ctr. Hospital East (Japan); Kenji Eguchi M.D., Teikyo Univ. (Japan); Masahiro Kaneko M.D., Noriyuki Moriyama M.D., National Cancer Ctr. Hospital (Japan) . . . . .[7258-90]

**Volumetric soft tissue brain imaging on xCAT: a mobile flat-panel x-ray CT system**, Wojciech Zbijewski, Joseph W. Stayman, Xoran Technologies Inc. (US) . . . . .[7258-91]

**Image reconstruction for a stationary digital breast tomosynthesis system**, Ramya Rajaram, Guang Yang, The Univ. of North Carolina at Chapel Hill (US); Enzhuo Quan, David S. Lalush, North Carolina State Univ. (US); Otto Zhou, The Univ. of North Carolina at Chapel Hill (US) and Lineberger Comprehensive Cancer Ctr. (US) . . . . .[7258-92]

**Local correction of non-periodic motion in computed tomography**, Colas Schretter, Philips Research (Germany) and Otto-von-Guericke-Univ. Magdeburg (Germany); Christoph Neukirchen, Philips Research (Germany); Georg M. Rose, Otto-von-Guericke-Univ. Magdeburg (Germany); Matthias Bertram, Philips Research (Germany) . . . . .[7258-93]

**Towards Region of Interest Computer Tomography**, Sebastian Schafer, Peter B. Noël, Alan M. Walczak, Kenneth R. Hoffmann, Univ. at Buffalo (US) . . . . .[7258-94]

**Wavelet based de-noising methods for local SPECT reconstruction with nonuniform attenuation**, Li Wang, Junhai Wen, Jing Yang, Yunbin Chen, Beijing Institute of Technology (China); Zhengrong Liang, Stony Brook Univ. (US) . . . . .[7258-95]

**A noise decomposition method, experimentally and analytically, for the image quality analysis of medical radiography detectors**, Andreas Koch, Sami Al Tahlil, Ingo Maack, Clemens Herrmann, Philips Medizin Systeme GmbH (Germany) . . . . .[7258-96]

**Evaluating low pass filters on SPECT reconstructed cardiac orientation estimation**, Shekhar Dwivedi, Philips Healthcare (India) . . . . .[7258-97]

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**Imaging technique optimization of tungsten anode FFDM system**, Biao Chen, Andrew P. Smith, Zhenxue Jing, Hologic, Inc. (US) . . . . .[7258-108]

**Digital breast tomosynthesis (DBT) versus full field digital mammography (FFDM): comparison of a system performance using a contrast detail phantom**, Andrea Nitrosi, Giovanni Borasi, Marco Bertolini, Andrea Botti, Davide Tassoni, Arcispedale S. Maria Nuova (Italy) . . . . .[7258-109]

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**Cardiac imaging with multi-sector data acquisition in volumetric CT: variation of effective temporal resolution and its potential clinical consequences**, Xiangyang Tang, Jiang Hsieh, Basel Taha, Melissa Vass, John Seamans, Darin R. Okerlund, GE Healthcare (US) . . . . .[7258-110]

**Advanced processing for motion-compensated reconstruction in cardiac cone-beam CT**, Udo van Stevendaal, Peter Forthmann, Thomas Koehler, Jens von Berg, Cristian Lorenz, Michael Grass, Philips Research (Germany) . . . . .[7258-111]

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**Development of a hybrid scatter estimator for cone-beam computed tomography**, Harry R. Ingleby, Idris A. Elbakri, Daniel W. Rickey, Stephen Pistorius, CancerCare Manitoba (Canada) .[7258-118]

**High contrast artifact reduction in cone beam computed tomography by using geometric techniques**, Peter B. Noël, Jinhui Xu, Kenneth R. Hoffmann, Jason J. Corso, Sebastian Schafer, Alan M. Walczak, Univ. at Buffalo (US) . . . . .[7258-119]

**Real-time implementation of distortion corrections for a tiled EMCCD-based solid state x-ray image intensifier (SSXII)**, Christos M. Keleşhis, Kenneth R. Hoffmann, Joseph W. Lee, Univ. at Buffalo (US) and Toshiba Stroke Research Ctr. (US); Hidab M. Hamwi, Univ. at Buffalo (US); Wei Yuan Wang, Ciprian N. Ionita, Daniel R. Bednarek, Univ. at Buffalo (US) and Toshiba Stroke Research Ctr. (US); Aleksandr Verevkin, Univ. at Buffalo (US); Stephen Rudin, Univ. at Buffalo (US) and Toshiba Stroke Research Ctr. (US) . . . . .[7258-120]

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**A counting and integrating pixel readout chip for amorphous selenium direct radiation detectors for medical imaging applications**, Amir H. Goldan, Bahman Hadji, Karim S. Karim, Univ. of Waterloo (Canada); Olivier Tousignant, Luc Laperrière, Anrad Corp. (Canada) . . . . .[7258-129]

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**Optimized operation and offset corrections for a battery-powered wireless digital x-ray detector**, Karin Töpfer, John W. DeHORITY, Carestream Health, Inc. (US) . . . . .[7258-135]

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**Characterization of bias induced metastability of amorphous silicon (a-Si:H) thin film transistor (TFT) based passive pixel sensor switch and its impact on biomedical x-ray imaging application**, Afrin Sultana, Nader Safavian, Mohammad H. Izadi, Dali Wu, Karim S. Karim, Univ. of Waterloo (Canada) . . . . .[7258-137]

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**Marginal adaptation analysis performed with on-face optical coherence tomography in fixed partial dentures**, Cosmin G. H. Sinescu M.D., Meda-Lavinia V. Negrutiu M.D., Sergiu Antonie, Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania); George M. Dobre, Adrian Bradu, Michael Hughes, Univ. of Kent (UK); Mihai Rominu M.D., Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania); Adrian G. P. Podoleanu, Univ. of Kent (UK) . . . . .[7258-166]

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**Integrating structural and functional imaging for computer assisted detection of prostate cancer on multi-protocol in vivo 3 Tesla MRI**, Satish E. Viswanath, Rutgers Univ. (US); Nicolas Bloch M.D., Beth Israel Deaconess Medical Ctr. (US); Mark A. Rosen, The Hospital at the Univ. of

Pennsylvania (US); Jonathan C. Chappelow, Rutgers Univ. (US); Neil Rofsky M.D., Robert E. Lenkinski, Elizabeth Genega M.D., Beth Israel Deaconess Medical Ctr. (US); Arjun Kalyanpur M.D., Teleradiology Solutions Pvt. Ltd. (India); Anant Madabhushi, Rutgers Univ. (US) . . . . . [7260-125]

**Automated detection of prostate cancer using wavelet transform features of ultrasound RF time series**, Mohammad Aboofazeli, Purang Abolmaesumi, Mehdi Moradi, Eric E. Sauerbrei, David R. Siemens, Phillip Isotalo M.D., Parvin Mousavi, Queen's Univ. (Canada) . . . . . [7260-126]

## Retina

**ARGALI: an automatic cup-to-disc ratio measurement system for glaucoma detection and Analysis framework**, Jiang Liu, Damon W. K. Wong, Joo Hwee Lim, Huiqi Li, Ngan Meng Tan, Institute for Infocomm Research (Singapore); Tien Yin Wong, National Univ. of Singapore (Singapore) and Singapore Eye Research Institute (Singapore) . . . . . [7260-127]

**Determination of cup and disc ratio of optical nerve head for diagnosis of glaucoma on stereo retinal fundus image pairs**, Chisako Muramatsu, Gifu Univ. (Japan); Toshiaki Nakagawa, Gifu Univ. (Japan) and Kowa (Japan); Akira Sawada M.D., Gifu Univ. (Japan); Yuji Hatanaka, Univ. of Shiga Prefecture (Japan); Takeshi Hara, Tetsuya Yamamoto M.D., Hiroshi Fujita, Gifu Univ. (Japan) . . . . . [7260-128]

## Skeleton

**Automated quantification of lumbar vertebral kinematics from dynamic videofluoroscopic sequences**, Jon J. Camp, Kristin Zhao, Etienne Morel M.D., Dan White, Dixon Magnuson, Ralph Gay M.D., Kai-Nan An, Richard A. Robb M.D., Mayo Clinic (US) . . . . . [7260-129]

**Image-based quantitative measurement and analysis for detection and treatment planning of developmental dysplasia of the hip**, Xin Liu, Hanyong Chen, Fourth Military Medical Univ. (China); Li Zhao, Xinhua Hospital (China); Zhengxing Shi, Fourth Military Medical Univ. (China); Jerome Z. Liang, Stony Brook Univ. (US); Hongbing Lu, Fourth Military Medical Univ. (China) . . . . . [7260-130]

**Automated fetal spine detection in ultrasound images**, Pareshtolay, Indian Institute of Technology, Kharagpur (India); Pallavi Vajinepalli, Purnanjoy Bhattacharya, Celine Firtion M.D., Rajendra S. Sisodia, Philips Electronics India Ltd. (India) . . . . . [7260-131]



Conference 7263 Posters

Image Perception, Observer Performance, and Technology Assessment

**Context sensitive labeling of spinal structure in MR images.** Chetan Bhole, University of Rochester (US); Suryaprakash Kompalli, Vipin Chaudhary, Univ. at Buffalo (US) . . . . .[7260-133]

**Assessment of scoliosis by direct measurement of the curvature of the spine.**, Geoff Dougherty, California State Univ. Channel Islands (US); Michael J. Johnson, Kuwait Univ. (Kuwait) . . . . .[7260-134]

Other

**Automated segmentation of urinary bladder and detection of bladder lesions in multi-detector row CT urography.** Lubomir M. Hadjiiski, Berkman Sahiner, Heang-Ping Chan, Elaine M. Caoili, Richard H. Cohan, Chuan Zhou, Univ. of Michigan (US) . . . . .[7260-135]

**Narrow-band imaging for the computer assisted diagnosis in: patients with Barrett's esophagus.** Andreas Kage, Fraunhofer-Institut für Integrierte Schaltungen (Germany); Martin Raithe, Steffen Zopf, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Thomas M. Wittenberg, Christian Münzenmayer, Fraunhofer-Institut für Integrierte Schaltungen (Germany) . . . . .[7260-136]

**Automatic patient-adaptive bleeding detection in a capsule endoscopy.** Yun-Sub Jung, Seoul National Univ. College of Medicine (Korea, Republic of); Yongho Kim, Dong Ha Lee, IntroMedic Co., Ltd. (Korea, Republic of); Sang-Ho Lee, Jeong-Joo Song, Jong-Hyo Kim, Seoul National Univ. (Korea, Republic of) . . . . .[7260-137]

**An approach to automatic detection of body parts and their size estimation from computed tomography image.** Mausumi Acharyya, Siemens Information Systems Ltd. (India); Jonathan Stoeckel, Siemens Israel Ltd. (Israel); Dinesh M. Siddu, Siemens Information Systems Ltd. (India) . . . . .[7260-138]

**TESD: a novel ground truth estimation method.** Alberto M. Biancardi, Anthony P. Reeves, Cornell Univ. (US) . . . . .[7260-139]

**Incremental classification learning for anomaly detection in medical images.** Balathasan Giritharan, Xiaohui Yuan, Jianguo Liu, Univ. of North Texas (US) . . . . .[7260-140]

**Robust anatomy detection from CT topograms.** Zhigang Peng, Yiqiang Zhan, Xiang S. Zhou, Arun Krishnan, Siemens Medical Solutions USA, Inc. (US) . . . . .[7260-141]

**Automated scoring method for the CDMAM phantom.** Mary Yip, Walter Chukwu, Evangelos Kottis, Emma Lewis, Univ. of Surrey (UK); Jennifer M. Oduko, Ozcan Gundogdu, Kenneth C. Young, National Coordinating Ctr. for the Physics of Mammography (UK); Kevin Wells, Univ. of Surrey (UK) . . . . .[7263-45]

**Recognition of detail in mammography.** Doerte Apelt, MeVis BreastCare Solutions GmbH & Co. KG (Germany); Hans Strasburger, Georg-August-Univ. Göttingen (Germany); Richard Rascher-Friesenhausen, Jan Klein, MeVis Research GmbH (Germany); Markus Borowski, Klinikum Braunschweig GmbH (Germany); Bernhard Preim, Otto-von-Guericke-Univ. Magdeburg (Germany); Heinz-Otto Peitgen, MeVis Research GmbH (Germany) . . . . .[7263-46]

**Mammographic interpretation training in the UK: current difficulties and future outlook.** Yan Chen, Loughborough Univ. (UK); Alastair G. Gale, Hazel J. Scott, Applied Vision Research Ctr. (UK) . . . . .[7263-47]

**Reading the lesson: eliciting requirements for a mammography training application.** Mark J. Hartswood, Stuart Anderson, Univ. of Edinburgh (UK); Lilian Blot, Univ. College London (UK); Rob Procter, The Univ. of Manchester (UK); Paul Taylor, Univ. College London (UK); Lesley Smart, NHS Lothian (UK); Louise Wilkinson, St George's Healthcare NHS Trust (UK) . . . . .[7263-48]

**The relationship between real life breast screening and an annual self-assessment scheme.** Hazel J. Scott, Loughborough Univ. (UK); Andrew Evans, Nottingham International Breast Education Ctr. (UK); Alastair G. Gale, Loughborough Univ. (UK); Alison Murphy, Jacquie Reed, Nottingham International Breast Education Ctr. (UK) . . . . .[7263-49]

**Developing and testing a multi-probe resonance electrical impedance spectroscopy system for detecting breast abnormalities.** David Gur, Bin Zheng, Univ. of Pittsburgh (US); Sreeram Dhurjaty, Gene Wolfe, Mary Fradin, Dhurjaty Electronics Consulting LLC (US); Jules H. Sumkin M.D., Margarita Zuley, Univ. of Pittsburgh (US) . . . . .[7263-50]

**ViewDEX 2.0: a Java-based DICOM-compatible software for observer performance studies.** Markus E. Hakansson, Sune L. Svensson, Sahlgrenska Univ. Hospital (Sweden); Sara Zachrisson, Göteborg Univ. (Sweden); Magnus Båth, Lars Gunnar Månsson, Sahlgrenska Univ. Hospital (Sweden) . . . . .[7263-51]

**Ambient temperature variation effects radiological diagnostic performance.** Mark F. McEntee, Selina Gafoor, Univ. College Dublin (Ireland) . . . . .[7263-52]

**Improving mouse pointing for radiology tasks.** Yan Tan, Geoffrey Tien, Simon Fraser Univ. (Canada); Bruce Forster, The Univ. of British Columbia (Canada); M. Stella Atkins M.D., Simon Fraser Univ. (Canada) . . . . .[7263-53]

**Contrast threshold of circular and simulated nodular targets in softcopy display systems: implication for softcopy display system QC.** Jihong Wang, The Univ. of Texas M.D. Anderson Cancer Ctr. (US); Jun Xu, The Univ. of Texas Health Science Ctr. at San Antonio (US) . . . . .[7263-54]

**Initial learning experiences achieved after running a qc-programme on new installed diagnostic LCD-reading work stations.** Juan Jose Morant, Univ. Rovira i Virgili (Spain); Eduardo Guibelalde Del Castillo, Margarita Chevalier del Rio, Univ. Complutense de Madrid (Spain); María Ester Brandan, Univ. Nacional Autónoma de México (Mexico) . . . . .[7263-55]

**Content-based versus semantic-based similarity retrieval: a LIDC case study.** Sarah Jabon, Rose-Hulman Institute of Technology (US); Daniela S. Raicu, Jacob D. Furst, DePaul Univ. (US) . . . . .[7263-56]

**Reverse hierarchy theory and medical image perception.** Tim Donovan, David J. Manning, Univ. of Cumbria (UK) . . . . .[7263-57]

**Selective evaluation of noise, blur, and aliasing artifacts in fast MRI reconstructions using a weighted perceptual difference model: Case-PDM.** Jun Miao, David L. Wilson, Case Western Reserve Univ. (US) . . . . .[7263-58]

**Impact of visual fatigue on observer performance.** Elizabeth A. Krupinski, The Univ. of Arizona (US); Kevin S. Berbaum, The Univ. of Iowa (US) . . . . .[7263-59]

**Effectiveness of computer-aided detection for solitary pulmonary nodules.** Jiayong Yan, Carestream Health Global R&D (China); Wenjie Li, Carestream Health Global R&D (China) and Shanghai Jiaotong Univ. (China); Xiangying Du M.D., Xuan Wu Hospital of Capital Medical Univ. (China);

Huihui Lu, Carestream Health Global R&D (China); Jianrong Xu, Renji Hospital of Shanghai Jiaotong Univ. (China); Mantao Xu, Carestream Health Global R&D (China); Dongdong Rong, Xuan Wu Hospital of Capital Medical Univ. (China) . . . . .[7263-60]

**Lung nodules detection in chest radiography: image components analysis.** Tao Luo, Xuanqin Mou, Ying Yang, Hao Yan, Xi'an Jiaotong Univ. (China) . . . . .[7263-61]

**A study on the effect of CT imaging acquisition parameters on lung nodule image interpretation.** Shirley Yu, Univ. of Southern California (US); Joseph Wantroba, Daniela S. Raicu, Jacob D. Furst, DePaul Univ. (US); David S. Channin M.D., Northwestern Univ. Medical School (US); Samuel G. Armato III, The Univ. of Chicago (US) . . . . .[7263-62]

**Stenosis measurement using a combination of clustering and linear regression automated method compared with a manual detection.** Bernice E. Hoppel, John V. Skinner, GE Healthcare (US) . . . . .[7263-63]

**Scanning model observers to predict human performance in LROC studies of SPECT reconstruction using anatomical priors.** Andre Lehovich, Howard C. Gifford, Michael A. King, Univ. of Massachusetts Medical School (US) . . . . .[7263-64]

**Singular value decomposition of pinhole SPECT systems.** Robin Palit, Matthew A. Kupinski, Harrison H. Barrett, Eric W. Clarkson, The Univ. of Arizona (US); John N. Aarsvold, Emory Univ. (US); Lana Volokh, Yariv Grobshtein, GE Healthcare (Israel) . . . . .[7263-65]

**Simulating organ textures and organ uptake correlations in the MOBY 4D mouse phantom.** Edward S. Jimenez, Eric W. Clarkson, The Univ. of Arizona (US); Matthew A. Kupinski, College of Optical Sciences/The Univ. of Arizona (US); Harrison H. Barrett, The Univ. of Arizona (US) . . . . .[7263-66]

**Is Grannum grading of the placenta reproducible?** Mary C. Moran, John T. Ryan, Patrick C. Brennan, Univ. College Dublin (Ireland); Mary Higgins M.D., Fionnuala McAuliffe, Univ. College Dublin (Ireland) and National Maternity Hospital (Ireland) . . . . .[7263-67]

Conference 7264 Posters

Advanced PACS-based Imaging Informatics and Therapeutic Applications

**Video compression and DICOM-proxies for remote viewing of DICOM images.** Vadim Sheinin, Elahe Khorasani, Brent Paulovicks, Ashish Jagmohan, IBM Thomas J. Watson Research Ctr. (US); Augustin DeLago, Capital Cardiology Associate, PC (US); Jordan Rosen, eScribe EMR Solutions (US) . . . . .[7264-28]

**Combining text retrieval and content-based image retrieval for searching large-scale medical image database in integrated RIS/PACS environment.** Zhenyu He, Yanjie Zhu, Liang Xue, Jianguo Zhang, Shanghai Institute of Technical Physics (China) . . . . .[7264-29]

**Individualized grid-enabled mammographic training system.** Moi Hoon Yap, Alastair G. Gale, Loughborough Univ. (UK) . . . . .[7264-30]

**Image-enabled electronic healthcare record system for regional collaborative healthcare applications.** Kai Zhang, Jianyong Sun, Yuanyuan Yang, Tonghui Ling, Chenwen Liang, Jianguo Zhang, Shanghai Institute of Technical Physics (China) . . . . .[7264-31]

**A multiimage approach to CADx of breast cancer with integration into PACS.** Matthias Elter, Thomas M. Wittenberg, Fraunhofer-Institut für Integrierte Schaltungen (Germany); Rüdiger Schulz-Wendtland, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Thomas M. Deserno, RWTH Aachen (Germany) . . . . .[7264-32]

**Mapping DICOM to OpenDocument format.** Yu Cong, Shanghai Jiao Tong Univ. (China); Zhihong Yao, Institute of Health Sciences (China) . . . . .[7264-33]

**An automated distinction of DICOM image for lung cancer CAD system.** Hidenobu Suzuki, Shinsuke Saita, Mitsuru Kubo, Yoshiki Kawata, Noboru Niki, Hiromu Nishitani M.D., Univ. of Tokushima (Japan); Hironobu Ohmatsu M.D., National Cancer Ctr. Hospital East (Japan); Kenji Eguchi M.D., Teikyo Univ. (Japan); Masahiro Kaneko M.D., Noriyuki Moriyama M.D., National Cancer Ctr. Hospital East (Japan) . . . . .[7264-34]

## Posters — Tuesday/Wednesday

**Computer-aided diagnosis workstation and telemedicine network system for chest diagnosis based on multislice CT images**, Hitoshi Satoh, Tokyo Health Care Univ. (Japan); Noboru Niki, Univ. of Tokushima (Japan) .....[7264-36]

**Development of a multicentric environment for medical image software and algorithm evaluation**, Marcelo dos Santos, Sérgio S. Furuie, Instituto do Coração do Hospital das Clínicas (Brazil) .....[7264-37]

**Development of A PET/CT fusion viewing software on picture archiving and communication system**, Ki Chun Im, Jin-Sook Ryu M.D., Ik Soo Choi M.D., Jae Seung Kim M.D., Ki Seung Uh, Dae Hyuk Moon M.D., Asan Medical Ctr. (Korea, Republic of) .....[7264-38]

**A digital archiving system for distributed server-side processing of large datasets**, Julien Jomier, Stephen R. Aylward, Kitware, Inc. (US); Joowhi Lee, Martin A. Styner, The Univ. of North Carolina at Chapel Hill (US) .....[7264-39]

**Image storage in radiation oncology: what did we learn from diagnostic radiology?**, Kurt G. Blodgett, Marc Luick, Athanasios Colonias, Olivier Gayou, Stephen Karlovits, Day Werts, Allegheny General Hospital (US) .....[7264-40]

**DTI data modeling for unlimited query support**, Mohammad-Reza Siadat, Oakland Univ. (US) and Henry Ford Health System (US); Hamid Soltanian-Zadeh, Henry Ford Health System (US) and Univ. of Tehran (Iran, Islamic Republic of); Ishwar K. Sethi, Oakland Univ. (US); Ameen Eetemadi, Henry Ford Health System (US) and Wayne State Univ. (US); Rafat Hammad, Oakland Univ. (US); Kost V. Elisevich, Henry Ford Health System (US) .....[7264-41]

**Evaluation of a computer-aided detection algorithm for timely diagnosis of small acute intracranial hemorrhage on computed tomography in a critical care environment**, Joon Lee, Univ. of Southern California (US); Tao Chan, The Hong Kong Polytechnic Univ. (Hong Kong, China); Brent J. Liu, H. K. B. Huang, Univ. of Southern California (US) .....[7264-42]

**A data grid storage and distributive infrastructure for small animal imaging research**, Jasper Lee, Grant Dagliyan, Brent J. Liu, Univ. of Southern California (US) .....[7264-43]

**An online real-time DICOM web-based computer-aided diagnosis system for bone age assessment of children in a PACS environment**, Kevin C. Ma, Aifeng Zhang, Paymann Moin, Mariam Fleshman, Linda Vachon, Brent J. Liu, H. K. B. Huang, Univ. of Southern California (US) .....[7264-44]

**Data centric protection in DICOM**, Milan Petkovic, Paul Koster, Julien Kunzi, Philips Research Eindhoven (Netherlands) .....[7264-45]

Don't miss the Poster Awards.  
Check conference program for  
times and locations.



Conference 7258  
Physics of Medical Imaging  
Room: Fiesta 5

Conference 7260  
Computer-Aided Diagnosis  
Room: Fiesta 1-3

Conference 7263  
Image Perception, Observer Performance,  
and Technology Assessment  
Room: Fiesta 6

**SESSION 8**  
Room: Fiesta 5 . . . . . Wed. 8:00 to 9:40 am  
**X-ray Detectors**  
Session Chair: **John Yorkston**, Carestream Health, Inc. (US)

**SESSION 5**  
Room: Fiesta 1-3. . . . . Wed. 8:00 to 9:40 am  
**Mammogram Analysis**  
Session Chair: **Heang-Ping Chan**, Univ. of Michigan (US)

**SESSION 1**  
Room: Fiesta 6 . . . . . Wed. 8:00 to 9:40 am  
**Novel Tools and Optimization**  
Session Chair: **Darrin C. Edwards**, The Univ. of Chicago (US)

8:00 am: **Active pixel and photon counting imagers based on poly-Si TFTs: rewriting the rule book on large area flat panel x-ray devices**, Larry E. Antonuk, Youcef El-Mohri, Martin Konieczek, Qihua Zhao, Univ. of Michigan (US) . . . . . [7258-39]

8:20 am: **Characterization of dual mode current programmed amorphous silicon active pixel sensor for fluoroscopy, chest radiography, and mammography tomosynthesis applications**, Nader Safavian, Hadi Izadi, Afrin Sultana, Dali Wu, Karim S. Karim, Univ. of Waterloo (Canada) . . . . . [7258-134]

8:40 am: **Amorphous selenium detector utilizing a Frisch grid for photon-counting imaging applications**, Amir H. Goldan, Yuan Fang, Karim S. Karim, Univ. of Waterloo (Canada); Olivier Tousignant, Luc Laperrière, Habib Mani, Anrad Corp. (Canada) . . . . . [7258-41]

9:00 am: **Component analysis of a new Solid State X-ray Image Intensifier (SSXII) using photon transfer and Instrumentation Noise Equivalent Exposure (INEE) measurements**, Andrew T. Kuhls-Gilchrist, Daniel R. Bednarek, Stephen Rudin, Univ. at Buffalo (US) . . . . . [7258-42]

9:20 am: **Quantitative radiography enabled by slit collimation and a novel scatter correction technique on a large-area flat panel x-ray detector**, Meghan L. Yue, Adam E. Boden, John M. Sabol, GE Healthcare (US) . . . . . [7258-43]

Coffee Break . . . . . 9:40 to 10:10 am

8:00 am: **Convergence areas detection in Digital Breast Tomosynthesis volumes using a contrario modeling**, Giovanni J. Palma, GE Healthcare France (France) and TELECOM ParisTech (ENST) - CNRS UMR 5141 (France); Serge L. W. Muller, GE Healthcare France (France); Isabelle Bloch, Ecole Nationale Supérieure des Télécommunications (France); Razvan Iordache, GE Healthcare France (France) . . . . . [7260-24]

8:20 am: **The use of contextual information for computer aided detection of masses in mammograms**, Rianne Hupse, Nico Karssemeijer, Radboud Univ. Nijmegen Medical Ctr. (Netherlands) . . . . . [7260-25]

8:40 am: **Presentation of similar images for diagnosis of breast masses on mammograms: analysis of the effect on residents**, Chisako Muramatsu, Robert A. Schmidt M.D., Junji Shiraishi, The Univ. of Chicago (US); Qiang Li, Duke Univ. (US); Hiroshi Fujita, Gifu Univ. (US); Kunio Doi, The Univ. of Chicago (US) . . . . . [7260-26]

9:00 am: **Comparison of computerized mass detection in digital breast tomosynthesis (DBT) mammograms and conventional mammograms**, Heang-Ping Chan, Jun Wei, Berkman Sahiner, Lubomir M. Hadjiiski, Mark A. Helvie M.D., Univ. of Michigan (US) . . . . . [7260-27]

9:20 am: **Using volumetric density estimation in computer aided mass detection in mammography**, Michiel G. J. Kallenberg, Nico Karssemeijer, Radboud Univ. Nijmegen Medical Ctr. (Netherlands) . . . . [7260-28]

Coffee Break . . . . . 9:40 to 10:10 am

8:00 am: **Optimization of exposure index values for the antero-posterior pelvis and antero-posterior knee examination**, Marie-Louise Butler, Patrick C. Brennan, Louise A. Rainford, Jason Last, Univ. College Dublin (Ireland) . . . . . [7263-01]

8:20 am: **Histopathology reconstruction on digital imagery**, Wenjing Li, STI Medical Systems (US); Rich W. Lieberman, Univ. of Michigan Medical School (US); Yihua Xie, Jody C. Oyama, STI Medical Systems (US) . . . . . [7263-02]

8:40 am: **A novel teaching tool using dynamic cues improves chest radiographs interpretation for novices**, Mohamed Amin Mohamed Ali, Rachel J. Toomey, John T. Ryan, Fionnuala C. Cuffe, Patrick C. Brennan, Univ. College Dublin (Ireland) . . . . . [7263-03]

9:00 am: **Validation of an improved abnormality insertion method for medical image perception investigations**, Mark T. Madsen, Gregory R. Durst, Robert T. Caldwell, Kevin M. Scharz, Brad H. Thompson, Kevin S. Berbaum, The Univ. of Iowa (US) . . . . . [7263-04]

9:20 am: **Motion and display effects on perception of multiple coronary stents**, Sheng Zhang, Craig K. Abbey, Arian Teymorian, Univ. of California, Santa Barbara (US); Xiaolin Da, James S. Whiting, Cedars-Sinai Medical Ctr. (US); Miguel P. Eckstein, Univ. of California, Santa Barbara (US) . . . . . [7263-05]

Coffee Break . . . . . 9:40 to 10:10 am



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Conference 7258 continued  
Physics of Medical Imaging

Room: Fiesta 5

**SESSION 10**

Room: Fiesta 5 . . . . . Wed. 1:20 to 3:00 pm

**Photon-counting,  
Direct-conversion Systems**

*Session Chair: Mats E. Danielsson,  
Kungliga Tekniska Högskolan (Sweden)*

1:20 pm: **Performance of photon counting x-ray detector: count rate loss, pulse pileup, and material identification**, Mengxi Zhang, The Johns Hopkins Univ. (US); William C. Barber, DxRay, Inc. (US); Eric C. Frey, The Johns Hopkins Univ. (US); Einar Nygard, DxRay, Inc. (US); Xiaolan Wang, Zhihui Sun, The Johns Hopkins Univ. (US); Hideaki Tashima, Tokyo Institute of Technology (Japan); Jan S. Iwanczyk, Neal E. Hartsough, Nail Malakhov, Jan C. Wessel, DxRay, Inc. (US); Benjamin M. W. Tsui, Katsuyuki Taguchi, The Johns Hopkins Univ. (US) . . . . . [7258-50]

1:40 pm: **Feasibility of amorphous selenium based photon counting detectors for digital breast tomosynthesis**, Jiong Chen, Joerg Lehnert, Wei Zhao, Stony Brook Univ. Hospital (US); Paul O'Connor, Gianluigi De Geronimo, Brookhaven National Lab. (US); Enrico Dolazza, Analogic Corp. (US); Olivier Trousant, Luc Laperrière, Jonathan Greenspan, Anrad Corp. (Canada) . . . . . [7258-51]

2:00 pm: **Evaluation of the X-ray response of amorphous selenium coated 100 micron del pitch a-Si active pixel sensors for tomosynthesis applications**, Farhad Taghibakhsh, Univ. of Toronto (Canada) and Sunnybrook Health Sciences Ctr. (Canada); David M. Hunter, Sunnybrook Health Sciences Ctr. (Canada); Karim S. Karim, Univ. of Waterloo (Canada); George Belev, Safa O. Kasap, Univ. of Saskatchewan (Canada); Vladimir Verpakhovsky, James G. Mainprize, Sunnybrook Health Sciences Ctr. (Canada); Martin J. Yaffe, Univ. of Toronto (Canada) and Sunnybrook Health Sciences Ctr. (Canada) . . [7258-52]

2:20 pm: **Direct-conversion 50 µm pixel-pitch detector for digital mammography using amorphous selenium as a photoconductive switching layer for signal charge readout**, Kaku Irisawa, Katsutoshi Yamane, Shinji Imai, Masaharu Ogawa, Takashi Shouji, Toshitaka Agano, Yuichi Hosoi, Toshiro Hayakawa, FUJIFILM Corp. (Japan) . . . . . [7258-53]

2:40 pm: **A photon-counting detector for dual-energy breast tomosynthesis**, Erik Fredenberg, Kungliga Tekniska Högskolan (Sweden); Mats Lundqvist, Magnus C. Åslund, Sectra Mamea AB (Sweden); Björn Cederström, Mats E. Danielsson, Kungliga Tekniska Högskolan (Sweden) . . . . . [7258-54]

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

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Conference 7260 continued  
Computer-Aided Diagnosis

Room: Fiesta 6

**SESSION 7**

Room: Fiesta 6 . . . . . Wed. 1:20 to 3:00 pm

**(Joint Keynote Session)  
Medical Imaging and Radiological Health:  
Contributions of Dr. Robert F. Wagner**

*Session Chair: Kyle J. Myers,  
U.S. Food and Drug Administration (US)*

During more than forty years of professional life, Dr. Robert F. Wagner made numerous contributions to the field of medical imaging that significantly impacted academia, industry, and the regulatory science. Bob's early work was devoted to the application of statistical decision theory to the evaluation of images degraded by measurement noise. He considered many modalities, tasks, and both human and machine observers, building broad consensus on a new, rigorous approach to the definition of image quality in medical imaging. Next, Bob and his colleagues took up the problem of patient variability, an additional source of "noise" in medical images. He then considered how to apply this same decision theoretic approach to the assessment of imaging systems confounded by artifacts. Most recently he was concerned with reader variability - where the readers could be doctors with a range of skills, or a set of computer algorithms trained with limited data. His unified approach created order out of the many problems of increasing complexity he tackled in his brilliant and memorable career.

1:20 pm: **Bob's first decade: in the beginning**, David G. Brown, Ctr. for Devices and Radiological Health (US) . . . . . [7263-12]

1:40 pm: **Statistical ultrasonics: the influence of Robert F. Wagner**, Michael F. Insana, Univ. of Illinois at Urbana-Champaign (US) . . . . . [7263-13]

2:00 pm: **NEQ: its progenitors and progeny**, Harrison H. Barrett, College of Optical Sciences/The Univ. of Arizona (US) . . . . . [7263-14]

2:20 pm: **Performance-based assessment of reconstructed images**, Kenneth M. Hanson, Los Alamos National Lab. (US) . . . . . [7263-15]

2:40 pm: **Finding order in complexity**, Kyle J. Myers, U.S. Food and Drug Administration (US) . . . . . [7263-16]

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

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Conference 7263 continued  
Image Perception, Observer Performance,  
and Technology Assessment

Room: Fiesta 6

**SESSION 3**

Room: Fiesta 6 . . . . . Wed. 1:20 to 3:00 pm

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Conference 7264 continued  
Advanced PACS-based Imaging Informatics  
and Therapeutic Applications

Room: Fiesta 7-10

**SESSION 1**

Room: Fiesta 7-10. . . . . Wed. 1:20 to 3:00 pm

**Database and Data Mining**

*Session Chair: Wyatt Tellis,  
Univ. of California, San Francisco (US)*

1:20 pm: **Securely and flexibly sharing a biomedical data management system**, Fusheng Wang, Phillip Hussels, Siemens Corporate Research (US) . . [7264-01]

1:40 pm: **The creation of a public database of precision phantoms to facilitate the evaluation and standardization of advanced visualization and quantification software**, Eliot L. Siegel M.D., Univ. of Maryland Medical Ctr. (US) and Veterans Affairs Maryland Health Care System (US); Joseph J. Chen M.D., Univ. of Maryland Medical Ctr. (US); Naomi J. Saenz, Veterans Affairs Maryland Health Care System (US) . . . . . [7264-02]

2:00 pm: **Integration of a CBIR system in radiological routine in accordance with IHE**, Petra Welter, Thomas M. Deserno, Benedikt Fischer, RWTH Aachen (Germany); Berthold B. Wein, Private Practice for Radiology and Nuclear Medicine (Germany); Bastian Ott, Rolf W. Günther, RWTH Aachen (Germany) . . [7264-03]

2:20 pm: **Comparing the quality of accessing the medical literature using content-based visual and textual information retrieval**, Henning Muller, Univ. Hospital of Geneva (Switzerland); Jayashree Kalpathy-Cramer, Oregon Health & Science Univ. (US); Charles E. Kahn, Jr., Medical College of Wisconsin (US); William Hersh, Oregon Health & Science Univ. (US) . . [7264-04]

2:40 pm: **A learned distance function for medical image similarity retrieval**, Dave Tahmouh, Univ. of Maryland, College Park (US) . . . . . [7264-05]

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

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## Conference 7258 continued Physics of Medical Imaging

Room: Fiesta 5

### SESSION 11

Room: Fiesta 5 ..... Wed. 3:30 to 5:30 pm

#### Tomosynthesis

*Session Chair: Michael Overdick,*  
Philips Research (Germany)

3:30 pm: **First physical measurements and clinical evaluation for long-view tomosynthesis**, Daisuke Notohara, Kazuyoshi Nishino, Koichi Shibata, Shimadzu Corp. (Japan)..... [7258-55]

3:50 pm: **A task-based evaluation method for x-ray breast imaging systems using variable background phantoms**, Subok Park, U.S. Food and Drug Administration (US); Robert Leimbach, Marquette Univ. (US); Haimo Liu, Univ. of Maryland, College Park (US); Iacovos S. Kyprianou, Robert J. Jennings, Aldo Badano, Kyle J. Myers, U.S. Food and Drug Administration (US) ..... [7258-56]

4:10 pm: **Analysis of lung nodule detectability and anatomical background noise in tomosynthesis imaging of the chest**, Sungwon Yoon, Stanford Univ. (US); Jianan Gang, Univ. of Toronto (Canada); Daniel J. Tward, Ontario Cancer Institute (Canada); Jeffrey H. Siewerdsen, Ontario Cancer Institute (Canada) and Univ. of Toronto (Canada); Rebecca Fahrig, Stanford Univ. (US) ..... [7258-57]

4:30 pm: **Differential phase-contrast tomosynthesis with weakly coherent hard x-rays**, Zhentian Wang, Zhifeng Huang, Li Zhang, Kejun Kang, Tsinghua Univ. (China) and Key Lab. of Particle & Radiation Imaging (China) ..... [7258-58]

4:50 pm: **Imaging of small children with a prototype for photon counting tomosynthesis**, Lilian del Risco Norrild, Erik Fredenberg, Kungliga Tekniska Högskolan (Sweden); Magnus Hemmendorf, Sectra Mamea AB (Sweden); Christian Jackowski, Univ. Bern (Switzerland); Mats E. Danielsson, Kungliga Tekniska Högskolan (Sweden) ..... [7258-59]

5:10 pm: **The impact of anisotropic sampling on reconstruction MTF in limited aperture tomosynthesis**, Henri Souchay, Rémy Klausz, GE Healthcare France (France)..... [7258-60]

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## Conference 7260 continued Computer-Aided Diagnosis

Room: Fiesta 1-3

### SESSION 8

Room: Fiesta 1-3. .... Wed. 3:30 to 5:30 pm

#### Brain and Microscopy

*Session Chair: Horst K. Hahn,*  
MeVis Research GmbH (Germany)

3:30 pm: **Automatic identification of intracranial hemorrhage in non-contrast CT with large slice thickness for trauma cases**, Pragnya Maduskar, Mausumi Acharyya, Siemens Information Systems Ltd. (India)..... [7260-36]

3:50 pm: **Optimal feature selection for automated classification of FDG-PET in patients with suspected dementia**, Ahmed Serag, Univ. zu Lübeck (Germany) and Philips Research (Germany); Fabian Wenzel, Philips Research (Germany); Frank Thiele, Philips Research (US); Ralph Buchert, Univ. Medical Ctr. Hamburg-Eppendorf (Germany); Stewart M. Young, Philips Research (Germany) ..... [7260-37]

4:10 pm: **Quantitative evaluation of Alzheimer's disease**, Simon Duchesne, Univ. Laval Robert-Giffard (Canada); Giovanni Frisoni M.D., I.R.C.C.S. Fatebenefratelli (Italy) ..... [7260-38]

4:30 pm: **Influence of nuclei segmentation on breast cancer malignancy classification**, Lukasz Jelen, Thomas Fevens, Adam Krzyzak, Concordia Univ. (Canada) ..... [7260-39]

4:50 pm: **Robust tumor morphometry in multispectral fluorescence microscopy**, Ali Tabesh, Yevgen Vengrenyuk, Mikhail Teverovskiy, Faisal N. Khan, Marina Sapir, Douglas Powell, Ricardo Mesa-Tejada, Michael J. Donovan, Gerardo Fernandez, Aureon Labs., Inc. (US) ..... [7260-40]

5:10 pm: **Localization of tissues in high resolution digital anatomic pathology images**, Raja S. Alomari, Univ. at Buffalo (US); Ron Allen, Bikash Sabata, Bioimagine, Inc. (US); Vipin Chaudhary, Univ. at Buffalo (US) ..... [7260-41]

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## Conference 7263 continued Image Perception, Observer Performance, and Technology Assessment

Room: Fiesta 6

### SESSION 4

Room: Fiesta 6 ..... Wed. 3:30 to 5:30 pm

#### Eye Tracking and Human Visual System

*Session Chair: David J. Manning,*  
Univ. of Cumbria (UK)

3:30 pm: **Spatial frequency characteristics of overt and covert responses of observers with different radiological background in lung nodule detection**, Mariusz W. Pietrzyk, David J. Manning, Tim Donovan, Univ. of Cumbria (UK); Alan Dix, Lancaster Univ. (UK) ..... [7263-17]

3:50 pm: **Modeling decision-making in single- and multi-modal medical images**, Roxanne L. Canosa, Karl G. Baum, Rochester Institute of Technology (US) ..... [7263-18]

4:10 pm: **Radiology image perception and observer performance: how does expertise and clinical information alter interpretation? Stroke detection explored through eye-tracking**, Lindsey H. Cooper, Alastair G. Gale, Iain T. Darker, Loughborough Univ. (UK); Andoni Toms, Norwich Radiology Academy (UK); Janak Saada, Norfolk and Norwich Univ. Hospital NHS Trust (UK) ..... [7263-19]

4:30 pm: **The 'holistic grail': possible implications of an initial mistake in the reading of digital mammograms**, Claudia Mello-Thoms, Univ. of Pittsburgh (US) ..... [7263-20]

4:50 pm: **Activity in the fusiform face area supports expert perception in radiologists and does not depend upon holistic processing of images**, Stephen A. Engel, Univ. of Minnesota (US); Erin Harley, Exponent Inc. (US); Whitney B. Pope, J. Pablo Villablanca M.D., John C. Mazziotta, Dieter R. Enzmann M.D., Univ. of California, Los Angeles (US) ..... [7263-21]

5:10 pm: **Visually lossless compression of breast biopsy virtual slides for telepathology**, Jeffrey P. Johnson, Siemens Corporate Research (US); Elizabeth A. Krupinski, The Univ. of Arizona (US); John S. Nafziger, Embry-Riddle Aeronautical Univ. (US); Michelle Yan, Siemens Corporate Research (US); Hans Roehrig, The Univ. of Arizona (US) ..... [7263-22]

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## Conference 7264 continued Advanced PACS-based Imaging Informatics and Therapeutic Applications

Room: Fiesta 7-10

### SESSION 2

Room: Fiesta 7-10. .... Wed. 3:30 to 5:30 pm

#### System Infrastructure I: Integration and Standards

*Session Chair: Janice C. Honeyman-Buck,*  
Univ. of Florida (US)

3:30 pm: **DICOM modality worklist and performed procedure step: if we are using these, why are we still entering data manually?**, Steven C. Horii M.D., Kevin Rakszawski, Vandana Sood, Christopher Iyob, Univ. of Pennsylvania (US) ..... [7264-06]

3:50 pm: **Clinical image processing engine**, Wei Han, Jianhua Yao, Jeremy J. Chen, Ronald M. Summers M.D., National Institutes of Health (US)..... [7264-07]

4:10 pm: **Development of lung cancer CT screening operating support system**, Rikuta Ishigaki, Kyoto College of Medical Science (Japan); Kozou Hanai, Masahiro Suzuki, National Cancer Ctr. Hospital East (Japan); Yoshiaki Kawata, Noboru Niki, Univ. of Tokushima (Japan); Kenji Eguchi M.D., Teikyo Univ. (Japan); Ryutarō Kakinuma M.D., Noriyuki Moriyama M.D., National Cancer Ctr. Hospital East (Japan) ..... [7264-08]

4:30 pm: **Protecting data privacy with on-demand deployment of CAD algorithms to process local data: a novel use of grid technology in diagnostic imaging**, Eliot L. Siegel M.D., Univ. of Maryland Medical Ctr. (US) and Veterans Affairs Maryland Health Care System (US); Ashish Sharma, Tony C. Pan, The Ohio State Univ. Medical Ctr. (US); Bharath Ramakrishna, Veterans Affairs Maryland Health Care System (US); Berkant B. Cambazoglu, The Ohio State Univ. Medical Ctr. (US); Khan M. Siddiqui M.D., Veterans Affairs Maryland Health Care System (US) and Univ. of Maryland School of Medicine (US); Nabile M. Safdar M.D., Univ. of Maryland Medical Ctr. (US); Joel H. Saltz M.D., The Ohio State Univ. Medical Ctr. (US); Naomi J. Saenz, Veterans Affairs Maryland Health Care System (US) ..... [7264-09]

4:50 pm: **Integrating multiple computer aided detection algorithms through the caBIG grid computing infrastructure**, Eliot L. Siegel M.D., Univ. of Maryland Medical Ctr. (US) and Veterans Affairs Maryland Health Care System (US); Bharath Ramakrishna, Veterans Affairs Maryland Health Care System (US); Ashish Sharma, Tony C. Pan, The Ohio State Univ. Medical Ctr. (US); Ganesh Saiprasad, Veterans Affairs Maryland Health Care System (US); Nabile M. Safdar M.D., Univ. of Maryland Medical Ctr. (US); Joel H. Saltz M.D., The Ohio State Univ. Medical Ctr. (US); Khan M. Siddiqui M.D., Naomi J. Saenz, Veterans Affairs Maryland Health Care System (US)..... [7264-10]

5:10 pm: **Interoperability in healthcare: major challenges in the creation of the enterprise solution**, Lars Lindskold, Karolinska Institutet (Sweden) and Region Västra Götaland (Sweden); Mikael Wintell, Region Västra Götaland (Sweden); Nina Lundberg, HSNF / SLL (Sweden) and Karolinska Institutet (Sweden) ..... [7264-11]

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## Conference 7258 continued Physics of Medical Imaging

Room: Fiesta 5

### SESSION 12

Room: Fiesta 5 . . . . . Thurs. 8:00 to 9:40 am

#### CT Algorithms

*Session Chair: Thomas G. Flohr,*  
Siemens Medical Solutions GmbH (Germany)

8:00 am: **Geometric calibration and distortion calibration for CT from scans of unknown objects using complementary rays**, Kevin M. Holt, Varian Medical Systems, Inc. (US) . . . . . [7258-63]

8:20 am: **High temporal resolution and streak-free 4D CBCT using prior image constrained compress sensing (PICCS)**, Shuai Leng, Jie Tang, Joseph N. Zambelli, Ranjini P. Tolakanahalli, Guang-Hong Chen, Univ. of Wisconsin, Madison (US) . . . . . [7258-62]

8:40 am: **Optimal coding matrices for multiplexed x-ray imaging**, David S. Lalush, North Carolina State Univ. (US) . . . . . [7258-65]

9:00 am: **Quantitative evaluation of noise reduction algorithms for very low dose renal CT perfusion imaging**, Xin Liu, Andrew N. Primak, Lifeng Yu, Hua Li, Cynthia H. McCollough, James D. Krier, Lilach O. Lerman, Mayo Clinic (US) . . . . . [7258-64]

9:20 am: **Prior-image-based few-view cone-beam CT for applications to daily scans in image-guided radiation therapy: preliminary study**, Seungrong Cho, Erik Pearson, Emil Y. Sidky, Junguo Bian, Charles A. Pelizzari, Xiaochuan M. Pan, The Univ. of Chicago (US) . . . . . [7258-65]

#### Poster Award Announcements

Room: Fiesta 5 . . . . . Tues. 9:40 to 9:45 am

The Physics of Medical Imaging conference poster award recipients will be recognized and certificates distributed.

Coffee Break . . . . . 9:40 to 10:10 am

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## Conference 7260 continued Computer-Aided Diagnosis

Room: Fiesta 1-3

### SESSION 9

Room: Fiesta 1-3. . . . . Thurs. 8:00 to 9:40 am

#### Colon and Breast

*Session Chair: Ronald M. Summers,*  
National Institutes of Health (US)

8:00 am: **Information-theoretic CAD system in mammography: improved mass detection by incorporating a Gaussian saliency map**, Georgia D. Tourassi, Brian P. Harrawood, Duke Univ. Medical Ctr. (US) . . . . . [7260-42]

8:20 am: **Relational representation for improved decisions with an information-theoretic CADE system: initial experience**, Maciej A. Mazurowski, Univ. of Louisville (US); Georgia D. Tourassi, Duke Univ. (US) . . . . . [7260-43]

8:40 am: **Meniscus removal in electronic colon cleansing for virtual colonoscopy**, Hassan Rivaz, Jianming Liang, Siemens Medical Solutions USA, Inc. (US) . . . . . [7260-44]

9:00 am: **A CAD utilizing 3D massive-training ANNs for detection of flat lesions in CT colonography in a large multicenter clinical trial**, Kenji Suzuki, Ivan Sheu, The Univ. of Chicago (US); Don C. Rockey M.D., The Univ. of Texas Southwestern Medical Ctr. at Dallas (US); Abraham H. Dachman M.D., The Univ. of Chicago (US) . . . . . [7260-45]

9:20 am: **High-performance computer aided detection system for polyp detection in CT colonography with fluid and fecal tagging**, Jiamin Liu, Shijun Wang, Suraj Kabadi, Ronald M. Summers M.D., National Institutes of Health (US) . . . . . [7260-46]

#### Poster Award Announcements

Room: Fiesta 1-3 . . . . . Tues. 9:40 to 9:45 am

The Computer-Aided Diagnosis conference poster award recipients will be recognized and certificates distributed.

Coffee Break . . . . . 9:40 to 10:10 am

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## Conference 7263 continued Image Perception, Observer Performance, and Technology Assessment

Room: Fiesta 6

### SESSION 5

Room: Fiesta 6 . . . . . Thurs. 8:00 to 9:40 am

#### Model Observers

*Session Chair: Darrin C. Edwards,*  
The Univ. of Chicago (US)

8:00 am: **Masses detection in breast tomosynthesis and digital mammography: a model observer study**, Cyril Castella, Institut Univ. de Radiophysique Appliquée (Switzerland) and LPHE, Lausanne (Switzerland); Mark Ruschin, Princess Margaret Hospital (Canada); Miguel P. Eckstein, Craig K. Abbey, Univ. of California, Santa Barbara (US); Karen Kinkel M.D., Clinique des Grangettes (Switzerland); Francis R. Verdun, Institut Univ. de Radiophysique Appliquée (Switzerland); Anders Tingberg, Lund Univ. (Sweden); François O. Bochud, Institut Univ. de Radiophysique Appliquée (Switzerland) . . . . . [7263-23]

8:20 am: **Optimization of medical imaging display systems: using the channelized Hotelling observer for detecting lung nodules: experimental study**, Ljiljana Ilic, Ewout Vansteenkiste, Bart Goossens, Univ. Gent (Belgium); Cédric Marchessoux, Tom R. Kimpe, Barco N.V. (Belgium); Wilfried Philips, Univ. Gent (Belgium) . . . . . [7263-24]

8:40 am: **Using partial least squares to compute efficient channels for the Bayesian ideal observer**, Joel M. Witten, Univ. of Maryland, College Park (US) and U.S. Food and Drug Administration (US); Subok Park, Laura A. Thompson, Kyle J. Myers, U.S. Food and Drug Administration (US) . . . . . [7263-25]

9:00 am: **Tests of scanning model observers for myocardial SPECT imaging**, Howard C. Gifford, Petrus H. Pretorius, Univ. of Massachusetts Medical School (US); Jovan G. Brankov, Illinois Institute of Technology (US) . . . . . [7263-26]

9:20 am: **On ideal AFROC observers**, Parmeshwar K. Khurd, Philips Medical Systems (US); Bin Liu, Gene R. Gindi, Stony Brook Univ. (US) . . . . . [7263-27]

#### Poster Award Announcements

Room: Fiesta 6 . . . . . Tues. 9:40 to 9:45 am

The Image Perception, Observer Performance, and Technology Assessment conference poster award recipients will be recognized and certificates distributed.

Coffee Break . . . . . 9:40 to 10:10 am

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## Conference 7264 continued Advanced PACS-based Imaging Informatics and Therapeutic Applications

Room: Fiesta 7-10

### SESSION 3

Room: Fiesta 7-10. . . . . Thurs. 8:00 to 9:40 am

#### Keynote and Imaging-Informatics-Based Therapeutic Applications I

*Session Chair: Heinz U. Lemke,*  
Computer Assisted Radiology and Surgery  
(Germany)

8:00 am: **Therapeutic applications beyond radiology PACS (Keynote Presentation)**, John C. Chiu, California Spine Institute Medical Ctr., Inc. (US) . . . . . [7264-12]

9:00 am: **An image-intensive ePR for image-guided minimally invasive spine surgery applications including real-time intra-operative image acquisition, archival, and display**, Jorge R. Documet, Brent J. Liu, Anh H. Le, H. K. B. Huang, Univ. of Southern California (US); John C. Chiu, California Spine Institute Medical Ctr., Inc. (US) . . . . . [7264-13]

9:20 am: **Interfacing proprietary hardware with the image-guided surgery toolkit (IGSTK): a case for the OpenIGTLink protocol**, Sebastian Ordas, Ziv R. Yaniv, Patrick Cheng, Georgetown Univ. (US); Junichi Tokuda, Nobuhiko Hata, Harvard Medical School (US); Kevin R. Cleary, Georgetown Univ. Medical Ctr. (US) . . [7264-14]

#### Poster Award Announcements

Room: Fiesta 7-10 . . . . . Tues. 9:40 to 9:45 am

The Advanced PACS-based Imaging Informatics and Therapeutic Applications conference poster award recipients will be recognized and certificates distributed.

Coffee Break . . . . . 9:40 to 10:10 am

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Conference 7258 continued  
Physics of Medical Imaging

Room: Fiesta 5

**SESSION 13**

Room: Fiesta 5 . . . . Thurs. 10:10 am to 12:10 pm

**CT Corrections**

*Session Chair: Jeffrey H. Siewerdsen,*  
Princess Margaret Hospital (Canada)

10:10 am: **Image-based online correction of misalignment artifacts in cone-beam CT**, Yiannis Kyriakou, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Robert M. Lapp, VAMP GmbH (Germany); Lars Hillebrand, Dirk Ertel, Willi A. Kalender, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) . . . . . [7258-66]

10:30 am: **Image-based iterative compensation of motion artifacts in computed tomography**, Colas Schretter, Christoph Neukirchen, Philips Research (Germany); Georg M. Rose, Otto-von-Guericke-Univ. Magdeburg (Germany); Matthias Bertram, Philips Research (Germany) . . . . . [7258-67]

10:50 am: **Image-based automatic breathing phase point estimation**, Peter Forthmann, Thomas Koehler, Philips Research (Germany) . . . . . [7258-68]

11:10 am: **Spurious structures created by interpolation-based CT metal artifact reduction**, Jan Müller, Thorsten M. Buzug, Univ. zu Lübeck (Germany) . . . . . [7258-69]

11:30 am: **Efficient scatter correction using asymmetric kernels**, Josh M. Star-Lack, Mingshan Sun, Varian Medical Systems, Inc. (US); Anders P. Kaestner, Rene Hassanein, Varian Medical Systems, Inc. (Switzerland); Gary Virshup, Varian Medical Systems, Inc. (US); Timo Berkus, Markus Oelhafen, Varian Medical Systems, Inc. (Switzerland) . . . . . [7258-70]

11:50 am: **Scatter correction for x-ray conebeam CT using one-dimensional primary modulation**, Lei Zhu, N. Robert Bennett, Lei Xing, Rebecca Fahrig, Stanford Univ. (US) . . . . . [7258-71]

Lunch Break . . . . . 12:10 to 1:20 pm

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Conference 7260 continued  
Computer-Aided Diagnosis

Room: Fiesta 1-3

**SESSION 10**

Room: Fiesta 1-3. . . Thurs. 10:10 am to 12:10 pm

**Novel Applications**

*Session Chair: Kyongtae Ty Bae,*  
Univ. of Pittsburgh (US)

10:10 am: **Robust algorithms for anatomic plane primitive detection in MR**, Maneesh Dewan, Yiqiang Zhan, Zhigang Peng, Xiang S. Zhou, Siemens Medical Solutions USA, Inc. (US) . . . . . [7260-47]

10:30 am: **Toward knowledge-enhanced viewing using encyclopedias and model-based segmentation**, Reinhard Kneser, Helko Lehmann, Dieter Geller, Philips Research (Germany); Yue-Chen Qian, Philips Research (Netherlands); Jürgen Weese, Philips Research (Germany) . . . . . [7260-48]

10:50 am: **A computer-aided differential diagnosis between UIP and NSIP using automated assessment of the extent and distribution of regional disease patterns at HRCT: comparison with the radiologists decision**, Namkug Kim, Joon-Beom Seo M.D., Sang Ok Park M.D., Youngjoo Lee, Jeongjin Lee, Asan Medical Ctr. (Korea, Republic of) . . . . . [7260-49]

11:10 am: **Automatic classification of retinal vessels into arteries and veins**, Meindert Niemeijer, The Univ. of Iowa (US); Bram van Ginneken, Univ. Medisch Ctr. Utrecht (Netherlands); Michael D. Abràmoff M.D., The Univ. of Iowa (US) . . . . . [7260-50]

11:30 am: **Developing assessment system for wireless capsule endoscopy video based on event detection**, Ying-ju Chen, Wisam Yasen, Jeongkyu Lee, Univ. of Bridgeport (US); Yongho Kim, Dong Ha Lee, IntroMedic Co., Ltd. (Korea, Republic of) . . . . . [7260-51]

11:50 am: **Hands-free interactive image segmentation using Eyegaze**, Maryam Sadeghi, Geoffrey Tien, Ghassan Hamarneh, M. Stella Atkins M.D., Simon Fraser Univ. (Canada) . . . . . [7260-52]

Lunch Break . . . . . 12:10 to 1:20 pm

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Conference 7263 continued  
Image Perception, Observer Performance,  
and Technology Assessment

Room: Fiesta 6

**SESSION 6**

Room: Fiesta 6 . . . . Thurs. 10:10 am to 12:10 pm

**ROC**

*Session Chair: Kevin S. Berbaum,*  
The Univ. of Iowa Hospitals and Clinics (US)

10:30 am: **JAFROC analysis revisited: JAFROC1 and figure of merit considerations**, Dev P. Chakraborty, Hong-Jun Yoon, Univ. of Pittsburgh (US) . . . . [7263-28]

11:10 am: **Non-localization and localization ROC analyses using clinically-based scoring**, Sophie Paquerault, Frank W. Samuelson, Kyle J. Myers, Robert C. Smith, U.S. Food and Drug Administration (US) . . . . . [7263-29]

10:50 am: **Comparison of ROC methods for partially paired data**, Brandon D. Gallas, U.S. Food and Drug Administration (US); Lorenzo L. Pesce, The Univ. of Chicago (US) . . . . . [7263-30]

10:10 am: **Comparing the performance of two observers using a novel utility-based performance metric for ROC analysis**, Darrin C. Edwards, Charles E. Metz, The Univ. of Chicago (US) . . . . . [7263-31]

11:30 am: **Comparison of classifier performance estimators: a simulation study**, Weijie Chen, Robert F. Wagner, U.S. Food and Drug Administration (US); Waleed A. Yousef, Helwan Univ. (Egypt) . . . . [7263-32]

11:50 am: **A theoretical treatment of the sources of variability in the output of pattern classifiers**, Shalini Gupta, Texas Instruments Incorporated (US); Mia K. Markey, The Univ. of Texas at Austin (US) . . . . . [7263-33]

Lunch Break . . . . . 12:10 to 1:20 pm

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Conference 7264 continued  
Advanced PACS-based Imaging Informatics  
and Therapeutic Applications

Room: Fiesta 7-10

**SESSION 4**

Room: Fiesta 7-10. . Thurs. 10:10 am to 12:10 pm

**Imaging and Informatics-Based  
Therapeutic Applications II**

*Session Chair: Adil Alaoui,*  
Georgetown Univ. Medical Ctr. (US)

10:10 am: **System architecture and information model for integrated access to distributed biomedical information**, Dongkyu Kim, Adil Alaoui, Betty A. Levine, Leonaridis Leonidas, Peter G. Shields, Steve Byers, Kevin R. Cleary, Georgetown Univ. Medical Ctr. (US) . . . . . [7264-15]

10:30 am: **An XML cytometry standard based on DICOM**, Robert C. Leif, Newport Instruments (US) . . . . . [7264-16]

10:50 am: **A robust real-time abnormal region detection framework from capsule endoscopy images**, Yanfen Cheng, Wuhan Univ. of Technology (China); Xu Liu, Univ. of Maryland (US); Huiping Li, Applied Media Analysis, Inc. (US) . . . . . [7264-17]

11:10 am: **The development of an MRI lesion quantifying system for multiple sclerosis patients undergoing treatment**, Paymann Moin, James Reza F. Fernandez, Lilyana Amezcua, Brent J. Liu, Univ. of Southern California (US) . . . . . [7264-18]

11:30 am: **Image-guided tumor motion modeling and tracking**, Jun Zhang, Yirong Wu, Weisong Liu, Univ. of Wisconsin, Milwaukee (US); James Christensen, An Tai, Allen X. Li, Medical College of Wisconsin (US) . . . . . [7264-19]

11:50 am: **A prototype of image-guided outcome analysis for prostate proton therapy patients based on DICOM ePR**, Anh H. Le, Ashley Sullivan, Jorge R. Documet, Brent J. Liu, Univ. of Southern California (US) . . . . . [7264-20]

Lunch Break . . . . . 12:10 to 1:20 pm

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Conference 7258 continued  
Physics of Medical Imaging

Room: Fiesta 5

**SESSION 14**

Room: Fiesta 5 . . . . . Thurs. 1:20 to 3:00 pm

**CT Hot Topics**

*Session Chair: Guang-Hong Chen, Univ. of Wisconsin, Madison (US)*

1:20 pm: **Optimal energy thresholds and weights for separating materials using photon counting x-ray detectors with energy discriminating capabilities**, Adam S. Wang, Norbert J. Pelc, Stanford Univ. (US) . . . . . [7258-72]

1:40 pm: **Multi-spot x-ray source for medical imaging**, Kris Frutschy, Bruno De Man, Peter M. Edic, GE Global Research (US); Brian D. Lounsberry, GE Healthcare (US); Bogdan Neculaes, Yun Zou, Lou Inzinna, Ken Conway, Xi Zhang, Yang Cao, Antonio Caiafa, Joseph Reynolds, GE Global Research (US) . . . . . [7258-73]

2:00 pm: **SNR efficient 3D reconstruction algorithm for multi-source inverse geometry CT system**, Jongduk Baek, Norbert J. Pelc, Stanford Univ. (US) . . . . . [7258-74]

2:20 pm: **Characterization of a novel photon counting detector for clinical CT: count rate, energy resolution, and noise performance**, William C. Barber, DxRay, Inc. (US); Einar Nygard, Interon AS (Norway); Jan Iwaczyk, DxRay, Inc. (US); Mengxi Zhang, Eric C. Frey, Benjamin M. W. Tsui, The Johns Hopkins Univ. (US); Jan C. Wessel, Nail Malakhov, Gregor Wawrzyniak, Interon AS (Norway); Neal E. Hartsough, Thulasi Gandhi, DxRay, Inc. (US); Katsuyuki Taguchi, The Johns Hopkins Univ. (US) . . . . . [7258-75]

2:40 pm: **Photon counting CT with silicon detectors**, Moa M. Yveborg, Mats E. Danielsson, Kungliga Tekniska Högskolan (Sweden) . . . . . [7258-76]

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

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Conference 7260 continued  
Computer-Aided Diagnosis

Room: Fiesta 1-3

**SESSION 11**

Room: Fiesta 1-3. . . . . Thurs. 1:20 to 3:00 pm

**Retina and ROC Challenge**

*Session Chairs: Hiroshi Fujita, Gifu Univ. School of Medicine (Japan); Meindert Niemeijer, The Univ. of Iowa (US)*

1:20 pm: **Active learning approach for detection of hard exudates, cotton wool spots, and Drusen in retinal images**, Clara I. Sánchez, Univ. Medisch Ctr. Utrecht (Netherlands); Meindert Niemeijer, The Univ. of Iowa (US); Thessa Kockelkorn, Univ. Medisch Ctr. Utrecht (Netherlands); Michael D. Abràmoff M.D., The Univ. of Iowa Hospitals and Clinics (US); Bram van Ginneken, Univ. Medisch Ctr. Utrecht (Netherlands) . . . . . [7260-53]

1:40 pm: **Automated detection of kinks from blood vessels for optic cup segmentation in retinal images**, Damon W. K. Wong, Jiang Liu, Joo Hwee Lim, Huiqi Li, Institute for Infocomm Research (Singapore); Tien Yin Wong, National Univ. of Singapore (Singapore) and Singapore Eye Research Institute (Singapore) [7260-54]

2:00 pm: **ROC challenge introduction**, Meindert Niemeijer, The Univ. of Iowa (US) . . . . . [7260-55]

2:10 pm: **Hierarchical detection of red lesions in retinal images by multiscale correlation filtering**, Bob Zhang, Univ. of Waterloo (Canada); Xiangqian Wu, The Hong Kong Polytechnic Univ. (Hong Kong, China) and Harbin Institute of Technology (China); Jane You, Qin Li, The Hong Kong Polytechnic Univ. (Hong Kong, China); Fakhri Karray, Univ. of Waterloo (Canada) . . . [7260-56]

2:30 pm: **Mixture model-based clustering and logistic regression for automatic detection of microaneurysms in retinal images**, Clara I. Sánchez, Roberto Hornero, Agustín Mayo, María García, María I. López, Univ. of Valladolid (Spain) . . . . . [7260-57]

2:50 pm: **Automated microaneurysms detection method based on double ring filter in retinal fundus images**, Atsushi Mizutani, Chisako Muramatsu, Gifu Univ. (Japan); Yuji Hatanaka, Univ. of Shiga Prefecture (Japan); Shinsuke Suemori, Gifu Univ. (Japan); Takeshi Hara, Hiroshi Fujita, Gifu Univ. School of Medicine (Japan) . . . . . [7260-58]

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

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Conference 7263 continued  
Image Perception, Observer Performance, and Technology Assessment

Room: Fiesta 6

**SESSION 7**

Room: Fiesta 6 . . . . . Thurs. 1:20 to 3:00 pm

**Observer Performance**

*Session Chair: Brandon D. Gallas, U.S. Food and Drug Administration (US)*

2:00 pm: **Evaluation of chest tomosynthesis for the detection of pulmonary nodules: effect of clinical experience and comparison with chest radiography**, Sara Zachrisson, Univ. of Gothenburg (Sweden); Jenny Vikgren M.D., Sahlgrenska Univ. Hospital (Sweden); Angelica Svalkvist, Univ. of Gothenburg (Sweden); Åse A. Johnsson M.D., Marianne Boijesen M.D., Agneta Flinck M.D., Lars Gunnar Månsson, Susanne Kheddache M.D., Magnus Båth, Sahlgrenska Univ. Hospital (Sweden) . . . . . [7263-34]

2:40 pm: **Correlation of emphysema score with perceived malignancy of pulmonary nodules: a multi-observer study using the LIDC-IDRI CT lung database**, Rafael Wiemker, Thomas Buelow, Thomas Blaffert, Philips Research (Germany); Ekta Dharaiya, Philips Healthcare CT (US) . . . . . [7263-35]

2:20 pm: **The effect of digitising film prior mammograms on radiologists' performance in breast screening: a JAFROC study**, Sian Taylor-Phillips, Loughborough Univ. (UK); Matthew G. Wallis, Addenbrookes Hospital (UK); Alastair G. Gale, Loughborough Univ. (UK) . . . . . [7263-36]

1:20 pm: **The impact of focal spot size on clinical images**, Sinead M. Gorham, Patrick C. Brennan, Univ. College Dublin (Ireland) . . . . . [7263-37]

1:40 pm: **Contrast detail curves in head CT examinations**, Saeed Elojeimy, Walter Huda, Medical Univ. of South Carolina (US); Kent M. Ogden, SUNY Upstate Medical Univ. (US); Ehsan Samei, Duke Univ. Medical Ctr. (US); Zoran Rumboldt, Medical Univ. of South Carolina (US) . . . . . [7263-38]

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

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Conference 7264 continued  
Advanced PACS-based Imaging Informatics and Therapeutic Applications

Room: Fiesta 7-10

**SESSION 5**

Room: Fiesta 7-10. . . . . Thurs. 1:20 to 3:00 pm

**System Infrastructure II: Integration and Visualization**

*Session Chair: William W. Boonn, Univ. of Pennsylvania Medical Ctr. (US)*

1:20 pm: **Using CAVASS as the basis for imaging applications**, George J. Grevera, St. Joseph's Univ. (US); Jayaram K. Udupa, Dewey Odhner, Univ. of Pennsylvania (US) . . . . . [7264-21]

1:40 pm: **Distributed visualization and analysis of volumetric medical data**, Sashidhar Guntury, Indian Institute of Information Technology (India); Vivek P. Vaidya, Ajay Narayanan, GE Global Research (India) . . . . . [7264-22]

2:00 pm: **Reliability and ruggedness: what can we learn from aerospace and military computers?**, Steven C. Horii M.D., Univ. of Pennsylvania (US); Dan Slater, Nearfield Systems Inc. (US); William W. Boonn M.D., Univ. of Pennsylvania (US); Curtis P. Langlotz M.D., Daniel Morton, The Univ. of Pennsylvania Health System (US) . . . . . [7264-23]

2:20 pm: **BrainIACS: a system for web-based medical image processing**, Bhaskar Kishore, Pierre-Louis Bazin, Dzung L. Pham, The Johns Hopkins Univ. (US) . . . . . [7264-24]

2:40 pm: **A remote real-time PACS-based platform for medical imaging telemedicine**, Rouzbeh Maani, Univ. of Manitoba (Canada) and TRILabs (Canada); Sergio Camorlinga, TRILabs (Canada) and Univ. of Manitoba (Canada); Rasit Eskicioglu, Univ. of Manitoba (Canada) and TRILabs (Canada) . . . . . [7264-25]

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

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## Conference 7258 continued Physics of Medical Imaging

Room: Fiesta 5

### SESSION 15

Room: Fiesta 5 . . . . . Thurs. 3:30 to 5:30 pm

#### CT Reconstruction

*Session Chair: Bruce R. Whiting,*  
Washington Univ. in St. Louis (US)

3:30 pm: **Performance comparison between compressed sensing and statistical iterative reconstruction algorithms**, Jie Tang, Brian E. Nett, Guang-Hong Chen, Univ. of Wisconsin, Madison (US) . . . . . [7258-77]

3:50 pm: **Boundary reconstruction in limited-angle x-ray phase-contrast tomography**, Mark A. Anastasio, Illinois Institute of Technology (US); Emil Y. Sidky, The Univ. of Chicago (US); Qiaofeng Xu, Illinois Institute of Technology (US); Xiaochuan M. Pan, The Univ. of Chicago (US) . . . . . [7258-78]

4:10 pm: **A dual formulation of a penalized maximum likelihood x-ray CT reconstruction problem**, Jingyan Xu, Katsuyuki Taguchi, The Johns Hopkins Univ. (US); Grant T. Gullberg, Lawrence Berkeley National Lab. (US); Benjamin M. W. Tsui, The Johns Hopkins Univ. (US) . . . . . [7258-79]

4:30 pm: **Noise properties of iterative reconstruction techniques in low-dose CT scans**, Synho Do, Mannudeep K. Kalra, Massachusetts General Hospital (US); Zhuangli Liang, William C. Karl, Boston Univ. (US); Thomas J. Brady, Homer H. Pien, Massachusetts General Hospital (US) . . . . . [7258-80]

4:50 pm: **Interactive GPU-accelerated image reconstruction in cone-beam CT**, Lars Hillebrand, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Robert M. Lapp, VAMP GmbH (Germany); Yiannis Kyriakou, Willi A. Kalender, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) . . . . . [7258-81]

5:10 pm: **GPU-accelerated SART reconstruction using the CUDA**, Benjamin Keck, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) and Siemens AG (Germany); Hannes Hofmann, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Holger Scherl, Markus Kowarschik, Siemens AG (Germany); Joachim M. Hornegger, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) . . . . . [7258-82]

## Conference 7260 continued Computer-Aided Diagnosis

Room: Fiesta 1-3

### SESSION 12

Room: Fiesta 1-3. . . . . Thurs. 3:30 to 5:30 pm

#### Lung Nodules and ANODE Challenge

*Session Chair: Bram van Ginneken,*  
Univ. Medisch Ctr. Utrecht (Netherlands)

3:30 pm: **Growth-pattern classification of pulmonary nodules based on variation of CT number histogram and its potential usefulness in nodule differentiation**, Yoshiki Kawata, Noboru Niki, Univ. of Tokushima (Japan); Hironobu Ohmatsu, National Cancer Ctr. Hospital East (Japan); Ryutaro Kakinuma M.D., National Cancer Ctr. Hospital (Japan); Kenji Eguchi M.D., Teikyo Univ. (Japan); Masahiro Kaneko M.D., Noriyuki Moriyama M.D., National Cancer Ctr. Hospital (Japan) . . . . . [7260-59]

3:50 pm: **Improved precision of repeat image change measurement of pulmonary nodules using moment-based z-compensation on a zero-change dataset**, Artit C. Jirapatnakul, Anthony P. Reeves, Alberto M. Biancardi, Cornell Univ. (US); David F. Yankelevitz, Claudia I. Henschke M.D., Weill Cornell Medical College (US) . . . . . [7260-60]

4:10 pm: **A multiscale Laplacian of Gaussian filtering approach to automated pulmonary nodule detection from whole-lung low-dose CT scans**, Sergei V. Fotin, Anthony P. Reeves, Alberto M. Biancardi, Cornell Univ. (US); David F. Yankelevitz, Claudia I. Henschke, Weill Cornell Medical College (US) . . . . . [7260-61]

4:30 pm: **ANODE challenge introduction**, Bram van Ginneken, Univ. Medisch Ctr. Utrecht (Netherlands) . . . . . [7260-62]

4:40 pm: **A voxel-based neural approach (VBNA) to identify lung internal nodules in the ANODE09 study**, Alessandra Retico, Istituto Nazionale di Fisica Nucleare (Italy); Francesco Bagagli, Niccolo' Camarlinghi, Carmela Carpentieri, Maria Evelina Fantacci, Istituto Nazionale di Fisica Nucleare (Italy) and Univ. di Pisa (Italy); Ilaria Gori, Bracco Imaging S.p.A. (Italy) and Istituto Nazionale di Fisica Nucleare (Italy) . . . . . [7260-63]

5:00 pm: **(ST) Automated lung nodule detection and segmentation**, Christian Schneider, Azad Amjadi, Anja Richter, Martin Fiebig, Fachhochschule Giessen-Friedberg (Germany) . . . . . [7260-64]

5:10 pm: **(ST) The lung TIME-annotated lung nodule dataset and nodule detection framework**, Martin Dolejsi, Jan Kybic, Czech Technical Univ. in Prague (Czech Republic); Michal Polovincak, Stanislav Tuma, Motol Hospital in Prague (Czech Republic) . . . . . [7260-65]

5:20 pm: **(ST) Automated nodule detection methods in chest CT images using autocorrelation features: performance evaluation using three databases**, Shoji Okura, Takuya Tomida, Xiangrong Zhou, Takeshi Hara, Hiroshi Fujita, Gifu Univ. School of Medicine [7260-142]

## Conference 7263 continued Image Perception, Observer Performance, and Technology Assessment

Room: Fiesta 6

### SESSION 8

Room: Fiesta 6 . . . . . Thurs. 3:30 to 5:30 pm

#### Observer Performance in Mammography

*Session Chair: Claudia Mello-Thoms,*  
Univ. of Pittsburgh (US)

3:30 pm: **Analysis of probed regions in an interactive CAD system for the detection of masses in mammograms**, Maurice R. Samulski, Rianne Hupse, Carla Boetes, Radboud Univ. Nijmegen Medical Ctr. (Netherlands); Gerard den Heeten, National Expert and Training Ctr. for Breast Cancer Screening (Netherlands); Nico Karssemeijer, Radboud Univ. Nijmegen Medical Ctr. (Netherlands) . . . . . [7263-39]

3:50 pm: **Inter- and intra-observer variability in radiologists' assessment of mass similarity on mammograms**, Berkman Sahiner, Heang-Ping Chan, Lubomir M. Hadjiiski, Jing Cui, Chintana Paramagul, Alexis Nees, Mark A. Helvie M.D., Univ. of Michigan (US) . . . . . [7263-40]

4:10 pm: **Analysis of double reading in an observer study**, Yulei Jiang, The Univ. of Chicago (US) . . . . . [7263-41]

4:30 pm: **Higher-order scene statistics of breast images**, Craig K. Abbey, Miguel P. Eckstein, Univ. of California, Santa Barbara (US); John M. Boone, Univ. of California, Davis (US) . . . . . [7263-42]

4:50 pm: **Contrast sensitivity in mammographic softcopy reading**, Doerte Apelt, MeVis BreastCare Solutions GmbH & Co. KG (Germany); Hans Strasburger, Univ. Göttingen (Germany); Richard Rascher-Friesenhausen, Jan Klein, MeVis Research GmbH (Germany); Bernhard Preim, Otto-von-Guericke-Univ. Magdeburg (Germany); Heinz-Otto Peitgen, MeVis Research GmbH (Germany) . . . . . [7263-43]

5:10 pm: **Can the evaluation of a simple test object be used to predict the performance of a contrast-detail analysis in digital mammography?**, Hilde T. C. Bosmans, Kim Lemmens, Jurgen Jacobs, Univ. Hospitals of the KU Leuven (Belgium); Dirk A. Vandenbroucke, Agfa Healthcare (Belgium); Federica Zanca, Koen Michiels, Beatrijs Verbrugge, Kristien Smans, Guy Marchal, Univ. Hospitals of the KU Leuven (Belgium) . . . . . [7263-44]

## Conference 7264 continued Advanced PACS-based Imaging Informatics and Therapeutic Applications

Room: Fiesta 7-10

### SESSION 6

Room: Fiesta 7-10. . . . . Thurs. 3:30 to 4:50 pm

#### Imaging and Informatics: Expert Panel Talks

*Session Chairs: Khan M. Siddiqui,*  
Veterans Affairs Maryland Health Care System; (US) **Brent J. Liu**, Univ. of Southern California (US)

3:30 pm: **PACS-based imaging informatics and therapeutic applications** (*Invited Paper, Presentation Only*), H. K. B. Huang, Univ. of Southern California (US) . . . . . [7264-26]

4:10 pm: **How radiologists look at images in the era of multislice CT and digital imaging** (*Invited Paper, Presentation Only*), Eliot L. Siegel M.D., Univ. of Maryland Medical Ctr. (US) . . . . . [7264-27]

#### Panel Discussion

*Panel Members: Khan M. Siddiqui,* Veterans Affairs Maryland Health Care System (US); **Brent J. Liu**, Univ. of Southern California (US); **H. K. Bernie Huang**, Univ. of Southern California (US); **Eliot L. Siegel**, Univ. of Maryland Medical Ctr. (US)

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### Validation in Medical Image Processing (VMIP) SC884

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**Conferences + Courses: 7-12 February 2009**  
**Exhibition: 9-11 February 2009**

Disney Coronado Springs Resort  
Lake Buena Vista, Florida, USA

## Refund Policy

There is a \$40 service charge for processing refunds. Requests for preregistration refunds had to have been received by 29 January 2009. All registration fees are forfeited after this date. Membership dues are not refundable. SPIE Digital Library subscriptions are not refundable.

## Registration

### Onsite Registration Hours

*South Registration Counter*

Saturday 7 February	7:30 am to 4:00 pm
Sunday 8 February	7:30 am to 4:00 pm
Monday 9 February	7:30 am to 4:00 pm
Tuesday 10 February	7:30 am to 4:00 pm
Wednesday 11 February	7:30 am to 4:00 pm
Thursday 12 February	7:30 am to 4:00 pm

### Course and Workshop Registration

Courses and workshops are priced separately. Course only registration includes your selected course(s), course notes, coffee breaks, and admittance to the exhibition.

### Exhibition Hours

*Veracruz C*

Monday 9 February	5:00 to 6:30 pm
Tuesday 10 February	9:30 am to Noon; 1:00 to 4:00 pm
Wednesday 11 February	9:30 am to Noon; 1:00 to 4:00 pm

### SPIE Membership

SPIE Members receive a discount on conference and course registration fees.

*Add Digital Library subscriptions.*

Choose an SPIE Digital Library subscription with your registration. Also available: Proceedings of SPIE and Symposium Proceedings on CD-ROM. Please see details on the registration form.

Proceedings and CD-ROMs as part of a registration include tax and shipping. Proceedings and CD-ROMs purchased separately do not include shipping or taxes.

## Onsite Services

### SPIE Marketplace & Membership Services

*Located near South Registration*

The SPIE Marketplace is your source for the latest SPIE Press books, Proceedings, and Educational and Professional Development materials. Become a SPIE Member at the Marketplace and get discounts on these products.

### Internet Pavilion

*Fiesta Ballroom Foyer*

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

The Pavilion will be equipped with multiple workstations allowing attendees to access their internet email 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.

### Internet Wireless Access

Guest rooms at The Coronado Springs Resort are equipped with high speed wireless internet, available at a special discounted rate of \$9.95 for 24 hours for attendees to the Medical Imaging Symposium.

Properly secure your computer before accessing the public network. Failure to do so may allow unauthorized access to your laptop as well as potentially introduce viruses to your computer and/or presentation.



## Author/Presenter Information

### SPIE Receipts, Badge Corrections, Cashier

*Location: South Registration Counter*

Receipts - Preregistered attendees who did not receive a receipt prior to the meeting may obtain a new copy of their registration receipt onsite at the SPIE Registration Desk.

Badge Corrections - Attendees who need a correction to their badge information onsite may do so at the SPIE Registration Desk. Please have your badge removed from the badge holder, marked with your changes, and ready to hand to the attendant upon approaching the counter.

Cashier Station - If you are paying by cash or check as part of your onsite registration, wish to add a course, workshop, or special event requiring payment, or have questions regarding your registration, please see the onsite cashier at the Cashier station in the registration area.

### Speaker Check In Desk / Audiovisual Preview Station

*Location: Yucatan 3*

Saturday . . . . . 1:30 to 5:00 pm

Sunday through Thursday . . . . . 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 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, or directly from your laptop.

### Course Materials Desk

*Location: South Registration Counter*

*SPIE Registration Area*

*Open during Registration hours*

If you have registered to attend a course, please stop by the Registration Desk AFTER you pick up your badge. Your badge kit will include a course ticket allowing you to obtain your course notes.

### Poster Sessions

*Location: Veracruz C*

#### Sunday/Monday Poster Session

*Poster presentations from the Image Processing; Visualization, Image-guided Procedures, and Modeling; Biomedical Applications in Molecular, Structural, and Functional Imaging; and Ultrasonic Imaging and Signal Processing conferences will be included.*

**Author Set-Up Time. . . . . Sunday from Noon to 1:30 pm**

Posters should remain on display until the end of the Interactive Poster Session on Monday.

**Interactive Poster Session . . . . Monday from 5:00 to 6:30 pm**

#### Tuesday/Wednesday Poster Session

*Poster presentations from the Physics of Medical Imaging; Computer-Aided Diagnosis; Image Perception, Observer Performance, and Technology Assessment; Advanced PACS-based Imaging Informatics and Therapeutic Applications conferences will be included.*

**Author Set-Up Time. . . . . Tuesday from 9:40 to 10:10 am**

Posters should remain on display until the end of the interactive poster session on Wednesday.

**Interactive Poster Session . . Wednesday from 5:30 to 7:00 pm**

**NOTE:** Posters must be on display by the start of the Interactive Poster Session to be considered presented. Posters not displayed at the suggested set-up times may not be considered for a poster award.

**Poster Viewing Times:** Posters may be viewed after set-up until 9:00 pm on session days. The poster area will be closed one hour prior to the poster receptions to prepare the food service.

**Poster Removal:** Papers not removed before 9:00 pm following the Interactive Poster Session 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.

## Business Services

### Business Center

*Location: Convention Center, Northwest end by Acapulco Room*

The business center can make copies, print documents from your laptop or storage device, and provides small package Fedex shipping, packing supplies, color copying services, fax services and office supplies. Prices for services are posted onsite.

### Message Center

The SPIE Message Center telephone number is **1-407-939-3600**. Messages will be taken during registration hours Saturday through Thursday. Please check the message board at the message center near SPIE registration daily to receive your messages.

### Child Care Services

Kid's Nite Out provides in-room childcare at many Orlando area hotels and resorts and is the preferred childcare provider of the Walt Disney World Resort. They care for children ages 6 weeks to 12 years. Call 1-800-696-8105 or kidsniteout.com

SPIE does not imply an endorsement or recommendation of this service. It is provided on an "information only" basis for your further analysis and decision. Other services may be available.

Food and Beverage Services \_\_\_\_\_ Policies \_\_\_\_\_

**Coffee Breaks**

Complimentary coffee will be served twice each day of the conference.

Saturday . . . . . 10:00 am and 3:00 pm  
*Location: La Mesa Patio*

Sunday - Monday . . . . . 9:40 am and 3:00 pm  
*Location: Coronado Foyer*

Tuesday - Wednesday . . . . . 9:40 am and 3:00 pm  
*Location: Veracruz C*

Thursday . . . . . 9:40 am and 3:00 pm  
*Location: Fiesta Ballroom Foyer*

**Lunches**

SPIE hosted lunches will be served Sunday through Thursday from 12:10 pm to 12:50 pm. Lunches will be served in the Convention Center Porte Cochère and Coronado J. 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 starting 10 minutes after the last conference room breaks, usually about 12:20-12:30pm. Attendees need to make their own lunch arrangements on Saturday.

**Desserts**

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

**Audio, Video, Digital Recording Policy**

**In the Meeting Rooms and Poster Sessions:** For copyright reasons, recordings of any kind are strictly prohibited without prior written consent of the presenter in any conference session, course or of posters presented. Each presenter being taped must file a signed written consent form. Individuals not complying with this policy will be asked to leave a given session and asked to surrender their film or recording media. Consent forms are available at the SPIE Registration Desk.

**In the Exhibition Hall:** For security and courtesy reasons, photographing or videotaping individual booths and displays in the exhibit hall is allowed ONLY with explicit permission from onsite company representatives. Individuals not complying with this policy will be asked to surrender their film and to leave the exhibit hall.

**Laser Pointer Safety Information**

SPIE supplies tested and safety approved laser pointers for all conference meeting rooms, and for course rooms if instructors request one. For safety reasons, SPIE requests that presenters use our provided laser pointers available in each meeting room.

- If using your personal laser pointer:
- Please have it tested at your facility to make sure it has <5 mW power output. Laser pointers in Class II and IIIa (<5 mW) are eye safe if power output is correct - but don't automatically trust the labeling. Commercially available laser pointers, red or green (or any color), could be incorrectly labeled as to their wavelength and power output.
  - We require that you to come to the Audiovisual Desk onsite and test you pointer on our power meter. If the pointer fails the safe power level you may not use the pointer at the conference. You will be required to sign a waiver releasing SPIE of any liability for use of potentially non-safe laser pointers.
  - Use of a personal laser pointer at an SPIE event represents user's acceptance of liability for use of a non-SPIE supplied laser pointer device. Misuse of any laser pointer could lead to eye damage. In California, it is a criminal misdemeanor to shine a laser pointer at individuals "who perceive they are at risk."

**Underage Persons on Exhibition 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.

**Unauthorized Solicitation**

Any manufacturer or supplier who is not an exhibitor and is observed to be soliciting business in the aisles, or in another company's booth, will be asked to leave immediately. Unauthorized solicitation in the Exhibition Hall is prohibited.

**Unsecured Items**

Personal belongings such as briefcases, backpacks, coats, book bags, etc. should not be left unattended in meeting rooms or public areas. These items will be subject to removal by security upon discovery.

# General Information



## Free Transportation - Disney's Magical Express

Disney's Magical Express Transportation is available to help you reach your meeting destination stress-free and focused. Disney picks you up and takes you from Orlando International Airport to the Resort, while our "hands-free" luggage service delivers your bags from the plane directly to your room. Departing is also a breeze with in-hotel boarding pass service and return shuttle to Orlando International. Reservations are required.

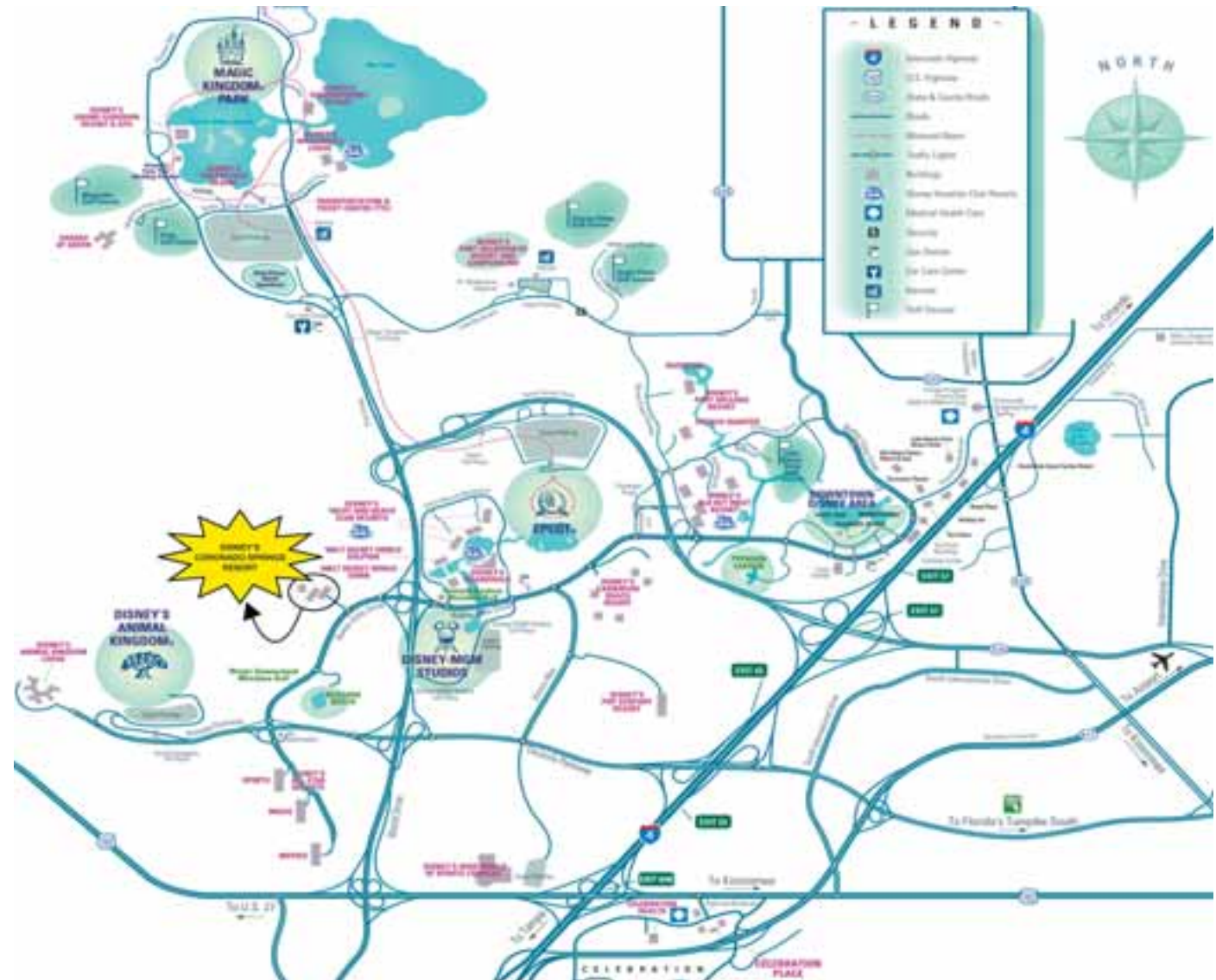
Go to [spie.org/mi](http://spie.org/mi) hotel+travel pages for weblink.

## Car Rental



Hertz Car Rental has been selected as the official car rental agency for this Symposium. To reserve a car, identify yourself as an SPIE Medical Imaging Conference attendee using the Hertz Meeting Code CV# 029B0012. Note: When booking from International Hertz locations, the CV # must be entered with the letters CV before the number, i.e. CV029B0012.

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

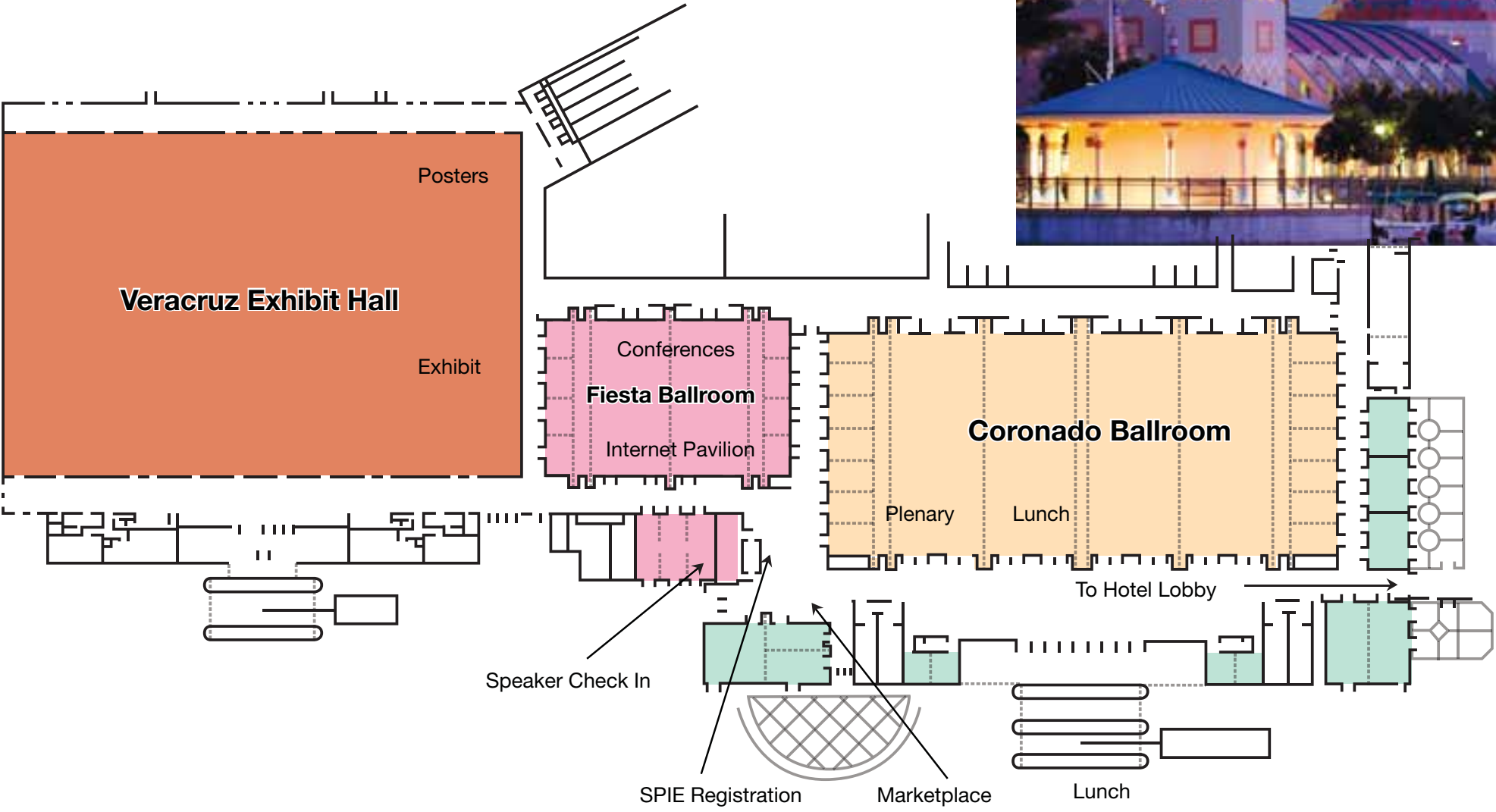




## Disney's Coronado Springs Resort

1000 West Buena Vista Dr.  
Lake Buena Vista, FL 32830

Coronado Springs Resort is conveniently located in Disney's Animal Kingdom Resort area, with access to all four Walt Disney World Theme Parks, golf and nightlife. Disney's Animal Kingdom Theme Park includes attractions such as Disney's Wide World of Sports Complex, Disney's Blizzard Beach, Disney's Winter Summerland Miniature Golf Course, etc.





# Attend SPIE Medical Imaging 2010

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## Coast to coast every other year

2010 13-18 February	San Diego, California, USA Town and Country Resort & Convention Center
2011 12-17 February	Orlando, Florida, USA Disney's Coronado Springs Resort
2012 4-9 February	San Diego, California, USA Town and Country Resort & Convention Center



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