



2007 IEEE
International Symposium
on
Biomedical Imaging:
From Nano to Macro

April 12-15, 2007

Crystal Gateway Marriott

Arlington
Virginia
U.S.A.

Program Guide

ISBI 2007 is sponsored by



CONFERENCE AT A GLANCE

Thursday, April 12, 2007

07:00 –18:00	Registration
08:00 –10:00	Tutorials (Part I)
10:30 – 12:30	Tutorials (Part II)
13:30 –14:50	Opening Remarks and Plenary: Elias Zerhouni—Biomedical Imaging and the Future of Medicine
15:20 –16:40	Technical Sessions
16:40 –18:00	Technical Sessions
18:15 –19:15	Workshop: Disseminating Large Annotated Image Collections
19:15 –21:15	Reception

Friday, April 13, 2007

07:00 –18:00	Registration
08:00 –09:00	Plenary: Mark Henkelman—Imaging the Mouse
09:30 –10:50	Technical Sessions
11:10 –12:30	Technical Sessions
13:30 –14:50	Technical Sessions
15:00 –16:20	Technical Sessions
16:40 –18:00	Technical Sessions

Saturday, April 14, 2007

07:00 –18:00	Registration
08:00 –09:00	Plenary: Katherine Ferrara— Ultrasonically-enhanced drug and gene delivery
09:30 –10:50	Technical Sessions
11:10 –12:30	Technical Sessions
13:30 –14:50	Technical Sessions
15:00 –16:20	Technical Sessions
16:40 –18:00	Technical Sessions

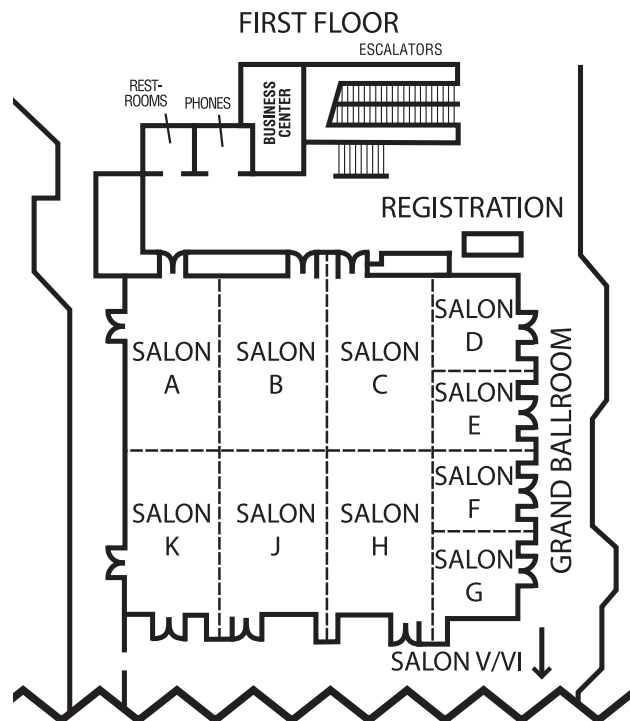
Sunday, April 15, 2007

07:00 –11:00	Registration
08:00 –09:00	Plenary: Ron Kikinis—Medical Image Computing: From Data to Information
09:30 –10:50	Technical Sessions
11:00 –12:20	Technical Sessions
12:20 –12:30	Closing Remarks

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MEETING ROOM MAP



WELCOME MESSAGE

Welcome to ISBI'07. This is the fourth edition of the IEEE International Symposium on Biomedical Imaging: From Nano to Macro. Since its inception in 2002, the meeting has become the premier platform fostering interaction between researchers in the multidisciplinary fields of medical and biological imaging. ISBI'07 begins on the morning of Thursday April 12, with tutorials by leading experts on key topics in biomedical imaging. The meeting formally opens in the afternoon and consists of three days of plenary talks, invited special sessions, and contributed oral and poster sessions. We are especially delighted that Dr. Elias Zerhouni, Director of the NIH in the USA, will be giving the opening address on *Biomedical Imaging and the Future of Medicine*. Each subsequent day includes a morning plenary presentation by leaders in the imaging field. The diverse nature of research in biomedical imaging is clearly reflected in the program, including presentations on the physical, mathematical, and computational aspects of image formation, image processing, analysis, and visualization, in a great variety of molecular, cellular, anatomical and functional imaging applications. The social events of the meeting include a welcome reception on Thursday evening.

We would like to take this opportunity to thank all those involved in the planning and organization of the meeting. Bob Murphy organized an excellent set of invited special sessions and Jinyi Qi arranged the outstanding set of tutorials that open the meeting. Jelena Kovačević expertly managed the financials of the meeting, and we benefited enormously from her advice as the past chair of ISBI. Miles Wernick coordinated publicity and publications, Paul Kinahan served as the corporate liaison, and Murray Loew handled local arrangements. We gratefully acknowledge the time and effort donated by the reviewers in insuring a high level of quality in selecting papers for inclusion in the program. Many thanks also to the staff of Conference Management Services, Inc. (CMS), in particular Billene Mercer and

Lance Cotton, for their hands-on assistance in countless logistic matters, including online paper submission and reviewing, registration, and preparation of the proceedings. We thank all the student helpers you will see assisting you throughout the meeting. Finally, we thank Laura Wolf, Executive Director of the IEEE Engineering in Medicine and Biology Society (EMBS), and Mercy Kowalczyk, Executive Director of the IEEE Signal Processing Society (SPS), for their support and advice.

From 2002 to 2006, ISBI was a biennial meeting. Because of the success of those meetings the SPS and EMBS approved the recommendation of the ISBI Steering Committee to have the meeting become an annual event starting with ISBI 2007. This year, 461 contributed papers were submitted for review. Three reviewers rated each paper and provided comments to the authors for improvement. Of these submissions, 299 were accepted for presentation, or about 65%. There are 112 contributed papers for oral presentation and 187 for poster presentation. In addition to contributed papers, 47 invited papers will be presented in several special sessions. We thank all authors for choosing to submit their work to ISBI. All papers presented at the meeting are included in the CD-ROM proceedings and will be available online through the IEEE Xplore database.

Since 2002, ISBI has been held in the metro Washington, D.C. area, in part because its inception coincided with the creation of NIBIB. Starting next year, the meeting will begin moving to other locations. ISBI 2008 will be held in Paris, France, chaired by Jean-Christophe Olivo-Marin, and we very much look forward to the first European hosting of ISBI!

Jeff Fessler
General Chair

Tom Denney
Program Chair

ORGANIZING COMMITTEE

General Chair

Jeffrey A. Fessler
University of Michigan, USA

Program Chair

Thomas S. Denney, Jr.
Auburn University, USA

Tutorials

Jinyi Qi
University of California, Davis, USA

Special Sessions

Robert Murphy
Carnegie Mellon University, USA

Exhibits

Paul Kinahan
University of Washington, USA

Finances

Jelena Kovačević
Carnegie Mellon University, USA

Publications

Miles Wernick
Illinois Institute of Technology, USA

Local Arrangements

Murray Loew
George Washington University, USA

NIH Liaison

Yantian Zhang
NIH/NIBIB, USA

REVIEWERS

Til Aach	Peter Heinlein
Purang Abolmaesumi	Pierre Hellier
Michael Abramoff	Jiang Hsieh
Scott Acton	Edward Hsu
François Aguet	Ronald Huesman
Elsa Angelini	Brian Hutton
Pascal Bamford	Tianzi Jiang
Peter Bandettini	Amit Joshi
Alberto Bartesaghi	Marc Kachelrieß
Peter Basser	Edmond Kahn
Isabelle Bloch	Zvi Kam
Johan G. Bosch	W. Clem Karl
Dana Brooks	Erwin Keeve
Irène Buvat	Ron Kikinis
Paul Carson	Paul Kinahan
Robin Cleveland	Jelena Kovacevic
Jean-Louis Coatrieux	Michal Kozubek
Tim Cootes	Rob Krams
Herve Delingette	Frithjof Kruggel
Silvana Dellepiane	Iacovos Kyprianou
Tom Denney	Andrew Laine
Rachid Deriche	Richard Leahy
Thomas Deserno (geb. Lehmann)	Boudewijn Lelieveldt
Jouke Dijkstra	Alex Leow
James Duncan	Tom Lewellen
Emad S. Ebbini	Zhi-Pei Liang
Rebecca Fahrig	Huafeng Liu
Adel Faridani	Murray Loew
Baowei Fei	Frederik Maes
Aaron Fenster	Vincent Magnotta
Jeffrey Fessler	Gregoire Malandain
Eric Frey	Tim McInerney
Denis Friboulet	Paul Meaney
Mireille Garreau	Erik Meijering
James Gee	Jean Meunier
Sennay Ghebreab	Craig Meyer
Stephen Glick	Eric Miller
Daniel Goldberg-Zimring	John Mosher
Arthur A. Goshtasby	Robert Murphy
James Greenleaf	Krishna Nayak
Grant Gullberg	Arye Nehorai
Lubomir Hadjiiski	Wiro Niessen
Nobuhiko Hata	Kathy Nightingale
David Hawkes	Alison Noble

Douglas Noll
Johan Nuyts
Raimund Ober
Jean-Christophe Olivo-Marin
Xiaochuan Pan
Mélanie Pélégrini-Issac
Xavier Pennec
Graeme Penney
Franjo Pernus
Terry Peters
Nicholas Petrick
Françoise Peyrin
David R. Pickens
Steve Pieper
Josien Plum
Jean-Baptiste Poline
Jeffrey Price
Sylvain Prima
Jerry Prince
Jinyi Qi
Stanley Reeves
Joseph Reinhardt
Cyril Riddell
Karl Rohr
Andrew Rollins
Christian Roux
Ronald A. Roy
Badrinath Roysam
Daniel Rueckert
Guillermo Sapiro
Julia A. Schnabel
Steven Schreiner
Eva Sevick-Muraca
Shishir Shah
Pengcheng Shi
Yonggang Shi
Kirk Shung
Arkadiusz Sitek
Lawrence Staib
Colin Studholme
Martin Styner
Ronald Summers
Philippe Thévenaz
Jean-Philippe Thiran
Andrew Todd-Pokropek
Jocelyne Troccaz

Benjamin Tsui
Michael Unser
Dimitri Van De Ville
Bram van Ginneken
Robert L. Van Uitert
Theo Van Walsum
Dirk Vandermeulen
Albert Vossepoel
Andreas Wahle
Yue Wang
Sally Ward
Simon Warfield
Miles Wernick
Ross Whitaker
Rebecca Willett
Keith Worsley
Jianhua Yao
Birsen Yazici
Jong Chul Ye
Alistair Young
Jason Zara
Josiane Zerubia

CONFERENCE VENUE

Crystal Gateway Marriott

1700 Jefferson Davis Highway
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TUTORIALS

A series of four tutorials will be presented on Thursday, April 6th. You are strongly encouraged to register in advance for the tutorials. Tutorials are not included in the regular registration.

Thursday, April 12, 08:00 – 12:30

Salon B

Biomedical Optical Imaging

Organizer: Charles Bouman, Purdue University, U.S.A.

Salon C

The Colored Revolution of Bio-imaging: New Opportunities for Signal Processing

Organizer: Michael Unser, EPFL, Lausanne, Switzerland

Salon J

Source Localisation with EEG/MEG and EEG/fMRI

Organizer: Jan de. Munck, Dept. Physics and Medical Technology VUmc, Netherlands and Vince Calhoun, The MIND Institute/University of New Mexico, U.S.A.

Salon H

Feature Extraction and Classification

Organizer: Bram van Ginneken, University Medical Center Utrecht, Netherlands

PLENARY SESSIONS

Thursday, April 12, 13:50 – 14:50, Salon B/C

Biomedical Imaging and the Future of Medicine

Presented by: Elias A. Zerhouni, National Institutes of Health, U.S.A.

Speaker Biography

Elias A. Zerhouni, M.D., NIH Director, leads the nations medical research agency and oversees the NIHs 27 Institutes and Centers with more than 18,000 employees and a fiscal year 2006 budget of \$28.6 billion.

Dr. Zerhouni, a well-respected leader in the field of radiology and medicine, has spent his career providing clinical, scientific, and administrative leadership. He was named by President George W. Bush to serve as the 15th Director of the National Institutes of Health, beginning in May 2002.

Prior to joining the NIH, Dr. Zerhouni served as executive vice-dean of Johns Hopkins University School of Medicine, chair of the Russell H. Morgan department of radiology and radiological science, and Martin Donner professor of radiology, and professor of biomedical engineering. Before that, he was vice dean for research at Johns Hopkins.

Dr. Zerhouni was born in Nedroma, Algeria and came to the United States at age 24, having earned his medical degree at the University of Algiers School of Medicine in 1975. After completing his residency in diagnostic radiology at Johns Hopkins in 1978 as chief resident, he served as assistant professor in 1979 and associate professor in 1985. Between 1981 and 1985 he was in the department of radiology at Eastern Virginia Medical School and its affiliated DePaul Hospital. In 1988, Dr. Zerhouni returned to Johns Hopkins where he was appointed director of the MRI division, and then was appointed full professor in 1992 becoming the chairman of the radiology department in January 1996.

Since 2000, he has been a member of the National Academy of Sciences' Institute of Medicine. He served on the National Cancer Institute's Board of Scientific Advisors from 1998-2002. In 1988, he was a consultant to the World Health Organization, and in 1985 he was a consultant to the White House under President Ronald Reagan.

A resident of Baltimore, he has won several awards for his research including a Gold Medal from the American Roentgen Ray Society for CT research and two Paul Lauterbur Awards for MRI research. His research in imaging led to advances in Computerized Axial Tomography (CAT scanning) and Magnetic Resonance Imaging (MRI) that resulted in 157 peer reviewed publications and 8 patents.

Friday, April 13, 08:00 – 09:00, Salon B/C

Imaging the Mouse

Presented by: Mark Henkelman, Medical Imaging University of Toronto, Canada

Speaker Biography

Dr. R. Mark Henkelman is a Professor in the Departments of Medical Biophysics and Medical Imaging at the University of Toronto. He is a Senior Scientist in Imaging Research at Sunnybrook Health Sciences Centre where his research has focused on expanding the use of magnetic resonance imaging further into diagnosis and also into the management of therapy for cancer. He is a Senior Scientist and Director of the Mouse Imaging Centre (MICE) at the Hospital for Sick Children. As Director, Dr. Henkelman's research is focused on building the Mouse Imaging Centre (MICE) with high-field magnetic resonance imaging microscopy, ultrasound biomicroscopy, micro computed tomography, and optical techniques. With these imaging tools, MICE will screen randomly mutagenized mice to look for phenotypes that represent human diseases and will take established human disease models in mice and use imaging to follow the progression of disease and response to treatment over time. Preliminary results have shown that imaging has a major contribution to make to phenotyping genetic variants and to characterizing mouse models. The Mouse Imaging Centre (MICE) is a major new centre that became operational in 2001. It is staffed by an exciting team of 25 investigators with expertise in imaging techniques, computer science, engineering, imaging processing, developmental biology and mouse pathology. Dr. Henkelman is a co-author on 10 patents, over 265 publications, 440 abstracts and numerous presentations worldwide. He holds a Tier 1 Canada Research Chair in Imaging awarded by the Government of Canada. In 1998, he was awarded a Gold Medal from the International Society of Magnetic Resonance in Medicine. In 2005, he was appointed a Fellow of the Royal Society of Canada and a University Professor, the highest honor that the University of Toronto awards to its faculty.

Saturday, April 14, 08:00 – 09:00, Salon B/C

Ultrasonically-enhanced drug and gene delivery

Presented by: Katherine Ferrara, University of California, Davis, U.S.A.

Speaker Biography

Following the BS and MS degrees in electrical engineering, Dr. Ferrara worked for General Electric Medical Systems, Rancho Cordova, CA designing components of early magnetic resonance and ultrasound imaging systems. She then received her Ph.D. in electrical engineering and computer science in 1989 from the University of California, Davis. Following an appointment as an Associate Professor in the Department of Biomedical Engineering at the University of Virginia, Charlottesville, Dr. Ferrara founded the Department of Biomedical Engineering at UC Davis and served as chair from 1998 through 2005. She is currently a Professor of Biomedical Engineering at UC Davis with research interests in imaging and drug delivery. She is a fellow of the Acoustical Society of America and American Institute of Medical and Biological Engineering and is currently a member of the National Advisory Council for the National Institute of Biomedical Imaging and Bioengineering.

Sunday, April 15, 08:00 – 09:00, Salon B/C

Medical Image Computing: From Data to Information

Presented by: Ron Kikinis, Harvard Medical School, U.S.A.

Speaker Biography

Dr. Kikinis is the Founding Director of the Surgical Planning Laboratory of the Department of Radiology, Brigham and Women's Hospital and Harvard Medical School, Boston, MA; Professor of Radiology at Harvard Medical School; Principal Investigator, National Alliance for Medical Image Computing (a National Center for Biomedical Computing, part of the Roadmap Initiative), and Neuroimaging Analysis Center (a NCR National Resource Center); and Research Director, Image Guided Therapy Program, Brigham and Women's Hospital.

His interests include the development of image processing algorithms and software systems, and their application to a variety of medical applications. He is the author and co-author of more than 200 peer-reviewed articles.

Before joining Brigham & Women's Hospital in 1988, he worked as a researcher at the ETH in Zurich and as a resident at the University Hospital in Zurich, Switzerland. He received his M.D. from the University of Zurich, Switzerland, in 1982.

RECEPTION

Reception

Thursday, April 12, 19:15 – 21:15

Salon V/VI

CONFERENCE REGISTRATION

On-site Registration Desks

The on-site registration desks will be located in the **Grand Ballroom Foyer**. The registration desk will be open during the following hours for pick-up of registration packets by pre-registered attendees and for on-site registration:

Thursday, April 12 07:00 – 18:00

Friday, April 13 07:00 – 18:00

Saturday, April 14 07:00 – 18:00

Sunday, April 15 07:00 – 11:00

WORKSHOP: DISSEMINATING LARGE ANNOTATED IMAGE COLLECTIONS

Creating and Disseminating Large, Open Access, Annotated Biological Image Collections

Thursday, April 12, 2007 18:15 - 19:15, Salon H

Organized by Bob Murphy, Carnegie Mellon University, USA

Microscopy, image processing, and image informatics are emerging as critical core technologies in NIH's ongoing research programs in cellular, developmental and systems biology. Technology development in this area has been designated high program priority by the National Institute of General Medical Sciences (NIGMS) since 2003 (see http://www.nigms.nih.gov/About/Council/Minutes/May15-16_2003.htm) and has also received prominent attention in several branches of the NIH Roadmap (<http://nihroadmap.nih.gov>). NIGMS is seeking suggestions from the community on cost-effective ways to encourage investigators in other imaging fields to work on problems in the microscopy of cells and tissues. NIGMS' interests include both the adaptation of methods already in use in other imaging fields to microscopy, and the development of new methods. They are especially interested in facilitating exploratory work by investigators in other imaging fields who wish to try their hands at microscopy.

The development of automated approaches to interpreting biomedical data is a growing and critical research area. Machine learning methods have the potential to enable understanding of the components and interactions in biological systems that are too numerous and complex for unaided human interpretation. While use of machine learning methods in biomedical research is widespread in some areas (such as genome sequence analysis), it is far less common in others. Despite significant progress over the past decade, one area where automation has not reached its full potential is in the analysis of biological data in the form of images. This is at least in part due to the relative paucity of publicly accessible biological image collections containing sufficient numbers of adequately annotated examples to enable training of machine vision systems. Widespread availability of such collections would therefore dramatically accelerate progress in the field. A possible solution is to develop mechanisms to enable investigators to create annotated image collections during the course of funded projects that make use of imaging but that currently collect only small numbers of images and rely primarily on visual interpretation. The goal of this workshop is to develop guidelines for such efforts, with the expectation that their utility would extend beyond potential funding opportunities.

The workshop will open with short presentations by panelists on relevant technologies and past experiences. These will be used to frame the subsequent discussion, which will occupy the major portion of the available time. Panelists have been chosen to cover a range of relevant expertise, with the knowledge that many other scientists may have similar experience. All scientists interested in advancing the public availability of biological image collections or in becoming involved in analyzing such collections are encouraged to attend.

ISBI 2007 TECHNICAL PROGRAM

- TH-PM-PS1 Image Registration (Poster)**
 Time: Thursday, April 12, 15:20 - 16:40
 Place: Salon A
 Chair: Clem Karl, Boston University, USA
- TH-PM-PS1.1 SIMULTANEOUS REGISTRATION, SEGMENTATION AND MODELLING OF STRUCTURE IN GROUPS OF MEDICAL IMAGES**
 Vladimir Petrovic, Tim Cootes, Carole Twining, Chris Taylor, University of Manchester, United Kingdom
- TH-PM-PS1.2 MULTI-MODAL IMAGE REGISTRATION BY USING ORDINAL FEATURES AND MULTI-DIMENSIONAL MUTUAL INFORMATION**
 Shu Liao, Albert C.S. Chung, Hong Kong University of Science and Technology, Hong Kong SAR of China
- TH-PM-PS1.3 A REALISTIC BRAIN PHANTOM FOR 3D DEFORMATION RECOVERY**
 Christine DeLorenzo, Xenophon Papademetris, Yale University, United States; Kenneth Vives, Dennis Spencer, Yale New Haven Hospital, United States; James S. Duncan, Yale University, United States
- TH-PM-PS1.4 QUANTIFYING DEFORMATION USING INFORMATION THEORY: THE LOG-UNBIASED NONLINEAR REGISTRATION**
 Igor Yanovsky, Ming-Chang Chiang, Paul Thompson, Andrea Klunder, UCLA, United States; James Becker, Simon Davis, University of Pittsburgh Medical Center, United States; Arthur Toga, Alex Leow, UCLA, United States
- TH-PM-PS1.5 TEXTURE FEATURE BASED IMAGE REGISTRATION**
 Andreja Jarc, Peter Rogelj, Stanislav Kovacic, University in Ljubljana, Faculty of Electrical Engineering, Slovenia
- TH-PM-PS1.6 CONFORMAL CONTOUR MAPPING FOR NEUROSURGERY OUTCOME EVALUATION**
 Danqing Wu, Chang Liu, Guangyu Zou, Jing Hua, Otto Muzik, Wayne State University, United States
- TH-PM-PS1.7 STATISTICALLY-CONSTRAINED DEFORMABLE REGISTRATION OF MR BRAIN IMAGES**
 Zhong Xue, Dinggang Shen, University of Pennsylvania, United States

- TH-PM-PS1.8 DEFORMABLE REGISTRATION OF DTI AND SPGR IMAGES**
 Hai Li, Northwest Polytechnic University, United States; Tianming Liu, Harvard Medical School, United States; Lei Guo, Northwest Polytechnic University, China; Stephen T. C. Wong, Harvard Medical School, United States
- TH-PM-PS1.9 REAL-TIME MUTUAL-INFORMATION-BASED LINEAR REGISTRATION ON THE CELL BROADBAND ENGINE PROCESSOR**
 Moriyoshi Ohara, IBM Tokyo Research Laboratory, Japan; Hangu Yeo, Frank Savino, Giridharan Iyengar, Leiguang Gong, IBM T. J. Watson Research Center, United States; Hiroshi Inoue, Hideaki Komatsu, IBM Tokyo Research Laboratory, Japan; Vadim Sheinin, IBM T. J. Watson Research Center, United States; Shahrokh Daijavad, IBM Systems & Technology Group, United States; Bradley Erickson, Mayo Clinic and Foundation, United States
- TH-PM-PS1.10 REGISTRATION OF RCBV AND ADC MAPS WITH STRUCTURAL AND PHYSIOLOGICAL MR IMAGES IN GLIOMA PATIENTS: STUDY AND VALIDATION**
 Andreas Mang, University of Luebeck, Germany; Oscar Camara, Giselle Brasil-Caseiras, William R. Crum, Julia A. Schnabel, University College London, United Kingdom; Thorsten M. Buzug, University of Luebeck, Germany; Jeremy Rees, John Thornton, Rolf Jager, David J. Hawkes, University College London, United Kingdom
- TH-PM-PS1.11 VALIDATION OF A NEW OPTIMISATION ALGORITHM FOR REGISTRATION TASKS IN MEDICAL IMAGING**
 Nicolas Wiest-Daessle, Sylvain Prima, Sean Patrick Morrissey, Christian Barillot, IRISA, France
- TH-PM-PS1.12 EVALUATION OF BRAIN IMAGE NONRIGID REGISTRATION ALGORITHMS BASED ON LOG-EUCLIDEAN MR-DTI CONSISTENCY MEASURES**
 F. Javier Sanchez Castro, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland; Olivier Clatz, Julien Dauguet, Neculai Archip, Computational Radiology Laboratory, Children's Hospital, Department of Radiology and Harvard Medical School, United States; Jean-Philippe Thiran, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland; Simon K. Warfield, Computational Radiology Laboratory, Children's Hospital, Department of Radiology and Harvard Medical School, United States
- TH-PM-PS1.13 DETECTION OF GLIOMA EVOLUTION ON LONGITUDINAL MRI STUDIES**
 Elsa Angelini, Jamal Atif, Julie Delon, Ecole Nationale Supérieure des Télécommunications, France; Emmanuel Mandonnet, Hugues Duffau, Laurent Capelle, Hôpital de la Pitié Salpêtrière, France

- TH-PM-PS2 Image Segmentation (Poster)**
 Time: Thursday, April 12, 15:20 - 16:40
 Place: Salon K
 Chair: Christian Roux, ENST Bretagne, France
- TH-PM-PS2.1 SEGMENTATION OF NUCLEI IN CONFOCAL IMAGE STACKS USING PERFORMANCE BASED THRESHOLDING**
 William Beaver, David Kosman, Gary Tedeschi, Ethan Bier, William McGinnis, Yoav Freund, University of California, San Diego, United States
- TH-PM-PS2.2 PHASE-BASED SEGMENTATION OF CELLS FROM BRIGHTFIELD MICROSCOPY**
 Rehan Ali, Mark Gooding, Martin Christlieb, Michael Brady, University of Oxford, United Kingdom
- TH-PM-PS2.3 IMAGE ANALYSIS FOR AUTOMATED ASSESSMENT OF GRADE OF NEUROBLASTIC DIFFERENTIATION**
 Jun Kong, The Ohio State University, United States; Hiroyuki Shimada, University of Southern California, United States; Kim Boyer, Joel Saltz, Metin Gurcan, The Ohio State University, United States
- TH-PM-PS2.4 NOVEL CELL SEGMENTATION AND ONLINE LEARNING ALGORITHMS FOR CELL PHASE IDENTIFICATION IN AUTOMATED FLUORESCENCE MICROSCOPY**
 Meng Wang, Xiaobo Zhou, Fuhai Li, Brigham and Women's Hospital, Harvard Medical School, United States; Jeremy Huckins, Randy W. King, Stephen T. C. Wong, Harvard Medical School, United States
- TH-PM-PS2.5 GRAPH CUT BASED ACTIVE CONTOUR FOR AUTOMATED CELLULAR IMAGE SEGMENTATION IN HIGH THROUGHPUT RNA INTERFACE (RNAI) SCREENING**
 Cheng Chen, Houqiang Li, University of Science and Technology of China, China; Xiaobo Zhou, Stephen T. C. Wong, Harvard Medical School, United States
- TH-PM-PS2.6 A POWERFUL STRATEGY FOR SEGMENTING INTERDIGITATED AND CRIMPED FIBER BUNDLES IN BIOLOGICAL SOFT TISSUES**
 Pierre J. Elbischger, Carinthia University of Applied Sciences, Austria; Horst Bischof, Graz University of Technology, Austria
- TH-PM-PS2.7 SEGMENTATION OF TOUCHING CELLS USING GRADIENT FLOW TRACKING**
 Gang Li, Tianming Liu, Jingxin Nie, Harvard Medical School, United States; Lei Guo, Northwest Polytechnic University, United States; Stephen T. C. Wong, Harvard Medical School, United States

- TH-PM-PS2.8 DYNAMIC LOCAL TRACING FOR 3D AXON CURVILINEAR STRUCTURE DETECTION FROM MICROSCOPIC IMAGE STACK**
 Jun Wang, Columbia University, United States; Xiaobo Zhou, Lu Ju, Jeff Lichtman, Harvard University, United States; Shih-Fu Chang, Columbia University, United States; Stephen T. C. Wong, Harvard University, United States
- TH-PM-PS2.9 SUPPORT VECTOR MACHINES FOR AUTOMATIC DETECTION OF TUBERCULOSIS BACTERIA IN CONFOCAL MICROSCOPY IMAGES**
 Boris Lenseigne, Priscille Brodin, Hee Kyeong Cheon, Thierry Christophe, Auguste Genovesio, Institut Pasteur Korea, Republic of Korea
- TH-PM-PS2.10 QUANTITATIVE REPRESENTATION OF THREE-DIMENSIONAL CELL CULTURE MODELS**
 Hang Chang, Lawrence Berkeley National Laboratory, United States; Catherine Park, Bahram Parvin, Lawrence Berkeley National Laboratory, United States
- TH-PM-PS2.11 3-D CENTERLINE EXTRACTION OF AXONS IN MICROSCOPIC STACKS FOR THE STUDY OF MOTOR NEURON BEHAVIOR IN DEVELOPING MUSCLES**
 Ranga Srinivasan, Northeastern University, United States; Xiaobo Zhou, Harvard Medical School, United States; Eric Miller, Northeastern University, United States; Ju Lu, Jeff Lichtman, Harvard University, United States; Stephen T. C. Wong, Harvard Medical School, United States
- TH-PM-PS2.12 A VARIATIONAL MODEL FOR LEVEL-SET BASED CELL TRACKING IN TIME-LAPSE FLUORESCENCE MICROSCOPY IMAGES**
 Oleh Dzyubachyk, Wiro Niessen, Erik Meijering, Erasmus MC - University Medical Center Rotterdam, Netherlands
- TH-PM-PS2.13 CELL SEGMENTATION AND TRACKING USING TEXTURE-ADAPTIVE SNAKES**
 Xiaoxu Wang, Weijun He, Dimitris Metaxas, Robin Mathew, Eleen White, Rutgers University, United States

- TH-PM-PS3 MR Image Reconstruction** (Poster)
 Time: Thursday, April 12, 15:20 - 16:40
 Place: Salon D/E
 Chair: Dana H. Brooks, Northeastern University, USA
- TH-PM-PS3.1 DIRECT RECONSTRUCTION OF SPIRAL MRI USING LEAST SQUARES QUANTIZATION TABLE**
 Dong Liang, Edmund Y. Lam, George S.K. Fung, University of Hong Kong, Hong Kong SAR of China
- TH-PM-PS3.2 SPATIO-TEMPORAL CONSTRAINED RECONSTRUCTION OF SPARSE DYNAMIC CONTRAST ENHANCED RADIAL MRI DATA**
 Ganesh Adluru, Ross Whitaker, Edward DiBella, University of Utah, United States
- TH-PM-PS3.3 IMAGE RECONSTRUCTION IN THE GRAPPA ALGORITHM FORMALISM**
 Yufang Tracy Bao, Andrew A. Maudsley, University of Miami, Miller school of Medicine, United States
- TH-PM-PS3.4 MULTICHANNEL ESTIMATION OF COIL SENSITIVITIES IN PARALLEL MRI**
 Robert Morrison, Jr., Mathews Jacob, Minh Do, University of Illinois at Urbana-Champaign, United States
- TH-PM-PS3.5 REGULARIZED SENSE RECONSTRUCTION USING ITERATIVELY REFINED TOTAL VARIATION METHOD**
 Bo Liu, Leslie Ying, University of Wisconsin, United States; Michael Steckner, Hitachi Medical System America, United States; Jun Xie, Medical College of Wisconsin, United States; Jinhua Sheng, University of Wisconsin, United States

- TH-PM-PS3.6 A ROBUST APPROACH FOR CORRECTION OF SUSCEPTIBILITY ARTIFACTS IN EPI**
 Udomchai Techavipoo, Song Lai, Thomas Jefferson University, United States; Ivan Dimitrov, Philips Medical Systems, Netherlands; John Lackey, Jianrong Shi, Thomas Jefferson University, United States; Xin Guan, Stony Brook University, United States
- TH-PM-PS3.7 PARALLEL MR IMAGE RECONSTRUCTION USING IIR FB**
 Zhaolin Chen, Jingxin Zhang, Monash University, Australia; Li Chai, Hangzhou Dianzi University, China
- TH-PM-PS3.8 JOINT ESTIMATION OF IMAGE AND COIL SENSITIVITIES IN PARALLEL SPIRAL MRI**
 Jinhua Sheng, Leslie Ying, University of Wisconsin, United States; Erik Wiener, University of Pittsburgh, United States; Bo Liu, University of Wisconsin, United States
- TH-PM-PS3.9 THE EFFECT OF NOISE AND DEPOLARIZATION ON HYPERPOLARIZED TRACERS PERFUSION ASSESSMENT**
 Behzad Ebrahimi, Scott Swanson, Timothy Chupp, University of Michigan, United States
- TH-PM-PS3.10 THREE-POINT METHOD FOR FAST AND ROBUST FIELD MAPPING FOR EPI GEOMETRIC DISTORTION CORRECTION**
 Pelin Aksit, GE Healthcare, United States; John Derbyshire, National Institutes of Health, United States; Jerry L. Prince, Johns Hopkins University, United States
- TH-PM-PS3.11 GENERALIZED K-T BLAST AND K-T SENSE USING FOCUSS**
 Hong Jung, Jaeheung Yoo, Jong Chul Ye, Korea Adv. Institute of Science & Technology (KAIST), Republic of Korea

TH-PM-PS4 PET and SPECT Image Reconstruction (Poster)

Time: Thursday, April 12, 15:20 - 16:40

Place: Salon F/G

Chair: Charlie Bouman, Purdue University, USA

TH-PM-PS4.1 A NOVEL NONLOCAL QUADRATIC MRF PRIOR MODEL FOR POSITRON EMISSION TOMOGRAPHY

Yang Chen, Qianjin Feng, Pengcheng Shi, Wufan Chen, Institute of Medical Information&Technology, School of Biomedical Engineering, Southern Medical University, China

TH-PM-PS4.2 BLOCK-ITERATIVE FISHER SCORING FOR EMISSION TOMOGRAPHY

Jun Ma, Malcolm Hudson, Macquarie University, Australia

TH-PM-PS4.3 ACCELERATING THE TOMOGRAPHIC RECONSTRUCTION WITH A FREQUENCY ADAPTED ALGORITHM

Vincent Israel-Jost, GET, Ecole Nationale Supérieure des Télécoms CNRS UMR 5141, Paris, France; Philippe Choquet, André Constantinesco, Hôpital de Haute-pierre, France

TH-PM-PS4.4 MAXIMUM A POSTERIORI RECONSTRUCTION OF PATLAK PARAMETRIC IMAGE FROM SINOGRAMS IN DYNAMIC PET

Guobao Wang, Jinyi Qi, University of California, Davis, United States

TH-PM-PS4.5 PET IMAGE RECONSTRUCTION USING ANATOMICAL INFORMATION THROUGH MUTUAL INFORMATION BASED PRIORS: A SCALE SPACE APPROACH

Sangeetha Somayajula, University of Southern California, United States; Anand Rangarajan, University of Florida, United States; Richard Leahy, University of Southern California, United States

(Continued from previous page.)

TH-PM-PS4.6 FOUR-DIMENSIONAL RECONSTRUCTION OF GATED CARDIAC SPECT WITH ATTENUATION AND SCATTER COMPENSATION

Mingwu Jin, Yongyi Yang, Jovan G. Brankov, Miles N. Wernick, Illinois Institute of Technology, United States; Bing Feng, Michael A. King, University of Massachusetts Medical School, United States

TH-PM-PS4.7 BLIND DEBLURRING RECONSTRUCTION TECHNIQUE WITH APPLICATIONS IN PET IMAGING

Heng Li, Feng Qiao, Osama Mawlawi, UT M.D. Anderson Cancer Center, United States; Yibin Zheng, University of Virginia, United States; Ronald X. Zhu, UT M.D. Anderson Cancer Center, United States

TH-PM-PS4.8 ROBUST RECONSTRUCTION OF PHYSIOLOGICAL PARAMETERS FROM DYNAMIC PET DATA

Huafeng Liu, Yiqiang Jian, Zhejiang Univ, China; Pengcheng Shi, Hong Kong University of Science and Technology, China

TH-PM-PS4.9 NATURE OF RINGING ARTIFACTS IN SPECT RECONSTRUCTION AND THEIR REDUCTION BY THE USE OF SIDE INFORMATION

Jia Li, Oakland University, United States; Kenneth Koral, University of Michigan, United States

TH-PM-OS1 Cardiovascular Image Analysis (Oral)
 Time: Thursday, April 12, 16:40 - 18:00
 Place: Salon B
 Chair: Jerry Prince, Johns Hopkins University, USA

16:40 - 17:00

TH-PM-OS1.1 CARDIAC MR IMAGE SEGMENTATION WITH INCOMPRESSIBILITY CONSTRAINT
 Yun Zhu, Xenophon Papademetris, James S. Duncan, Albert Sinusas, Yale University, United States

17:00 - 17:20

TH-PM-OS1.2 AUTOMATIC SEGMENTATION OF CORONARY ARTERIES USING BAYESIAN DRIVEN IMPLICIT SURFACES
 Yan Yang, Georgia Institute of Technology, United States; Arthur Stillman, Emory University, United States; Allen Tannenbaum, Don Giddens, Georgia Institute of Technology, United States

17:20 - 17:40

TH-PM-OS1.3 QUANTIFICATION OF CARDIAC DYSSYNCHRONY IN MICE AFTER MYOCARDIAL INFARCTION USING HIGH RESOLUTION ULTRASOUND
 Yinbo Li, Christopher Garson, Yaqin Xu, Scott Acton, Brent French, John Hossack, University of Virginia, United States

17:40 - 18:00

TH-PM-OS1.4 LEFT VENTRICULAR DEFORMATION RECOVERY FROM CINE MRI USING A 4D INCOMPRESSIBLE MODEL
 Arnaud Bistoquet, Oskar Skrinjar, Georgia Institute of Technology, United States

TH-PM-OS2 Shape Analysis (Oral)
 Time: Thursday, April 12, 16:40 - 18:00
 Place: Salon C
 Chair: Elsa Angelini, Ecole Nationale Supérieure des Télécommunications, France

16:40 - 17:00

TH-PM-OS2.1 ROBUST MAPPING OF BRAIN SURFACE MESHES ONTO A UNIT SPHERE
 Frithjof Kruggel, UC Irvine, United States

17:00 - 17:20

TH-PM-OS2.2 GRAFIP: A FRAMEWORK FOR THE REPRESENTATION OF HEALTHY AND PATHOLOGICAL CEREBRAL INFORMATION
 Jamal Atif, Céline Hudelot, Olivier Nempont, Nathalie Richard, Bénédicte Batrancourt, Elsa Angelini, Isabelle Bloch, ENST - CNRS UMR 5141 LTCl, France

17:20 - 17:40

TH-PM-OS2.3 STATISTICAL SHAPE ANALYSIS OF BRAIN STRUCTURES USING SPHERICAL WAVELETS
 Delphine Nain, Georgia Institute of Technology, United States; Martin Styner, University of North Carolina at Chapel Hill, United States; Marc Niethammer, James Levitt, Martha Shenton, Harvard Medical School, United States; Guido Gerig, University of North Carolina at Chapel Hill, United States; Aaron Bobick, Allen Tannenbaum, Georgia Institute of Technology, United States

17:40 - 18:00

TH-PM-OS2.4 RECONSTRUCTION OF CENTRAL CORTICAL SURFACE FROM BRAIN MRI IMAGES: METHOD AND APPLICATION
 Jingxin Nie, Tianming Liu, Harvard Medical School, United States; Lei Guo, Northwest Polytechnic University, United States; Stephen T. C. Wong, Harvard Medical School, United States

TH-PM-OS3 Iterative Tomographic Image Reconstruction (Oral)

Time: Thursday, April 12, 16:40 - 18:00

Place: Salon J

Chair: Yoram Bresler, University of Illinois at Urbana-Champaign, USA

16:40 - 17:00

TH-PM-OS3.1 REGULARIZATION FOR INVERTING THE RADON TRANSFORM WITH WEDGE CONSIDERATION

Iman Aganj, University of Minnesota, United States; Alberto Bartesaghi, Mario Bognia, Center for Cancer Research, NIH, United States; Hstau Y. Liao, Guillermo Sapiro, University of Minnesota, United States; Sriram Subramaniam, Center for Cancer Research, NIH, United States

17:00 - 17:20

TH-PM-OS3.2 EVALUATION OF HEXAGONAL AND SQUARE GEOMETRIES FOR MOTION-FREE ARRAYED-SOURCE X-RAY MICRO-CT

Enzhuo Quan, David Lalush, North Carolina State University, United States

17:20 - 17:40

TH-PM-OS3.3 A 3-TERM OPTIMIZATION CRITERION FOR FASTER INVERSION IN MICROWAVE TOMOGRAPHY

Paul-Andre Barriere, Ecole Polytechnique Montreal, Canada; Jerome Idier, IRCCyN, France; Yves Goussard, Jean-Jacques Laurin, Ecole Polytechnique de Montreal, Canada

17:40 - 18:00

TH-PM-OS3.4 FAST IMAGE RECONSTRUCTION METHODS FOR FULLY 3D MULTISPECTRAL OPTICAL BIOLUMINESCENCE TOMOGRAPHY

Sangtae Ahn, Abhijit Chaudhari, Felix Darvas, University of Southern California, United States; Charles A. Bouman, Purdue University, United States; Richard Leahy, University of Southern California, United States

TH-PM-SS1 Image Analysis for 3D Cryo Microscopy (Special Session)

Time: Thursday, April 12, 16:40 - 18:00

Place: Salon H

Chair: Alberto Bartesaghi, National Institutes of Health and Guillermo Sapiro, University of Minnesota, USA

16:40 - 17:00

TH-PM-SS1.1 DETERMINATION OF PROTEIN STRUCTURES IN SITU: ELECTRON TOMOGRAPHY OF INTACT VIRUSES AND CELLS

Sriram Subramaniam, National Institutes of Health, United States

17:00 - 17:20

TH-PM-SS1.2 AUTOMATIC STRUCTURE INTERPRETATION OF SINGLE PARTICLE CRYO-ELECTRON MICROSCOPY: FROM IMAGES TO PSEUDO-ATOMIC MODELS

Chandrajit Bajaj, University of Texas, Austin, United States

17:20 - 17:40

TH-PM-SS1.3 ELECTRON TOMOGRAPHY OF MACROMOLECULAR ASSEMBLIES

Hanspeter Winkler, Jun Liu, Kenneth A. Taylor, Ping Zhu, Kenneth H. Roux, Florida State University, United States

17:40 - 18:00

TH-PM-SS1.4 CLASSIFICATION, AVERAGING AND RECONSTRUCTION OF MACROMOLECULES IN ELECTRON TOMOGRAPHY

Alberto Bartesaghi, National Institutes of Health, United States; Pablo Sprechmann, Gregory Randall, Universidad de la Republica, Uruguay; Guillermo Sapiro, University of Minnesota, United States; Sriram Subramaniam, National Institutes of Health, United States

FR-AM-PS1 Cellular and Molecular Image Analysis (Poster)

Time: Friday, April 13, 09:30 - 10:50

Place: Salon A

Chair: May Wang, Georgia Institute of Technology and Emory University, USA

FR-AM-PS1.1 ESTIMATING THE DURATION OF ENDOCYTIC EVENTS

Rafael Sebastian, Guillermo Ayala, Maria Elena Diaz, University of Valencia, Spain; Roberto Zoncu, Derek Toomre, Yale University, United States

FR-AM-PS1.2 PRECISE LOCALIZATION OF FLUORESCENT PROBES WITHOUT NUMERICAL FITTING

Sean Andersson, Boston University, United States

FR-AM-PS1.3 TRACKING OF VIRUS PARTICLES IN TIME-LAPSE FLUORESCENCE MICROSCOPY IMAGE SEQUENCES

William J. Godinez, DKFZ Heidelberg, Germany; Marko Lampe, University of Heidelberg, Germany; Stefan Wörz, DKFZ Heidelberg, Germany; Barbara Müller, University of Heidelberg, Germany; Roland Eils, Karl Rohr, DKFZ Heidelberg, Germany

FR-AM-PS1.4 REGION TRACKING ALGORITHMS ON LASER SCANNING DEVICES APPLIED TO CELL TRAFFIC ANALYSIS

Aymeric Perchant, Tom Vercauteren, Fabien Oberrietter, Nicolas Savoire, Mauna Kea Technologies, France; Nicholas Ayache, INRIA, France

FR-AM-PS1.5 QUANTITATIVE IMAGE ANALYSIS OF CHROMOSOME DYNAMICS IN EARLY DROSOPHILA EMBRYOS

Christopher Yau, James Wakefield, University of Oxford, United Kingdom

FR-AM-PS1.6 NETWORK TOMOGRAPHY FOR TRAFFICKING SIMULATION AND ANALYSIS IN FLUORESCENCE MICROSCOPY IMAGING

Thierry Pecot, Jerome Boulanger, Charles Kervrann, INRIA/INRA, France; Patrick Bouthemy, INRIA, France

FR-AM-PS1.7 TRACKING OF MIGRATING GLIOMA CELLS IN FEATURE SPACE

Wenjia Bai, Tsinghua University, China; Xiaobo Zhou, Jinmin Zhu, Harvard Medical School, United States; Liang Ji, Tsinghua University, China; Stephen T. C. Wong, Harvard Medical School, United States

(Continued from previous page.)

FR-AM-PS1.9 3D SEGMENTATION OF WHOLE CELLS AND CELL NUCLEI IN TISSUE USING DYNAMIC PROGRAMMING

Dean McCullough, High Performance Technologies, Inc, United States; Prabhakar Gudla, NCI - Frederick / SAIC - Frederick, United States; Karen Meaburn, Amit Kumar, Michael Kuehn, National Cancer Institute, United States; Stephen Lockett, NCI - Frederick / SAIC - Frederick, United States

FR-AM-PS1.10 RELIABLE MOTION DETECTION AND ANALYSIS IN LIVE-CELL IMAGING

Ikhlef Bechar, INRA Jouy-en-Josas & Univ. Paris 5., France; Alain Trubuil, INRA Jouy en Josas, France

FR-AM-PS1.11 NON-INVASIVE IMAGE BASED SUPPORT VECTOR MACHINE CLASSIFICATION OF HUMAN EMBRYONIC STEM CELLS

Rami Mangoubi, Christopher Jeffreys, Andrew Copeland, Mukund Desai, C.S. Draper Laboratory, United States; Paul Sammak, Magee Women Research Institute & University of Pittsburgh, United States

FR-AM-PS1.12 TOWARDS AN IMAGE ANALYSIS TOOLBOX FOR HIGH-THROUGHPUT DROSOPHILA EMBRYO RNAI SCREENS

Ryan Kellogg, Amina Chebira, Anupam Goyal, Philip Cuadra, Stefan Zappe, Jonathan Minden, Jelena Kovacevic, Carnegie Mellon University, United States

FR-AM-PS1.13 STRAIGHTENING WORM IMAGES

Hanchuan Peng, Fuhui Long, Eugene Myers, Janelia Farm Research Campus, Howard Hughes Medical Institute, United States

FR-AM-PS1.14 TRACING MICROTUBULES IN LIVE CELL IMAGES

Mehmet Emre Sargin, Alphan Altinok, Erkan Kiris, Stuart Feinstein, Leslie Wilson, Kenneth Rose, B.S. Manjunath, University of California, Santa Barbara, United States

FR-AM-PS1.15 MULTI-RESOLUTION IMAGE SEGMENTATION USING THE 2-POINT CORRELATION FUNCTIONS

Firdaus Janoos, Okan Irfanoglu, Kishore Mosaliganti, Raghu Machiraju, Kun Huang, Pamela Wenzel, Alain deBruin, Gustavo Leone, The Ohio State University, United States

- FR-AM-PS2 Image Segmentation (Poster)**
 Time: Friday, April 13, 09:30 - 10:50
 Place: Salon K
 Chair: Hayit Greenspan, Tel-Aviv University, Israel
- FR-AM-PS2.1 FROM GIGABYTES TO BYTES: AUTOMATED DENOISING AND FEATURE IDENTIFICATION IN ELECTRON TOMOGRAMS OF INTACT BACTERIAL CELLS**
 Rajesh Narasimha, Georgia Institute of Technology / NIH, United States; Iman Aganj, UMN, United States; Mario Borgnia, NIH, United States; Guillermo Sapiro, UMN, United States; Steven McLaughlin, Georgia Institute of Technology, United States; Jacqueline Milne, Sriram Subramaniam, NIH, United States
- FR-AM-PS2.2 3D MORPHOLOGICAL ANALYSIS OF LUNG PATHOLOGY**
 Vanessa Zavaletta, Brian Bartholmai, Richard Robb, Mayo Clinic College of Medicine, United States
- FR-AM-PS2.3 SEGMENTATION OF NON-CONVEX REGIONS WITHIN UTERINE CERVIX IMAGES**
 Shiri Gordon, Hayit Greenspan, Tel Aviv University, Israel
- FR-AM-PS2.4 3D SEGMENTATION AND FEATURE EXTRACTION OF CLSM SCANNED NUCLEI USING EVOLUTIONARY SNAKES**
 Mohammed Ali Roula, University of Glamorgan, United Kingdom; Ahmed Bouridane, Fatih Kurugollu, Queen's University, Belfast, United Kingdom; Jim Diamond, Institute of Clinical Science, Queen's University, Belfast, United Kingdom
- FR-AM-PS2.5 MIGRATION AND PROLIFERATION ANALYSIS FOR BLADDER CANCER CELLS**
 Asaad Said, Lina Karam, Arizona State University, United States; Michael Berens, TGen, United States; Zoe Lacroix, Rosemary Renaut, Arizona State University, United States
- FR-AM-PS2.6 LOCAL MEANS ANALYSIS: AN UNSUPERVISED METHOD FOR THE SEGMENTATION OF RODENT WHOLE-BODY DYNAMIC PET IMAGES**
 Renaud Maroy, Commissariat à l'Énergie Atomique, France; Raphaël Boisgard, Commissariat à l'Énergie Atomique; INSERM, France; Claude Comtat, Régine Trébossen, Commissariat à l'Énergie Atomique, France; Bertrand Tavitian, Commissariat à l'Énergie Atomique; INSERM, France
- FR-AM-PS2.7 3D FUZZY ADAPTIVE UNSUPERVISED BAYESIAN SEGMENTATION FOR VOLUME DETERMINATION IN PET**
 Mathieu Hatt, Christian Roux, Dimitris Visvikis, INSERM U650 LaTIM, France
- FR-AM-PS2.8 SIMULTANEOUS ESTIMATION AND SEGMENTATION OF T1 MAP FOR BREAST PARENCHYMA MEASUREMENT**
 Ye Xing, Yangming Ou, Sarah Englander, Mitchell D. Schnall, Dinggang Shen, University of Pennsylvania, United States
- FR-AM-PS2.9 AUTOMATIC SEGMENTATION OF THE BONES FROM MR IMAGES OF THE KNEE**
 Jurgen Fripp, BioMedIA Lab, CSIRO ICT Centre, Australia; Stuart Crozier, University of Queensland, Australia; Simon K. Warfield, Computational Radiology Laboratory, Harvard Medical School, Children's Hospital Boston, United States; Sebastien Ourselin, BioMedIA Lab, CSIRO ICT Centre, Australia
- FR-AM-PS2.10 LOCALIZING AMYGDALA STRUCTURE DIFFERENCES IN LATE-LIFE DEPRESSION**
 Robert Tamburo, Greg Siegle, George Stetten, Aaron Cois, Ken Rockot, University of Pittsburgh, United States; John Galeotti, Carnegie Mellon University, United States; Charles Reynolds III, Howard Aizenstein, University of Pittsburgh, United States
- FR-AM-PS2.11 UNSUPERVISED CURVATURE-BASED RETINAL VESSEL SEGMENTATION**
 Saurabh Garg, Jayanthi Sivaswamy, Siva Chandra, International Institute of Information Technology, India
- FR-AM-PS2.12 PIB-PET SEGMENTATION FOR AUTOMATIC SUVr NORMALISATION WITHOUT MR INFORMATION**
 Parnesh Raniga, Pierrick Bourgeat, BioMedIA Lab, CSIRO ICT Centre, Australia; Victor Villemagne, Graeme O'Keefe, Christopher Rowe, Austin Hospital, Australia; Sebastien Ourselin, BioMedIA Lab, CSIRO ICT Centre, Australia
- FR-AM-PS2.13 A NEW IMAGE ANALYSIS APPROACH FOR AUTOMATIC CLASSIFICATION OF AUTISTIC BRAINS**
 Ayman El-Baz, Manuel Casanova, University of Louisville, United States; Georgy Gimel'farb, University of Auckland, New Zealand; Meghan Mott, Andrew Switwala, University of Louisville, United States

- FR-AM-PS3 Cardiovascular Image Analysis I (Poster)**
 Time: Friday, April 13, 09:30 - 10:50
 Place: Salon D/E
 Chair: Amir Amini, University of Louisville, USA
- FR-AM-PS3.1 REAL-TIME BLOCK FLOW TRACKING OF ATRIAL SEPTAL DEFECT MOTION IN 4D CARDIAC ULTRASOUND**
 Marius George Linguraru, Alexandre Kabla, Harvard University, United States; Nikolay Vasilyev, Pedro del Nido, Harvard Medical School, United States; Robert Howe, Harvard University, United States
- FR-AM-PS3.2 VESSEL DIAMETER TRACKING IN INTRAVITAL MICROSCOPY IMAGE SEQUENCES**
 Jaesung Lee, Artit Jirapatnakul, Anthony Reeves, Cornell University, United States; William Crowe, Ingrid Sarelius, University of Rochester, United States
- FR-AM-PS3.3 A NOVEL TAG REMOVAL TECHNIQUE FOR TAGGED CARDIAC MRI AND ITS APPLICATIONS**
 Zhen Qian, Rui Huang, Dimitris Metaxas, Rutgers University, United States; Leon Axel, New York University, United States
- FR-AM-PS3.4 PULMONARY KINEMATICS FROM HYPERPOLARIZED HELIUM-3 TAGGED MAGNETIC RESONANCE IMAGING**
 Nicholas Tustison, Talissa Altes, James Gee, University of Pennsylvania, United States; Jing Cai, Eduard de Lange, John Mugler, University of Virginia, United States
- FR-AM-PS3.5 HARP TRACKING REFINEMENT USING SEEDED REGION GROWING**
 Xiaofeng Liu, Johns Hopkins University, United States; Emi Murano, Maureen Stone, University of Maryland Dental School, United States; Jerry L. Prince, Johns Hopkins University, United States

- FR-AM-PS3.6 ESTIMATING LEUKOCYTE VELOCITIES FROM HIGH-SPEED 1D LINE SCANS ORIENTED ORTHOGONAL TO BLOOD FLOW**
 Stephane Bigot, Luciano Lucas, Philip Morrow, Christopher Mitchell, Kurt Saetzler, University of Ulster, United Kingdom
- FR-AM-PS3.7 SIMULTANEOUS RECOVERY OF LEFT VENTRICULAR MOTION AND INPUT FORCE FROM MEDICAL IMAGE SEQUENCES**
 Heye Zhang, Shan Tong, Hong Kong University of Science and Technology, Hong Kong SAR of China; Huafeng Liu, Zhe Jiang University, China; Pengcheng Shi, Hong Kong University of Science and Technology, Hong Kong SAR of China
- FR-AM-PS3.8 VALIDATION OF MYOCARDIAL ELASTOGRAPHY USING MR TAGGING IN NORMAL AND ABNORMAL HUMAN HEARTS IN VIVO**
 Wei-Ning Lee, Columbia University, United States; Zhen Qian, Rutgers University, United States; Christina L. Tosti, Columbia University, United States; Srirama V. Swaminathan, Philips Medical Systems, United States; Truman R. Brown, Columbia University, United States; Dimitris Metaxas, Rutgers University, United States; Elisa E. Konofagou, Columbia University, United States
- FR-AM-PS3.9 MULTIVIEW REGISTRATION OF CARDIAC TAGGING MRI SEQUENCES**
 Estanislao Oubel, Mathieu De Craene, Mattia Gazzola, Pompeu Fabra University, Spain; Alfred Hero, University of Michigan, United States; Alejandro F. Frangi, Pompeu Fabra University, Spain
- FR-AM-PS3.10 PREOPERATIVE MEASUREMENT OF ANEURYSMS AND STENOSIS AND STENT-SIMULATION FOR ENDOVASCULAR TREATMENT**
 Jan Egger, Siemens Medical Solutions, Germany; Zvonimir Mostarkic, University of Marburg, Germany; Stefan Großkopf, Siemens Medical Solutions, Germany; Bernd Freisleben, University of Marburg, Germany
- FR-AM-PS3.11 VOLUMETRIC MESHFREE FRAMEWORK FOR JOINT SEGMENTATION AND MOTION TRACKING OF THE LEFT VENTRICLE**
 Ling Zhuang, Huafeng Liu, Hujun Bao, Zhejiang Univ, China; Pengcheng Shi, Hong Kong University of Science and Technology, China

FR-AM-PS4 fMRI Analysis (Poster)
 Time: Friday, April 13, 09:30 - 10:50
 Place: Salon F/G
 Chair: Tianzi Jiang, The Chinese Academy of Sciences, China

FR-AM-PS4.1 PARTIALLY ADAPTIVE STAP FOR FMRI: A METHOD FOR DETECTING BRAIN ACTIVATION REGIONS IN SIMULATION AND HUMAN DATA
 Lejian Huang, Purdue University, West Lafayette, IN, United States; Elizabeth Thompson, Purdue University, Fort Wayne, IN, United States; Scott Holland, Vincent Schmithorst, Children's Hospital Medical Center, Cincinnati, United States; Thomas Talavage, Purdue University, West Lafayette, IN, United States

FR-AM-PS4.2 LEADER-BASED MULTIFRACTAL ANALYSIS FOR EVI FMRI TIME SERIES: ONGOING VERSUS TASK-RELATED BRAIN ACTIVITY
 Philippe Ciuciu, CEA/NEUROSPIN, France; Patrice Abry, UMR CNRS 5672/ENS Lyon, France; Cécile Rabrait, CEA/NEUROSPIN, France; Herwig Wendt, UMR CNRS 5672/ENS Lyon, France; Alexis Roche, CEA/SHFJ, France

FR-AM-PS4.3 MULTIPLE CORRELATION AND MULTI-SEED FOR ROBUST INFERENCE OF FUNCTIONAL CONNECTIVITY IN FMRI
 Yongmei Michelle Wang, Jing Xia, John Marden, University of Illinois at Urbana-Champaign, United States

FR-AM-PS4.4 TESTING FOR SPACE-TIME SEPARABILITY IN FUNCTIONAL MRI
 Joonki Noh, University of Michigan, Ann Arbor, United States; Victor Solo, University of New South Wales, Australia

FR-AM-PS4.5 LEVEL SET BASED CLUSTERING FOR ANALYSIS OF FUNCTIONAL MRI DATA
 Deepti Bathula, Xenophon Papademetris, James S. Duncan, Yale University, United States

(Continued from previous page.)

FR-AM-PS4.6 NON-UNIFORM SMOOTHING IN HIPPOCAMPUS-SPECIFIC GROUP FMRI ANALYSIS
 Paul Yushkevich, John Detre, James Gee, University of Pennsylvania, United States

FR-AM-PS4.7 CHARACTERIZATION OF DYSFUNCTION IN LEFT AND RIGHT TEMPORAL LOBES OF ANXIETY PATIENTS: USING SPATIOTEMPORAL LYAPUNOV EXPONENT
 Hongjian He, Xiaoping Xie, Feiyan Chen, Zhejiang University, China; Xiaohu Zhao, Tongji affiliated hospital of Tongji University, China

FR-AM-PS4.8 AN EFFECTIVE AND EFFICIENT TECHNIQUE FOR SEARCHING FOR SIMILAR BRAIN ACTIVATION PATTERNS
 Jingjing Zhang, Vasileios Megalooikonomou, Temple University, United States

FR-AM-PS4.9 SIGNAL AND ANATOMICAL CONSTRAINTS IN ADAPTIVE FILTERING OF FMRI DATA
 Magnus Borge, Joakim Rydell, Linköping University, Sweden

FR-AM-PS4.10 THE RELATION BETWEEN ALPHA BAND POWER, HEART RATE AND FMRI
 Jan De Munck, Sonia Goncalves, Theo Faes, Petra Pouwels, Joost Kuijter, Rob Heethaar, Fernando Lopes da Silva, VU medical center, Netherlands

FR-AM-PS4.11 A SHAPE-BASED FINITE IMPULSE RESPONSE MODEL FOR FUNCTIONAL BRAIN IMAGES
 Bing Bai, Paul Kantor, Rutgers University, United States

FR-AM-OS1 Dynamic and Parametric Imaging (Oral)

Time: Friday, April 13, 11:10 - 12:30

Place: Salon B

Chair: Francoise Peyrin, INSA Lyon, France

11:10 - 11:30

FR-AM-OS1.1 STATISTICAL MODELING OF ATTENUATION-CORRECTED PET DATA WITH APPLICATION TO RECONSTRUCTION OF REGIONAL TIME ACTIVITY CURVES

Evgeny Krestyannikov, Jussi Tohka, Ulla Ruotsalainen, Tampere University of Technology, Finland

11:30 - 11:50

FR-AM-OS1.2 WAVELET-BASED STATISTICAL ANALYSIS FOR OPTICAL IMAGING IN MOUSE OLFACATORY BULB

Dimitri Van De Ville, Brice Bathellier, Alan Carleton, Thierry Blu, Michael Unser, Ecole Polytechnique Fédérale de Lausanne, Switzerland

11:50 - 12:10

FR-AM-OS1.3 EVALUATION OF MODEL BASED PARAMETRIC IMAGE ESTIMATION IN MR

Luis Carlos Cobo Rus, Jovan G. Brankov, Illinois Institute of Technology, United States

12:10 - 12:30

FR-AM-OS1.4 RESOLUTION PROPERTIES IN REGULARIZED DYNAMIC MRI RECONSTRUCTION

Kimberly Khalsa, Jeffrey Fessler, University of Michigan, United States

FR-AM-OS2 fMRI Analysis (Oral)

Time: Friday, April 13, 11:10 - 12:30

Place: Salon C

Chair: James Duncan, Yale University, USA

11:10 - 11:30

FR-AM-OS2.1 SPARSE VARIABLE PRINCIPAL COMPONENT ANALYSIS WITH APPLICATION TO FMRI
Magnus Ulfarsson, University of Michigan, United States; Victor Solo, University of New South Wales, Australia

11:30 - 11:50

FR-AM-OS2.2 AN EM ALGORITHM FOR RICIAN FMRI ACTIVATION DETECTION

Victor Solo, University of New South Wales, Australia; Joonki Noh, University of Michigan, United States

11:50 - 12:10

FR-AM-OS2.3 A MAXIMAL-CORRELATION APPROACH USING ICA FOR TESTING FUNCTIONAL NETWORK CONNECTIVITY APPLIED TO SCHIZOPHRENIA

Madiha Jafri, Hartford Hospital, United States; Godfrey Pearlson, Institute of Living / Yale University School of Medicine, United States; Vince Calhoun, The MIND Institute / The University of New Mexico, United States

12:10 - 12:30

FR-AM-OS2.4 FMRI BASELINE DRIFT ESTIMATION METHOD BY MDL PRINCIPLE

Negar Bazargani, Aria Nosratinia, University of Texas, Dallas, United States; Kaundinya Gopinath, Richard W. Briggs, University of Texas Southwestern Medical Center at Dallas, United States

FR-AM-OS3 Optical and Fluorescence Microscopy (Oral)
 Time: Friday, April 13, 11:10 - 12:30
 Place: Salon J
 Chair: Jean-Christophe Olivo-Marin, Institut Pasteur, France

11:10 - 11:30

FR-AM-OS3.1 FAST GLOBAL IMAGE REGISTRATION USING RANDOM PROJECTIONS
 Dennis Healy, Jr., University of Maryland, United States;
 Gustavo Rohde, Carnegie Mellon University, United States

11:30 - 11:50

FR-AM-OS3.2 USING COHERENT ANTI-STOKES RAMAN SCATTERING (CARS) TO IMAGE BRAIN TISSUES
 Xiaoyin Xu, Brigham and Women's Hospital, United States; Conor Evans, Harvard University, United States; Geoffrey Young, Jian Chen, Santosh Kesari, Brigham and Women's Hospital, United States; X. Sunney Xie, Harvard University, United States; Stephen T. C. Wong, Brigham and Women's Hospital, United States

11:50 - 12:10

FR-AM-OS3.3 MULTISCALE INTENSITY ESTIMATION FOR MULTI-PHOTON MICROSCOPY
 Rebecca Willett, Duke University, United States

12:10 - 12:30

FR-AM-OS3.4 SHAPE-BASED RECONSTRUCTION OF SKIN LESION FOR MULTI-SPECTRAL NEVOSCOPE USING GENETIC ALGORITHM OPTIMIZATION
 Song Wang, Atam Dhawan, New Jersey Institute of Technology, United States

FR-AM-SS1a Computer-Aided Detection in Radiology: Current Status and Future Directions (Part I) (Special Session)
 Time: Friday, April 13, 11:10 - 12:30
 Place: Salon H
 Chair: Ronald M. Summers, Jianhua Yao and Robert Van Uitert, National Institutes of Health, USA

11:10 - 11:30

FR-AM-SS1a.1 ADVANTAGES AND EXAMPLES OF RESAMPLING FOR CAD EVALUATION
 Frank Samuelson, Nicholas Petrick, Sophie Paquerault, US Food and Drug Administration, United States

11:30 - 11:50

FR-AM-SS1a.2 CURRENT CONCEPTS IN COMPUTER-AIDED DETECTION FOR CT COLONOGRAPHY
 Ronald Summers, National Institutes of Health, United States

11:50 - 12:10

FR-AM-SS1a.3 PULMONARY CT IMAGE ANALYSIS AND COMPUTER AIDED DETECTION
 Milan Sonka, J. Tschirren, S. Ukil, X. Zhang, Y. Xu, J. M. Reinhardt, E. J. van Beek, G. McLennan, E. A. Hoffman, University of Iowa, United States

12:10 - 12:30

FR-AM-SS1a.4 MODEL-BASED JUNCTION DETECTION ALGORITHM WITH APPLICATIONS TO LUNG NODULE DETECTION
 Fei Zhao, University of Iowa, United States; Paulo Mendonca, Rahul Bhotika, James Miller, GE Global Research, United States

FR-AM-SS1b Computer-Aided Detection in Radiology: Current Status and Future Directions (Part II) (Special Session)

Time: Friday, April 13, 13:30 - 14:50

Place: Salon H

Chair: Ronald M. Summers, Jianhua Yao and Robert Van Uitert, National Institutes of Health, USA

13:30 - 13:50

FR-AM-SS1b.1 PROGRESS IN BREAST CADX

Maryellen Giger, Yading Yuan, Hui Li, Karen Drukker, Weijie Chen, Li Lan, Karla Horsch, University of Chicago, United States

13:50 - 14:10

FR-AM-SS1b.2 COMPUTER AIDED DETECTION OF LYTIC BONE METASTASES IN THE SPINE USING ROUTINE CT IMAGES

Jianhua Yao, Stacy O'Connor, Ronald Summers, National Institutes of Health, United States

14:10 - 14:30

FR-AM-SS1b.3 IMPROVEMENT OF VISUAL SIMILARITY OF SIMILAR BREAST MASSES SELECTED BY COMPUTER-AIDED DIAGNOSIS SCHEMES

Bin Zheng, Claudia Mello-Thoms, Xiaohui Wang, David Gur, University of Pittsburgh, United States

14:30 - 14:50

FR-AM-SS1b.4 STEP: SPATIAL-TEMPORAL ENHANCEMENT PATTERN, FOR MR-BASED BREAST TUMOR DIAGNOSIS

Yuanjie Zheng, University of Pennsylvania, United States; Sarah Englander, Mitchell D. Schnall, Dinggang Shen, University of Pennsylvania, United States

FR-PM-OS1 Image Segmentation (Oral)

Time: Friday, April 13, 13:30 - 14:50

Place: Salon B

Chair: Robert F. Murphy, Carnegie Mellon University, USA

13:30 - 13:50

FR-PM-OS1.1 SEGMENTATION OF MAMMOSPHERE STRUCTURES FROM VOLUMETRIC DATA

Ju Han, Hang Chang, Qing Yang, Mary Helen Barcellos-Hoff, Bahram Parvin, Lawrence Berkeley National Lab, United States

13:50 - 14:10

FR-PM-OS1.2 AUTOMATED SPINE DETECTION USING CURVILINEAR STRUCTURE DETECTOR AND LDA CLASSIFIER

Yong Zhang, Xiaobo Zhou, Harvard Medical School, United States; Rochelle Witt, Bernardo Sabatini, Harvard University, United States; Donald Adjeroh, West Virginia University, United States; Stephen T. C. Wong, Harvard Medical School, United States

14:10 - 14:30

FR-PM-OS1.3 PERCEPTUAL GROUPING OF MEMBRANE SIGNALS IN CELL-BASED ASSAYS

Hang Chang, K.L. Andarawewa, Ju Han, Mary Helen Barcellos-Hoff, Bahram Parvin, Lawrence Berkeley National Laboratory, United States

14:30 - 14:50

FR-PM-OS1.4 AUTOMATIC SEGMENTATION OF NUCLEI IN 3D MICROSCOPY IMAGES OF C.ELEGANS

Fuhui Long, Hanchuan Peng, Eugene Myers, Janelia Farm Research Campus, Howard Hughes Medical Institute, United States

FR-PM-OS2 X-Ray, CT, PET, and SPECT Imaging (Oral)
 Time: Friday, April 13, 13:30 - 14:50
 Place: Salon C
 Chair: Miles N. Wernick, Illinois Institute of Technology, USA

13:30 - 13:50

FR-PM-OS2.1 A MODEL TO INVESTIGATE THE FEASIBILITY OF FDG AS A SURROGATE MARKER OF HYPOXIA.

Catherine Kelly, University of Oxford, United Kingdom;
 Kieran Smallbone, University of Manchester, United Kingdom;
 Tiina Roose, Michael Brady, University of Oxford, United Kingdom

13:50 - 14:10

FR-PM-OS2.2 ADAPTIVE REGULARIZATION USING B-SPLINES FOR GATED DYNAMIC CARDIAC SPECT

Yongyi Yang, Mingwu Jin, Illinois Institute of Technology, United States

14:10 - 14:30

FR-PM-OS2.3 BINARY MATRICES FOR MULTIPLEXED X-RAY IMAGING: CONSTANT-TIME AND CONSTANT-EXPOSURE MODELS

David Lalush, North Carolina State University, United States

14:30 - 14:50

FR-PM-OS2.4 QUANTITATIVE EVALUATION OF PHASE RETRIEVAL ALGORITHMS IN PROPAGATION BASED PHASE TOMOGRAPHY

Max Langer, European Synchrotron Radiation Facility / INSA de Lyon, France; Peter Cloetens, Jean Pierre Guigay, European Synchrotron Radiation Facility, France; Solène Valton, Institut National des Sciences Appliquées de Lyon, France; Françoise Peyrin, European Synchrotron Radiation Facility / INSA de Lyon, France

FR-PM-OS3 Multimodality and Novel Imaging Methods (Oral)
 Time: Friday, April 13, 13:30 - 14:50
 Place: Salon J
 Chair: Jinyi Qi, University of California, Davis, USA

13:30 - 13:50

FR-PM-OS3.1 NOISE AND ARTIFACT REMOVAL IN KNIFE-EDGE SCANNING MICROSCOPY

David Mayerich, Bruce McCormick, John Keyser, Texas A&M University, United States

13:50 - 14:10

FR-PM-OS3.2 MRI/DOI NEURONAVIGATION: REVISITING THE NEGATIVE BOLD SIGNAL THROUGH DIFFUSE OPTICAL IMAGING

Mathieu Dehaes, Frederic Lesage, Ecole Polytechnique, Canada; Roch Comeau, Rogue-Research Inc., Canada

14:10 - 14:30

FR-PM-OS3.3 MOLECULAR TOMOGRAPHIC IMAGING OF LYMPH NODES WITH NIR FLUORESCENCE

Amit Joshi, Baylor College of Medicine, United States; Wolfgang Bangerth, Texas A&M University, United States; Ruchi Sharma, John Rasmussen, Wei Wang, Eva M. Sevick-Muraca, Baylor College of Medicine, United States

14:30 - 14:50

FR-PM-OS3.4 A DECISION-THEORETIC APPROACH TO TRANSILLUMINATION IMAGING IN BIOLOGICAL MEDIUMS

Brian Eriksson, Robert Nowak, University of Wisconsin - Madison, United States

FR-PM-OS4a Image Registration (Part I) (Oral)

Time: Friday, April 13, 15:00 - 16:20
Place: Salon B
Chair: J. Michael Fitzpatrick, Vanderbilt University, USA

15:00 - 15:20

FR-PM-OS4a.1 AN ITERATIVE METHOD FOR REGISTRATION OF HIGH-RESOLUTION CARDIAC HISTOANATOMICAL AND MRI IMAGES

Tahir Mansoori, University of Oxford, United Kingdom;
Gernot Plank, Medical University of Graz, Austria;
Rebecca Burton, Jürgen Schneider, Peter Kohl, David Gavaghan, Vicente Grau, University of Oxford, United Kingdom

15:20 - 15:40

FR-PM-OS4a.2 FEATURE-BASED VS. INTENSITY-BASED BRAIN IMAGE REGISTRATION: COMPREHENSIVE COMPARISON USING MUTUAL INFORMATION

Leonid Teverovskiy, Carnegie Mellon University, United States; Owen Carmichael, University of California, Davis, United States; Howard Aizenstein, University of Pittsburgh Medical Center, United States; Nicole Lazar, University of Georgia, United States; Yanxi Liu, Carnegie Mellon University, United States

15:40 - 16:00

FR-PM-OS4a.3 NON-RIGID IMAGE REGISTRATION USING ADAPTIVE GRID GENERATION: PRELIMINARY RESULTS

Hua-mei Chen, Chih-yao Hsieh, Guojun Liao, University of Texas, Arlington, United States

16:00 - 16:20

FR-PM-OS4a.4 A NEW GLOBAL REGISTRATION APPROACH OF MEDICAL IMAGING USING VECTOR MAPS

Hossam E Abd El Munim, Aly A. Farag, CVIP Lab, University of Louisville, United States

FR-PM-OS5a Image Segmentation (Part I) (Oral)

Time: Friday, April 13, 15:00 - 16:20
Place: Salon C
Chair: Christos Davatzikos, University of Pennsylvania, USA

15:00 - 15:20

FR-PM-OS5a.1 ADAPTIVE SEGMENTATION OF INTERNAL BRAIN STRUCTURES IN PATHOLOGICAL MR IMAGES DEPENDING ON TUMOR TYPES

Hassan Khotanlou, Jamal Atif, Elsa Angelini, ENST - CNRS UMR 5141 LTCI, France; Hugues Duffau, CHU Montpellier, France; Isabelle Bloch, ENST - CNRS UMR 5141 LTCI, France

15:20 - 15:40

FR-PM-OS5a.2 EFFICIENT USE OF CEREBRAL CORTICAL THICKNESS TO CORRECT BRAIN MR SEGMENTATION

Thanh Mai Diep, Pierrick Bourgeat, Sebastien Ourselin, BioMedIA Lab, CSIRO ICT Centre, Australia

15:40 - 16:00

FR-PM-OS5a.3 LESION DETECTION IN NOISY MR BRAIN IMAGES USING CONSTRAINED GMM AND ACTIVE CONTOURS

Oren Freifeld, Hayit Greenspan, Tel-Aviv University, Israel; Jacob Goldberger, Bar-Ilan University, Israel

16:00 - 16:20

FR-PM-OS5a.4 PROBABILISTIC SEGMENTATION OF BRAIN TUMORS BASED ON MULTI-MODALITY MAGNETIC RESONANCE IMAGES

Hongmin Cai, University of Hong Kong, Hong Kong SAR of China; Ragini Verma, Yangming Ou, Seung-koo Lee, Elias Melhem, Christos Davatzikos, University of Pennsylvania, United States

FR-PM-OS6a Image Restoration and Enhancement (Part I) (Oral)

Time: Friday, April 13, 15:00 - 16:20

Place: Salon J

Chair: Erik Meijering, Erasmus MC, The Netherlands

15:00 - 15:20

FR-PM-OS6a.1 A HYBRID FILTERING APPROACH TO RETINAL VESSEL SEGMENTATIONChang-Hua Wu, Kettering University, United States;
Gady Agam, Illinois Institute of Technology, United States; Peter Stanchev, Kettering University, United States

15:20 - 15:40

FR-PM-OS6a.2 FAST WAVELET-REGULARIZED IMAGE DECONVOLUTION

Cédric Vonesch, Michael Unser, EPFL, Switzerland

15:40 - 16:00

FR-PM-OS6a.3 REGULARIZED INTERPOLATION FOR NOISY DATA

Sathish Ramani, Philippe Thévenaz, Michael Unser, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

16:00 - 16:20

FR-PM-OS6a.4 REGULARIZED B1+ MAP ESTIMATION IN MRI

Amanda Funai, Jeffrey Fessler, William Grissom, Douglas Noll, University of Michigan, United States

FR-PM-SS1a Cardiac Imaging and Analysis (Part I) (Special Session)

Time: Friday, April 13, 15:00 - 16:20

Place: Salon H

Chair: Pengcheng Shi, Hong Kong University of Science and Technology, China and Huafeng Liu, State Key Laboratory of Modern Optical Instrumentation, Zhejiang, China

15:00 - 15:20

FR-PM-SS1a.1 FAST MOTION IMAGING USING REDUCED FIELD OF VIEW PARTIAL FOURIER MRI

Harsh K. Agarwal, Khaled Z. Abd-Elmoniem, Jerry L. Prince, Image Analysis and Communication Laboratory, The Johns Hopkins University, United States

15:20 - 15:40

FR-PM-SS1a.2 THE ROLE OF PHASE CONTRAST VELOCITY IMAGING IN MYOCARDIAL CONTRACTILITY ANALYSIS

Su-Lin Lee, Andrew Huntbatch, Guang-Zhong Yang, Imperial College London, United Kingdom

15:40 - 16:00

FR-PM-SS1a.3 CARDIOSENSE3D : PATIENT-SPECIFIC CARDIAC SIMULATION

Hervé Delingette, Nicholas Ayache, Maxime Sermesant, Jean-Marc Peyrat, Kawal Rhode, INRIA, France; Reza Razavi, KCL, United Kingdom; Dominique Chapelle, Philippe Moireau, Jacques Sainte-marie, INRIA, France; Elliot Mc Veigh, NIH, United States; Miguel Fernandez, Jean-Frédéric Gerbeau, Karima Djabella, Qinghua Zhang, Michel Sorine, INRIA, France

16:00 - 16:20

FR-PM-SS1a.4 NONINVASIVE IMAGING OF 3D CARDIAC ELECTROPHYSIOLOGY

Linwei Wang, Heye Zhang, Ken WC Wong, Medical Image Computing Group, Hong Kong University of Science and Technology, Hong Kong SAR of China; Huafeng Liu, State Key Laboratory of Modern Optical Instrumentation, Zhejiang, China; Pengcheng Shi, Medical Image Computing Group, Hong Kong University of Science and Technology, Hong Kong SAR of China

FR-PM-OS4b Image Registration (Part II) (Oral)

Time: Friday, April 13, 16:40 - 18:00

Place: Salon B

Chair: Yongyi Yang, Illinois Institute of Technology, USA

16:40 - 17:00

**FR-PM-OS4b.1 SYMMETRIC SHAPE AVERAGING IN THE
DFFEOMORPHIC SPACE**

Brian Avants, Charles Epstein, James Gee, University of
Pennsylvania, United States

17:00 - 17:20

**FR-PM-OS4b.2 A FINITE ELEMENT METHOD FOR ELASTIC
PARAMETERIZATION AND ALIGNMENT
OF CORTICAL SURFACES USING SULCAL
CONSTRAINTS**

Anand Joshi, Signal and Image Processing Institute,
USC, United States; David Shattuck, Paul Thompson,
Laboratory of Neuro Imaging, UCLA, United States;
Richard Leahy, Signal and Image Processing Institute,
USC, United States

17:20 - 17:40

**FR-PM-OS4b.3 A COMBINED FEATURE ENSEMBLE BASED
MUTUAL INFORMATION SCHEME FOR
ROBUST INTER-MODAL, INTER-PROTOCOL
IMAGE REGISTRATION**

Jonathan Chappelow, Anant Madabhushi, Rutgers
University, United States; Mark Rosen, John
Tomaszewski, Michael Feldman, University of
Pennsylvania, United States

17:40 - 18:00

**FR-PM-OS4b.4 INTERPOLATION ARTIFACTS IN BIOMEDICAL
IMAGE REGISTRATION**

Gustavo Rohde, Carnegie Mellon University, United
States; Dennis Healy, Jr., Carlos Berenstein, University
of Maryland, United States; Akram Aldroubi, Vanderbilt
University, United States

FR-PM-OS5b Image Segmentation (Part II) (Oral)

Time: Friday, April 13, 16:40 - 18:00

Place: Salon C

Chair: Christos Davatzikos, University of Pennsylvania, USA

16:40 - 17:00

**FR-PM-OS5b.1 AUTOMATIC SEGMENTATION OF BRAIN
TISSUE AND WHITE MATTER LESIONS IN MRI**

Renske de Boer, Fedde van der Lijn, Henri Vrooman,
Meike Vernooij, M. Arfan Ikram, Monique Breteler,
Wiro Niessen, Erasmus MC, Netherlands

17:00 - 17:20

**FR-PM-OS5b.2 A JOINT REGISTRATION AND SEGMENTATION
APPROACH TO SKULL STRIPPING**

Aaron Carass, M. Bryan Wheeler, Jennifer Cuzzocreo,
Pierre-Louis Bazin, Susan S. Bassett, Jerry L. Prince, The
Johns Hopkins University, United States

17:20 - 17:40

**FR-PM-OS5b.3 HAMILTON-JACOBI SKELETONS ON
CORTICAL SURFACES WITH APPLICATIONS
IN CHARACTERIZING THE GYRIFICATION
PATTERN IN WILLIAMS SYNDROME**

Yonggang Shi, Laboratory of Neuro Imaging, UCLA,
United States; Allan Reiss, Stanford University, United
States; Agatha Lee, Rebecca Dutton, Laboratory of
Neuro Imaging, UCLA, United States; Ursula Bellugi,
Salk Institute Laboratory for Cognitive Neuroscience,
United States; Albert Galaburda, Harvard Medical
School, Department of Neurology, United States; Julie
Korenberg, UCLA Department of Pediatrics, United
States; Debra Mills, Emory University, United States;
Ivo Dinov, Paul Thompson, Arthur Toga, Laboratory of
Neuro Imaging, UCLA, United States

17:40 - 18:00

**FR-PM-OS5b.4 A SHAPE INDUCED ANISOTROPIC FLOW FOR
VOLUMETRIC VASCULAR SEGMENTATION IN
MRA**

Ali Gooya, Hongen Liao, Kiyoshi Matsumiya, Ken
Masamune, Takeyoshi Dohi, University of Tokyo, Japan

FR-PM-OS6b Image Restoration and Enhancement (Part II) (Oral)

Time: Friday, April 13, 16:40 - 18:00

Place: Salon J

Chair: Erik Meijering, Erasmus MC, The Netherlands

16:40 - 17:00

FR-PM-OS6b.1 BIAS FREE FEATURES DETECTION FOR HIGH CONTENT SCREENING

Thierry Dorval, Arnaud Ogier, Elodie Dusch, Neil Emans, Auguste Genovesio, Institut Pasteur Korea, Republic of Korea

17:00 - 17:20

FR-PM-OS6b.2 SINGLE CHANNEL EXACT BLIND IMAGE DECONVOLUTION FROM RADIALLY SYMMETRIC FIR BLUR

Kwang Eun Jang, Jong Chul Ye, KAIST, Republic of Korea

17:20 - 17:40

FR-PM-OS6b.3 A COMPARISON OF THE BILATERAL FILTER AND TV-NORM MINIMIZATION FOR IMAGE DENOISING

Swetha Danda, Tim McGraw, West Virginia University, United States

17:40 - 18:00

FR-PM-OS6b.4 FAST AND ACCURATE FEATURE DETECTION AND TRIANGULATION USING TOTAL VARIATION FILTERING OF BIOLOGICAL IMAGES

Alexandre Cunha, Jerome Darbon, Tony Chan, Arthur Toga, University of California Los Angeles, United States

FR-PM-SS1b Cardiac Imaging and Analysis (Part II) (Special Session)

Time: Friday, April 13, 16:40 - 18:00

Place: Salon H

Chair: Pengcheng Shi, Hong Kong University of Science and Technology, China and Huafeng Liu, State Key Laboratory of Modern Optical Instrumentation, Zhejiang, China

16:40 - 17:00

FR-PM-SS1b.1 TAGGED MRI ANALYSIS USING GABOR FILTERS

Leon Axel, Ting Chen, Sohae Chung, New York University, United States

17:00 - 17:20

FR-PM-SS1b.2 LEARNING METHODS IN SEGMENTATION OF CARDIAC TAGGED MRI

Zhen Qian, Dimitris Metaxas, Rutgers University, United States; Leon Axel, New York University, United States

17:20 - 17:40

FR-PM-SS1b.3 IMAGING AND ANALYSIS FOR DETERMINATION OF CARDIOVASCULAR MECHANICS

Amir Amini, Jian Chen, Yuehuan Wang, University of Louisville, United States

17:40 - 18:00

FR-PM-SS1b.4 LV STRAIN ESTIMATION FROM 4D ECHOCARDIOGRAPHY

James S. Duncan, Ping Yan, Yun Zhu, Albert Sinusas, Yale University, United States; Congxian Jia, University of Michigan, United States; Matthew O. Donnell, University of Washington, United States

- SA-AM-PS1 Image Registration (Poster)**
 Time: Saturday, April 14, 09:30 - 10:50
 Place: Salon A
 Chair: Karl Rohr, University of Heidelberg and DKFZ, Germany
- SA-AM-PS1.1 IDENTIFYING MOST RESPONSIVE REGIONS IN THE HIP USING COMPOSITE MODELS**
 Wenjun Li, Alain Koyama, Isra Saeed, Thomas Lang, University of California, San Francisco, United States
- SA-AM-PS1.2 CONSTRAINED REGISTRATION OF MULTIPLE RIGID OBJECTS IN CLOSE PROXIMITY: APPLICATION IN THE WRIST JOINT**
 M. van de Giessen, F.M. Vos, Delft University of Technology, Netherlands; S.D. Strackee, M. Maas, C.A. Grimbergen, Academic Medical Center, Netherlands; Lucas van Vliet, Delft University of Technology, Netherlands; G.J. Streekstra, Academic Medical Center, Netherlands
- SA-AM-PS1.3 DEFORMABLE REGISTRATION OF SUPINE AND PRONE COLONS USING CENTERLINE ANALYSIS**
 Jung W. Suh, Christopher L. Wyatt, Virginia Tech, United States
- SA-AM-PS1.4 FAST FLUID REGISTRATION WITH DIRICHLET BOUNDARY CONDITIONS: A TRANSFORM-BASED APPROACH**
 Nathan Cahill, Carestream Health, Inc., United States; Alison Noble, University of Oxford, United Kingdom; David J. Hawkes, University College London, United Kingdom; Lawrence Ray, Carestream Health, Inc., United States
- SA-AM-PS1.5 FEATURE CURVE-GUIDED VOLUME RECONSTRUCTION FROM 2D IMAGES**
 Yunhao Tan, Jing Hua, Ming Dong, Wayne State University, United States
- SA-AM-PS1.6 N-SIFT: N-DIMENSIONAL SCALE INVARIANT FEATURE TRANSFORM FOR MATCHING MEDICAL IMAGES**
 Warren Cheung, University of British Columbia, Canada; Ghassan Hamarneh, Simon Fraser University, Canada
- SA-AM-PS1.7 QUANTITATIVE EVALUATION OF DEFORMABLE IMAGE REGISTRATION**
 Hualiang Zhong, Jeffrey Siebers, Virginia Commonwealth University, United States

- SA-AM-PS1.8 FULLY AUTOMATED WHOLE-BODY REGISTRATION IN MICE USING AN ARTICULATED SKELETON ATLAS**
 Martin Baiker, Delft University of Technology, Netherlands; Julien Milles, Leiden University Medical Center, Netherlands; Albert Vossepoel, Delft University of Technology, Netherlands; Ivo Que, Eric Kaijzel, Clemens Lowik, Johan Reiber, Jouke Dijkstra, Boudewijn Lelieveldt, Leiden University Medical Center, Netherlands
- SA-AM-PS1.9 ACCURATE PET-PET REGISTRATION TO ASSESS LUNG TUMOR EVOLUTION**
 Zehor Ouksili, Clovis Tauber, INP, France; Julia Nalis, ICR, France; Hadj Batatia, INP, France; Olivier Caselles, Frederic Courbon, ICR, France
- SA-AM-PS1.10 REGISTRATION OF ULTRASOUND IMAGES USING AN INFORMATION-THEORETIC FEATURE DETECTOR**
 Zhe Wang, New Jersey Institute of Technology, United States; Greg Slabaugh, Gozde Unal, Tong Fang, Siemens Corporate Research, United States
- SA-AM-PS1.11 A CONSTRAINED NON-RIGID REGISTRATION ALGORITHM FOR APPLICATION IN PROSTATE RADIOTHERAPY**
 William Greene, Sudha Chelikani, Xenophon Papademetris, Jonathan Knisely, James S. Duncan, Yale University, United States
- SA-AM-PS1.12 ITERATIVE SORTING FOR 4DCT IMAGES BASED ON INTERNAL ANATOMY MOTION**
 Rongping Zeng, Jeffrey Fessler, James Balter, University of Michigan, United States; Peter Balter, UT M. D. Anderson Cancer Center, United States
- SA-AM-PS1.13 PHYSICALLY ACCURATE B-SPLINE BASED NON-RIGID REGISTRATION USING VARIABLE SPRING MODEL**
 Nicholas Herlambang, Hongen Liao, Kiyoshi Matsumiya, Ken Masamune, Takeyoshi Dohi, University of Tokyo, Japan

- SA-AM-PS2 Diffusion Tensor Imaging (Poster)**
 Time: Saturday, April 14, 09:30 - 10:50
 Place: Salon K
 Chair: Rachid Deriche, INRIA Sophia Antipolis, France
- SA-AM-PS2.1 DISCRIMINATIVE ANALYSIS OF NEUROMYELITIS OPTICA USING TWO-DIMENSIONAL HISTOGRAM FROM DIFFUSION TENSOR IMAGING**
 Fuchun Lin, Chinese Academy Sciences, China; Chunshui Yu, Department of Radiology, Xuanwu Hospital, Capital University Medical Sciences, China; Tianzi Jiang, Chinese Academy Sciences, China; Kuncheng Li, Piu Chan, Xuanwu Hospital, Capital University Medical Sciences, China; Hao Lei, Chinese Academy of Sciences, China
- SA-AM-PS2.2 SPLITTING TRACKING THROUGH CROSSING FIBERS: MULTIDIRECTIONAL Q-BALL TRACKING**
 Rachid Deriche, Maxime Descoteaux, Odyssee Project Team, INRIA/ENPC/ENS, INRIA Sophia Antipolis, France
- SA-AM-PS2.3 FAST TEXTURE-BASED TENSOR FIELD VISUALIZATION FOR DT-MRI**
 Tim McGraw, West Virginia University, United States; Mariappan Nadar, Siemens Corporate Research, United States
- SA-AM-PS2.4 LINEAR AND KERNEL FISHER DISCRIMINANT ANALYSIS FOR STUDYING DIFFUSION TENSOR IMAGES IN SCHIZOPHRENIA**
 Frans Vos, Academic Medical Center Amsterdam, Netherlands; Matthan Caan, Koen Vermeer, Delft University of Technology, Netherlands; Charles Majoie, Ard den Heeten, Academic Medical Center Amsterdam, Netherlands; Lucas van Vliet, Delft University of Technology, Netherlands
- SA-AM-PS2.5 COMPARATIVE EVALUATION OF VOXEL SIMILARITY MEASURES FOR AFFINE REGISTRATION OF DIFFUSION TENSOR MR IMAGES**
 Mika Pollari, Helsinki University of Technology, Finland; Tuomas Neuvonen, Helsinki University of Central Hospital, Finland; Mikko Lilja, Helsinki University of Technology, Finland; Jyrki Lötjönen, VTT, Finland
- SA-AM-PS2.6 A CONTINUOUS MIXTURE OF TENSORS MODEL FOR DIFFUSION-WEIGHTED MR SIGNAL RECONSTRUCTION**
 Bing Jian, Baba C. Vemuri, University of Florida, United States; Evren Ozarslan, National Institutes of Health, United States; Paul Carney, Thomas Mareci, University of Florida, United States

- SA-AM-PS2.7 MULTIVARIATE HYPOTHESIS TESTING OF DTI DATA FOR TISSUE CLUSTERING**
 Raisa Freidlin, National Institutes of Health, United States; Yaniv Assaf, Tel Aviv University, Israel; Peter Basser, National Institutes of Health, United States
- SA-AM-PS2.8 AUTOMATIC BRAIN TUMOR SEGMENTATION USING TISSUE DIFFUSIVITY CHARACTERISTICS**
 Azadeh Yazdan-Shahmorad, Hesamoddin Jahanian, University of Michigan, United States; Suresh Patel, Henry Ford Hospital, United States; Hamid Soltanian-Zadeh, University of Tehran, United States
- SA-AM-PS2.9 POSTPROCESSING OF BRAIN WHITE MATTER FIBER ORIENTATION DISTRIBUTION FUNCTIONS**
 Steven Delputte, Hans Dierckx, Els Fieremans, Yves D'Asseler, Ghent University, Belgium; Rik Achten, Ghent University Hospital, Belgium; Ignace Lemahieu, Ghent University, Belgium
- SA-AM-PS2.10 SIMULATION OF THE DIFFUSION IN THE INTERSTITIAL SPACE OF A FIBER PHANTOM**
 Els Fieremans, Ghent University, Belgium; Yves De Deene, Ghent University Hospital, Belgium; Steven Delputte, Ghent University, Belgium; Eric Achten, Ghent University Hospital, Belgium; Yves D'Asseler, Ignace Lemahieu, Ghent University, Belgium
- SA-AM-PS2.11 EXPONENTIAL TENSORS: A FRAMEWORK FOR EFFICIENT HIGHER-ORDER DT-MRI COMPUTATIONS**
 Angelos Barmpoutis, Baba C. Vemuri, University of Florida, United States
- SA-AM-PS2.12 TWO-TENSOR FIBER TRACTOGRAPHY**
 Ørjan Bergmann, University of Bergen, Norway; Gordon Kindlmann, Sharon Peled, Carl-Fredrik Westin, Harvard Medical School, United States

SA-AM-PS3 Tomography and Image Reconstruction (Poster)

Time: Saturday, April 14, 09:30 - 10:50

Place: Salon D/E

Chair: Paul Kinahan, University of Washington, USA

SA-AM-PS3.1 RESTORATION OF MICRO-CT IMAGES USING LOCALLY ADAPTIVE B-SPLINE SMOOTHING
Xabier Artachevarria, Arrate Muñoz-Barrutia, Carlos Ortiz-de-Solorzano, Centre for Applied Medical Research, University of Navarra, Spain

SA-AM-PS3.2 AUTOCORRECTING RECONSTRUCTION FOR FLEXIBLE CT SCANNERS
Jeff Orchard, Alexei Ramotar, University of Waterloo, Canada

SA-AM-PS3.3 NON-ITERATIVE EXACT SIGNAL RECOVERY IN FREQUENCY DOMAIN OPTICAL COHERENCE TOMOGRAPHY
S. C. Sekhar, Rainer A Leitgeb, Martin L. Villiger, Adrian H. Bachmann, Thierry Blu, Michael Unser, Ecole Polytechnique Federal de Lausanne, Switzerland

SA-AM-PS3.4 ALGORITHM FOR IN VIVO CW FLUORESCENCE DIFFUSE OPTICAL TOMOGRAPHY TAKING INTO ACCOUNT OPTICAL HETEROGENEITIES OF BIOLOGICAL TISSUES AND THE SHAPE OF THE ANIMAL
Lionel Herve, Anne Koenig, Anabela da Silva, Michel Berger, Jérôme Boutet, Philippe Peltié, Philippe Rizo, Jean-Marc Dinten, CEA-LETI, France

SA-AM-PS3.5 A MULTI-SCALE METHOD FOR BIOLUMINESCENCE TOMOGRAPHY USING MULTIPLE TYPES OF A PRIORI INFORMATION
Yujie Lv, Jie Tian, Institute of Automation, Chinese Academy of Sciences, China; Wenxiang Cong, Ge Wang, VT-WFU School of Biomedical Engineering and Sciences, Virginia Polytechnic Institute and State University, United States; Wei Yang, Chenghu Qin, Institute of Automation, Chinese Academy of Sciences, China

(Continued from previous page.)

SA-AM-PS3.6 A GRADUALLY UNMASKING METHOD FOR LIMITED DATA TOMOGRAPHY
Hstau Y. Liao, Institute for Mathematics and its Applications, United States

SA-AM-PS3.7 COMPARISON OF RADIATIVE TRANSPORT, MONTE CARLO, AND DIFFUSION FORWARD MODELS FOR SMALL ANIMAL OPTICAL TOMOGRAPHY
John Rasmussen, Tianshu Pan, Amit Joshi, Baylor College of Medicine, United States; Todd Wareing, John McGhee, Transpire, Inc., United States; Eva M. Sevick-Muraca, Baylor College of Medicine, United States

SA-AM-PS3.8 A POLYCHROMATIC METHOD TO ENHANCE THE SOFT TISSUE CONTRAST OF COMPUTERIZED TOMOGRAPHIC IMAGES USING A SADDLE POINT APPROXIMATION
Indika Walimuni, Donald Kouri, Manos Papadakis, University of Houston, United States; Bernhard Bodmann, University of Waterloo, Canada

SA-AM-PS3.9 TOMOSYNTHESIS IMPLEMENTATION OF MULTIPLE IMAGE RADIOGRAPHY
Keivan Majidi, Jovan G. Brankov, Miles N. Wernick, Illinois Institute of Technology, United States

SA-AM-PS3.10 A BACKPROJECTION-BASED ESTIMATION METHOD FOR REDUCING THE CONE-BEAM ARTIFACTS IN CIRCULAR TRAJECTORIES
Lei Zhu, Jared Starman, Rebecca Fahrig, Stanford University, United States

- SA-AM-PS4 Cardiovascular Image Segmentation (Poster)**
 Time: Saturday, April 14, 09:30 - 10:50
 Place: Salon F/G
 Chair: Scott Acton, University of Virginia, USA
- SA-AM-PS4.1 LEFT VENTRICULAR SEGMENTATION USING DOUBLE REGION-BASED SNAKES**
 Sopon Phumeechanya, Charnchai Pluempitiwiriawej, Chulalongkorn University, Thailand
- SA-AM-PS4.2 PROBABILITY PROPAGATION APPROACH TO LEFT VENTRICULAR VOLUME ESTIMATION FROM THREE-DIMENSIONAL ECHOCARDIOGRAPHY**
 Il-Seop Shin, Patrick A. Kelly, University of Massachusetts Amherst, United States; Dennis A. Tighe, Mihaela Rosetti, University of Massachusetts Medical Center, United States
- SA-AM-PS4.3 LV SEGMENTATION FROM 3D ECHOCARDIOGRAPHY USING FUZZY FEATURES AND A MULTILEVEL FFD MODEL**
 Ping Yan, Albert Sinusas, James S. Duncan, Yale University, United States
- SA-AM-PS4.4 DYNAMIC TEXTURE BASED HEART LOCALIZATION AND SEGMENTATION IN 4-D CARDIAC IMAGES**
 Junzhou Huang, Xiaolei Huang, Dimitris Metaxas, Rutgers University, United States; Leon Axel, Department of Radiology, NYU Medical Center, United States
- SA-AM-PS4.5 SEMI-AUTOMATIC CORONARY ARTERY CENTERLINE EXTRACTION IN COMPUTED TOMOGRAPHY ANGIOGRAPHY DATA**
 Coert Metz, Michiel Schaap, Alina van der Giessen, Theo van Walsum, Wiro Niessen, Erasmus MC, Netherlands

- SA-AM-PS4.6 EPICARDIAL SEGMENTATION IN DYNAMIC CARDIAC MR SEQUENCES USING PRIORS ON SHAPE, INTENSITY, AND DYNAMICS, IN A LEVEL SET FRAMEWORK**
 Atiyeh Ghoreyshii, Rene Vidal, The Johns Hopkins University, United States
- SA-AM-PS4.7 LEVEL SET SNAKE ALGORITHMS ON THE FETAL HEART**
 Irving Dindoyal, Tryphon Lambrou, Jing Deng, Andrew Todd-Pokropek, UCL, United Kingdom
- SA-AM-PS4.8 RECONSIDERING THE LAYER THICKNESS DISTRIBUTION IN AORTIC VALVE CUSPS USING HIGH-FREQUENCY ULTRASOUND**
 Zamir Khan, University of Western Ontario, Canada; Derek Boughner, London Health Sciences Centre, Canada; James C. Laceyfield, University of Western Ontario, Canada
- SA-AM-PS4.9 VASCULAR STRUCTURE SEGMENTATION AND BIFURCATION DETECTION**
 Jinghao Zhou, Rutgers University, United States; Sukmoon Chang, Penn State University, United States; Dimitris Metaxas, Rutgers University, United States; Leon Axel, New York University, United States
- SA-AM-PS4.10 AUTOMATED SEGMENTATION OF THE RIGHT HEART USING AN OPTIMIZED SHELLS AND SPHERES ALGORITHM**
 C. Aaron Cois, Ken Rockot, University of Pittsburgh, United States; John Galeotti, Carnegie Mellon University, United States; Robert Tamburo, University of Pittsburgh, United States; Danielle Gottlieb, John E. Mayer, Andrew Powell, Children's Hospital Boston, United States; Michael Sacks, George Stetten, University of Pittsburgh, United States

SA-AM-OS1a Ultrasound Imaging (Part I) (Oral)

Time: Saturday, April 14, 11:10 - 12:30

Place: Salon B

Chair: Andrew Laine, Columbia University, USA

11:10 - 11:30

**SA-AM-OS1a.1 A FRACTAL MULTI-DIMENSIONAL
ULTRASOUND SCATTERER DISTRIBUTION
MODEL**

Catherine Laporte, James J. Clark, Tal Arbel, McGill
University, Canada

11:30 - 11:50

**SA-AM-OS1a.2 ESTIMATION OF CORONARY ARTERIAL WALL
STRAIN IN CLINICAL IVUS IMAGES**

Yun Liang, Hui Zhu, Thomas Gehrig, Morton Friedman,
Duke University, United States

11:50 - 12:10

**SA-AM-OS1a.3 FILTERING AND RESTORATION OF
STRUCTURES IN 3D ULTRASOUND IMAGES**

Oscar Acosta, Hans Frimmel, BioMedIA Lab, CSIRO
ICT Centre, Australia; Aaron Fenster, Robarts Imaging
Research lab, Canada; Sebastien Ourselin, BioMedIA
Lab, CSIRO ICT Centre, Australia

12:10 - 12:30

**SA-AM-OS1a.4 VISCOELASTIC TISSUE PROPERTY
MEASUREMENT USING HIGH FREQUENCY
ULTRASOUND**

Dalong Liu, Emad S. Ebbini, University of Minnesota,
United States

SA-AM-OS2a Image Segmentation (Part I) (Oral)

Time: Saturday, April 14, 11:10 - 12:30

Place: Salon C

Chair: Clem Karl, Boston University, USA

11:10 - 11:30

**SA-AM-OS2a.1 3D MULTI-SCALE LEVEL SET SEGMENTATION
OF VERTEBRAE**

Sovira Tan, Jianhua Yao, Michael Ward, Lawrence Yao,
Ronald Summers, National Institutes of Health, United
States

11:30 - 11:50

**SA-AM-OS2a.2 DETECTION AND SEGMENTATION OF
COLONIC POLYPS ON HAUSTRAL FOLDS**

Jianhua Yao, Ronald Summers, the National Institutes of
Health, United States

11:50 - 12:10

**SA-AM-OS2a.3 AUTOMATIC SEGMENTATION OF THE
BLADDER USING DEFORMABLE MODELS**

Maria Jimena Costa, Hervé Delingette, Nicholas Ayache,
INRIA, France

12:10 - 12:30

**SA-AM-OS2a.4 A NOVEL FRAMEWORK FOR ACCURATE LUNG
SEGMENTATION USING GRAPH CUTS**

Asem Ali, CVIP Lab, University of Louisville, United
States; Ayman El-Baz, University of Louisville, United
States; Aly A. Farag, CVIP Lab, University of Louisville,
United States

SA-AM-SS1a Model-Based Imaging (Part I) (Special Session)
 Time: Saturday, April 14, 11:10 - 12:30
 Place: Salon J
 Chair: Zhi-Pei Liang, University of Illinois at Urbana-Champaign and Charles Bouman, Purdue University, USA

11:10 - 11:30

SA-AM-SS1a.1 FAST RECONSTRUCTION ALGORITHMS FOR OPTICAL TOMOGRAPHY USING SPARSE MATRIX REPRESENTATIONS
 Guangzhi Cao, Charles A. Bouman, Kevin J. Webb, Purdue University, United States

11:30 - 11:50

SA-AM-SS1a.2 VARIANCE APPROXIMATION FOR EXPONENTIAL FAMILY PENALIZED MAXIMUM LIKELIHOOD ESTIMATORS: APPLICATION TO KINETIC PARAMETRIC ESTIMATION
 Quanzheng Li, Richard M Leahy, University of Southern California, United States

11:50 - 12:10

SA-AM-SS1a.3 MODEL-BASED MR IMAGE RECONSTRUCTION WITH COMPENSATION FOR THROUGH-PLANE FIELD INHOMOGENEITY
 Jeffrey Fessler, Douglas Noll, University of Michigan, United States

12:10 - 12:30

SA-AM-SS1a.4 PENALIZED-LIKELIHOOD ESTIMATION OF DIFFUSION TENSORS FROM K-SPACE MR DATA
 Anastasia Yendiki, Harvard Medical School, United States

SA-AM-SS2 Resolution and Localization: Challenges in Single Molecule Microscopy (Special Session)
 Time: Saturday, April 14, 11:10 - 12:30
 Place: Salon H
 Chair: Raimund J. Ober, University of Texas, Dallas and E. Sally Ward, University of Texas Southwestern Medical Center, USA

11:10 - 11:30

SA-AM-SS2.1 BREAKING THE RESOLUTION BARRIER IN OPTICAL MICROSCOPY: A NEW RESOLUTION MEASURE WITH APPLICATIONS TO SINGLE MOLECULE IMAGING
 Sripad Ram, E. Sally Ward, University of Texas Southwestern Medical Center, United States; Raimund J. Ober, University of Texas, Dallas, United States

11:30 - 11:50

SA-AM-SS2.2 SUB-RESOLUTION MAXIMUM-LIKELIHOOD BASED LOCALIZATION OF FLUORESCENT NANOPARTICLES IN THREE DIMENSIONS
 François Aguet, Dimitri Van De Ville, Michael Unser, Ecole Polytechnique Fédérale de Lausanne, Switzerland

11:50 - 12:10

SA-AM-SS2.3 LOCALIZATION FLUORESCENCE MICROSCOPY USING QUANTUM DOT BLINKING
 Keith A. Lidke, University of New Mexico, United States; Rainer Heintzmann, King's College London, United Kingdom

12:10 - 12:30

SA-AM-SS2.4 DEVELOPING PHOTOACTIVATED LOCALIZATION MICROSCOPY (PALM)
 George Patterson, National Institutes of Health, United States; Eric Betzig, Howard Hughes Medical Institute, United States; Jennifer Lippincott-Schwartz, National Institutes of Health, United States; Harald Hess, Howard Hughes Medical Institute, United States

SA-AM-OS1b Ultrasound Imaging (Part II) (Oral)

Time: Saturday, April 14, 13:30 - 14:50

Place: Salon B

Chair: Andrew Laine, Columbia University, USA

13:30 - 13:50

SA-AM-OS1b.1 VALIDATION OF OPTICAL-FLOW FOR QUANTIFICATION OF MYOCARDIAL DEFORMATIONS ON SIMULATED RT3D ULTRASOUND

Qi Duan, Columbia University, United States;
Elsa Angelini, Ecole Nationale Supérieure des
Télécommunications, France; Shunichi Homma, Andrew
Laine, Columbia University, United States

13:50 - 14:10

SA-AM-OS1b.2 PATCH-BASED NONLOCAL DENOISING FOR MRI AND ULTRASOUND IMAGES

Xin Li, West Virginia University, United States

14:10 - 14:30

SA-AM-OS1b.3 AUTOMATED CONTOUR TRACKING FOR MYOCARDIAL ELASTOGRAPHY IN VIVO

Jianwen Luo, Kana Fujikura, Shunichi Homma, Elisa E.
Konofagou, Columbia University, United States

14:30 - 14:50

SA-AM-OS1b.4 DESIGN AND CALIBRATION OF A VIRTUAL TOMOGRAPHIC REFLECTION SYSTEM

Damion Shelton, Bing Wu, Roberta Klatzky, Carnegie
Mellon University, United States; George Stetten,
University of Pittsburgh, United States

SA-AM-OS2b Image Segmentation (Part II) (Oral)

Time: Saturday, April 14, 13:30 - 14:50

Place: Salon C

Chair: Michael Unser, L'Ecole Polytechnique Fédérale de
Lausanne, Switzerland

13:30 - 13:50

SA-AM-OS2b.1 CLUSTERING ON LOCAL APPEARANCE FOR DEFORMABLE MODEL SEGMENTATION

Joshua Stough, Robert Broadhurst, Stephen Pizer,
Edward Chaney, University of North Carolina at Chapel
Hill, United States

13:50 - 14:10

SA-AM-OS2b.2 AUTOMATIC SEGMENTATION OF THE MANDIBLE FROM LIMITED-ANGLE DENTAL X-RAY TOMOGRAPHY RECONSTRUCTIONS

Mikko Lilja, Ville Vuorio, Helsinki University of
Technology, Finland; Kari Antila, VTT Technical
Research Centre, Finland; Henri Setälä, PaloDEX Group
Oy, Finland; Jorma Järnstedt, Pirkanmaa Hospital
District, Finland; Mika Pollari, Helsinki University of
Technology, Finland

14:10 - 14:30

SA-AM-OS2b.3 SEGMENTATION OF LOW CONTRAST FEATURES IN BONE MICRO-CT IMAGES BY A CONSTRAINED REGION GROWING APPROACH BASED ON WATERSHED

Zsolt Peter, Creatis / ESRF, France; Valerie Bousson,
Catherine Bergot, UMR CNRS 7052, France; Françoise
Peyrin, Creatis / ESRF, France

14:30 - 14:50

SA-AM-OS2b.4 ROBUST QUADRIC FITTING AND MENSURATION COMPARISON IN A MAPPING SPACE APPLIED TO 3D MORPHOLOGICAL CHARACTERIZATION OF ARTICULAR SURFACES

Stephane Allaire, Valerie Burdin, Jean-Jose Jacq, ENST
Bretagne, France; Gregory Moineau, Eric Stindel, CHU
Brest, France; Christian Roux, INSERM U650, France

SA-AM-SS1b Model-Based Imaging (Part II) (Special Session)
 Time: Saturday, April 14, 13:30 - 14:50
 Place: Salon J
 Chair: Zhi-Pei Liang, University of Illinois at Urbana-Champaign and Charles Bouman, Purdue University, USA

13:30 - 13:50

SA-AM-SS1b.1 SPARSE SIGNAL AND IMAGE RECOVERY FROM COMPRESSIVE SAMPLES
 Emmanuel Candès, Nathaniel Braun, Michael Wakin, California Institute of Technology, United States

13:50 - 14:10

SA-AM-SS1b.2 PATIENT-ADAPTIVE SPATIO-TEMPORAL MRI: FROM PARADIGM TO PARADISE AND BEYOND
 Yoram Bresler, Nitin Aggarwal, Behzad Sharif, University of Illinois at Urbana-Champaign, United States

14:10 - 14:30

SA-AM-SS1b.3 SPACE-TIME SPARSITY REGULARIZATION FOR THE MAGNETOENCEPHALOGRAPHY INVERSE PROBLEM
 Andrew Bolstad, Barry Van Veen, Robert Nowak, University of Wisconsin, United States

14:30 - 14:50

SA-AM-SS1b.4 SPATIOTEMPORAL IMAGING WITH PARTIALLY SEPARABLE FUNCTIONS
 Zhi-Pei Llang, University of Illinois at Urbana-Champaign, United States

SA-PM-SS2a Image Guidance in Interventions (Part I) (Special Session)
 Time: Saturday, April 14, 13:30 - 14:50
 Place: Salon H
 Chair: Robin Cleveland, Ronald A. Roy, Boston University, USA, Graeme Penney, University College London, UK and Theo van Walsum, Erasmus MC, The Netherlands

13:30 - 13:50

SA-PM-SS2a.1 MOTION AND BIOMECHANICAL MODELS FOR IMAGE GUIDED INTERVENTIONS
 David J. Hawkes, Graeme Penney, David Atkinson, Dean Barratt, Jane Blackall, Tim Carter, William R. Crum, Jamie McClelland, Christine Tanner, Segolene Tarte, Mark White, UCL, United Kingdom

13:50 - 14:10

SA-PM-SS2a.2 IMAGE-GUIDED MOTION ADAPTATION IN RADIOTHERAPY
 Martin Murphy, Virginia Commonwealth University, United States

14:10 - 14:30

SA-PM-SS2a.3 3D X-RAY IMAGE GUIDANCE IN INTERVENTIONAL RADIOLOGY
 Wiros Niessen, Erasmus MC - University Medical Center Rotterdam, Netherlands; Everine van de Kraats, Philips Medical Systems, Netherlands; Shirley Baert, University Medical Center Utrecht, Netherlands; Theo van Walsum, Erasmus MC - University Medical Center Rotterdam, Netherlands

14:30 - 14:50

SA-PM-SS2a.4 DEVELOPMENT OF AN AUGMENTED REALITY APPROACH FOR CLOSED INTRACARDIAC INTERVENTIONS
 Terry Peters, Cristian Linte, Andrew Wiles, Nick Hill, John Moore, Chris Wedlake, Robarts Research Institute, Canada; Douglas Jones, University of Western Ontario, Canada; Daniel Bainbridge, London Health Sciences Centre, Canada; Gerard Guiraudon, Canadian Surgical Technologies and Advanced Robotics, Canada

SA-PM-OS1a MR Image Acquisition (Part I) (Oral)

Time: Saturday, April 14, 15:00 - 16:20

Place: Salon B

Chair: Steven Wright, Texas A&M University, USA

15:00 - 15:20

SA-PM-OS1a.1 QUANTITATIVE PROTON MAGNETIC RESONANCE SPECTROSCOPY IN PRESENCE OF SIDEBANDS

Mahir Ozdemir, Ghent University, Belgium; Yves De Deene, Eric Achten, Ghent University Hospital, Belgium; Yves D'Asseler, Ghent University, Belgium; Ignace Lemahieu, Ghent University, Belgium

15:20 - 15:40

SA-PM-OS1a.2 FAST REGULARIZED RECONSTRUCTION OF NON-UNIFORMLY SUBSAMPLED PARTIAL-FOURIER PARALLEL MRI DATA

W Scott Hoge, Brigham and Women's Hospital, United States; Misha E Kilmer, Tufts University, United States; Carlos Zacarias-Almarcha, Universitat Politecnica de Catalunya, Spain; Dana H. Brooks, Northeastern University, United States

15:40 - 16:00

SA-PM-OS1a.3 COIL EFFECT ON K-SPACE LINE SELECTION IN HIGHLY ACCELERATED PARALLEL IMAGING

Steven Wright, Mary McDougall, Texas A&M University, United States

16:00 - 16:20

SA-PM-OS1a.4 ADAPTIVE REAL-TIME CARDIAC MRI USING PARADISE: VALIDATION BY THE PHYSIOLOGICALLY IMPROVED NCAT PHANTOM

Behzad Sharif, Yoram Bresler, University of Illinois at Urbana-Champaign, United States

SA-PM-OS2a MEG and EEG Imaging (Part I) (Oral)

Time: Saturday, April 14, 15:00 - 16:20

Place: Salon C

Chair: John Mosher, Los Alamos National Laboratory, USA

15:00 - 15:20

SA-PM-OS2a.1 EMBRIOSS: ELECTROMAGNETIC BRAIN IMAGING BY OPTIMIZATION IN SPECTRAL SPACE

Fijoy Vadakkumpadan, Yinlong Sun, Purdue University, United States

15:20 - 15:40

SA-PM-OS2a.2 PARALLEL INDEPENDENT COMPONENT ANALYSIS FOR MULTIMODAL ANALYSIS: APPLICATION TO FMRI AND EEG DATA

Jingyu Liu, Institute of Living, United States; Vince Calhoun, The MIND Institute / The University of New Mexico, United States

15:40 - 16:00

SA-PM-OS2a.3 BRAIN IMAGING AND SUPPORT VECTOR MACHINES FOR BRAIN COMPUTER INTERFACE

Maha Khachab, Salim Kaakour, Chafic Mokbel, University of Balamand, Lebanon

16:00 - 16:20

SA-PM-OS2a.4 IN VIVO CONDUCTIVITY ESTIMATION USING SOMATOSENSORY EVOKED POTENTIALS AND CORTICAL CONSTRAINT ON THE SOURCE

Sylvain Vallaghé, Maureen Clerc, INRIA, France; Jean-Michel Badier, INSERM U751, France

SA-PM-SS1a High-throughput Microscopy and the Bioinformatics of Cell Organization (Part I) - Jointly sponsored by the International Society for Analytical Cytology (Special Session)

Time: Saturday, April 14, 15:00 - 16:20

Place: Salon J

Chair: Jeffrey H. Price, Burnham Institute for Medical Research and Badrinath Roysam, Rensselaer Polytechnic Institute

15:00 - 15:20

SA-PM-SS1a.1 AUTOMATED 3-D QUANTIFICATION OF BRAIN TISSUE AT THE CELLULAR SCALE FROM MULTI-PARAMETER CONFOCAL MICROSCOPY IMAGES

Gang Lin, Yousef Al-Kofahi, James A. Tyrrell, Rensselaer Polytechnic Institute, United States; Christopher Bjornsson, William Shain, Wadsworth Center, United States; Badrinath Roysam, Rensselaer Polytechnic Institute, United States

15:20 - 15:40

SA-PM-SS1a.2 DETERMINATION OF MITOTIC DELAYS IN 3D FLUORESCENCE MICROSCOPY IMAGES OF HUMAN CELLS USING AN ERROR-CORRECTING FINITE STATE MACHINE

Nathalie Harder, University of Heidelberg and DKFZ Heidelberg, Germany; Felipe Mora-Bermudez, European Molecular Biology Laboratory (EMBL) Heidelberg, Germany; William J. Godinez, University of Heidelberg and DKFZ Heidelberg, Germany; Jan Ellenberg, European Molecular Biology Laboratory (EMBL) Heidelberg, Germany; Roland Eils, Karl Rohr, University of Heidelberg and DKFZ Heidelberg, Germany

15:40 - 16:00

SA-PM-SS1a.3 ADVANCED PARTICLE FILTERING FOR MULTIPLE OBJECT TRACKING IN DYNAMIC FLUORESCENCE MICROSCOPY IMAGES

Ihor Smal, Wiro Niessen, Erik Meijering, Erasmus MC - University Medical Center Rotterdam, Netherlands

16:00 - 16:20

SA-PM-SS1a.4 SYSTEMATIC DESCRIPTION OF SUBCELLULAR LOCATION FOR INTEGRATION WITH PROTEOMICS DATABASES AND SYSTEMS BIOLOGY MODELING

Robert F. Murphy, Carnegie Mellon University, United States

SA-PM-SS2b Image Guidance in Interventions (Part II) (Special Session)

Time: Saturday, April 14, 15:00 - 16:20

Place: Salon H

Chair: Robin Cleveland, Ronald A. Roy, Boston University, USA, Graeme Penney, University College London, UK and Theo van Walsum, Erasmus MC, The Netherlands

15:00 - 15:20

SA-PM-SS2b.1 IMAGE GUIDANCE IN NEUROSURGICAL PROCEDURES, THE “VISAGES” POINT OF VIEW
Christian Barillot, P. Coupe, O. El Ganaoui, B. Gibaud, Pierre Hellier, P. Jannin, P. Paul, Sylvain Prima, Nicolas Wiest-Daessle, Xavier Morandi, INRIA/INSERM, France

15:20 - 15:40

SA-PM-SS2b.2 NEW APPROACHES TO CALIBRATION AND SEGMENTATION IN INTERVENTIONAL ULTRASOUND

Gabor Fichtinger, Emad Boctor, Gregory Hager, Johns Hopkins University, United States

15:40 - 16:00

SA-PM-SS2b.3 TREATMENT PLANNING FOR MR-GUIDED FOCUSED ULTRASOUND SURGERY

Gregory T Clement, Harvard Medical School, Brigham and Women’s Hospital, United States

16:00 - 16:20

SA-PM-SS2b.4 MONITORING AND FOLLOW UP OF HIFU LESIONS BY ULTRASOUND

Cyril Lafon, Guillaume Bouchoux, Rémi Souchon, Jean-Yves Chapelon, INSERM, U556; Université Claude Bernard Lyon 1, France

SA-PM-OS1b MR Image Acquisition (Part II) (Oral)

Time: Saturday, April 14, 16:40 - 18:00

Place: Salon B

Chair: Steven Wright, Texas A&M University, USA

16:40 - 17:00

SA-PM-OS1b.1 INITIAL RESULTS IN WIDE-FIELD 3D MR MICROSCOPY USING PARALLEL IMAGING

Mary McDougall, Steven Wright, Texas A&M University, United States

17:00 - 17:20

SA-PM-OS1b.2 AFFINE-CORRECTED PARADISE: FREE-BREATHING PATIENT-ADAPTIVE CARDIAC MRI WITH SENSITIVITY ENCODING

Behzad Sharif, Yoram Bresler, University of Illinois at Urbana-Champaign, United States

17:20 - 17:40

SA-PM-OS1b.3 COMPARING MR IMAGING PROPERTIES OF SPIRAL TRAJECTORIES USING THE SINGULAR SPECTRUM OF THE ANALYTICAL FOURIER BASIS CROSS-CORRELATION MATRIX

Onur Afacan, Northeastern University, United States; Dimitris Mitsouras, Brigham and Womens Hospital, United States; Dana H. Brooks, Northeastern University, United States; Robert Mulkern, Frank Rybicki, Brigham and Womens Hospital, United States

17:40 - 18:00

SA-PM-OS1b.4 VALIDATION AND COMPARISON OF ANALYTICAL Q-BALL IMAGING METHODS

Maxime Descoteaux, Odyssey Project Team, INRIA/ENPC/ENS, INRIA Sophia Antipolis, France; Peter Savadjiev, Center for Intelligent Machines, McGill University, Canada; Jennifer Campbell, Bruce Pike, Brain Imaging Center, McGill University, Canada; Kaleem Siddiqi, Center for Intelligent Machines, McGill University, Canada; Rachid Deriche, Odyssey Project Team, INRIA/ENPC/ENS, INRIA Sophia Antipolis, France

SA-PM-OS2b MEG and EEG Imaging (Part II) (Oral)

Time: Saturday, April 14, 16:40 - 18:00

Place: Salon C

Chair: John Mosher, Los Alamos National Laboratory, USA

16:40 - 17:00

SA-PM-OS2b.1 RECOVERY LIMITATIONS OF MEG SOURCE LOCALIZATION MODEL FOR EPILEPSY

Mostafa Ghannad-Rezaie, Kourosh Jafari-Khouzani, Hamid Soltanian-zadeh, Henry Ford Health System, United States

17:00 - 17:20

SA-PM-OS2b.2 PARAMETER ESTIMATION AND DYNAMIC SOURCE LOCALIZATION FOR THE MAGNETOENCEPHALOGRAPHY (MEG) INVERSE PROBLEM

Camilo Lamus, Massachusetts General Hospital, United States; Chris J. Long, Imperial College London, Hammersmith Hospital, United Kingdom; Matti S. Hämäläinen, Emery N. Brown, Patrick L. Purdon, Massachusetts General Hospital, United States

17:20 - 17:40

SA-PM-OS2b.3 EXPLORING HUMAN VISUAL ATTENTION IN AN MEG STUDY OF A SPATIAL CUEING PARADIGM USING A NOVEL ANCOVA DESIGN

Dimitrios Pantazis, University of Southern California, United States; Gregory Simpson, Darren Weber, Corby Dale, University of California, San Francisco, United States; Thomas Nichols, University of Michigan, United States; Richard Leahy, University of Southern California, United States

SA-PM-SS1b High-throughput Microscopy and the Bioinformatics of Cell Organization (Part II) - Jointly sponsored by the International Society for Analytical Cytology (Special Session)
 Time: Saturday, April 14, 16:40 - 18:00
 Place: Salon J
 Chair: Jeffrey H. Price, Burnham Institute for Medical Research and Badrinath Roysam, Rensselaer Polytechnic Institute

16:40 - 17:00

SA-PM-SS1b.1 MULTISPECTRAL IMAGING FLOW CYTOMETRY
 David Basiji, Amnis Corporation, United States

17:00 - 17:20

SA-PM-SS1b.2 TOWARD AUTOMATED ANALYSES OF MIGRATION AND DIFFERENTIATION IN CULTURED HUMAN EMBRYONIC STEM CELLS
 Natalie L. Prigozhina, Burnham Institute for Medical Research, United States; Joseph Russo, Alexander Pekurovsky, Burnham Institute for Medical Research / University of California, San Diego, United States; Hiroki Kita-Matsuo, Burnham Institute for Medical Research, United States; James Clancy, Burnham Institute for Medical Research / University of California, San Diego, United States; Mark Mercola, Jeffrey H. Price, Burnham Institute for Medical Research, United States

17:20 - 17:40

SA-PM-SS1b.3 PROSPECTING FOR LIVE CELL BIOIMAGING PROBES WITH CHEMINFORMATIC ASSISTED IMAGE ARRAY (CAIA)
 Maria M. Posada, University of Michigan College of Pharmacy, United States; Kerby Shedden, University of Michigan, United States; Young-Tae Chang, Qian Li, New York University, United States; Gus R. Rosania, University of Michigan College of Pharmacy, United States

17:40 - 18:00

SA-PM-SS1b.4 AUTOMATED MICROSCOPY SCREEN TO IDENTIFY COMPONENTS REQUIRED FOR MITOTIC CELL CYCLE PROGRESSION IN HUMAN CELLS
 Daniel R. Rines, Genomics Institute of Novartis Research Foundation, United States; Mariana Gomez, Albert Einstein College of Medicine, United States; Yingyao Zhou, Paul DeJesus, Seanna Grob, Serge Batalov, Genomics Institute of Novartis Research Foundation, United States; Marc Labow, Novartis Institute for Biomedical Research Inc., United States; Dieter Huesken, Novartis Pharma AG, Switzerland; Craig Mickanin, Novartis Institute for Biomedical Research Inc., United States; Jonathan Hall, Mischa Reinhardt, Francois Natt, Joerg Lange, Novartis Pharma AG, Switzerland; David J. Sharp, Albert Einstein College of Medicine, United States; Sumit K. Chanda, Jeremy S. Caldwell, Genomics Institute of Novartis Research Foundation, United States

SA-PM-SS2c Image Guidance in Interventions (Part III) (Special Session)
 Time: Saturday, April 14, 16:40 - 18:00
 Place: Salon H
 Chair: Robin Cleveland, Ronald A. Roy, Boston University, USA, Graeme Penney, University College London, UK and Theo van Walsum, Erasmus MC, The Netherlands

16:40 - 17:00

SA-PM-SS2c.1 ON THE POTENTIAL FOR GUIDANCE OF ABLATION THERAPY USING ACOUSTIC RADIATION FORCE IMPULSE IMAGING
 Kathryn Nightingale, Brian Fahey, Stephen Hsu, Kristin Frinkley, Jeremy Dahl, Mark Palmeri, Liang Zhai, Gianmarco Pinton, Gregg Trahey, Duke University, United States

17:00 - 17:20

SA-PM-SS2c.2 QUADRATIC B-MODE AND PULSE INVERSION IMAGING OF THERMALLY-INDUCED LESIONS IN VIVO
 Emad S. Ebbini, John C. Bischof, Rachana K. Visaria, Ajay Shrestha, University of Minnesota, United States

17:20 - 17:40

SA-PM-SS2c.3 CAVITATION DETECTION IN EX VIVO BOVINE LIVER TISSUE EXPOSED TO HIGH INTENSITY FOCUED ULTRASOUND (HIFU)
 James McLaughlan, Ian Rivens, Gail ter Haar, The Institute of Cancer Research: Royal Marsden NHS Foundation Trust, United Kingdom

17:40 - 18:00

SA-PM-SS2c.4 ENHANCED IMAGE RESOLUTION OF DUAL-MODE ULTRASOUND ARRAY USING CODED EXCITATION
 Yayun Wan, Ajay Shrestha, Emad S. Ebbini, University of Minnesota, United States

- SU-AM-PS1 Image-Guided Surgery and Therapy** (Poster)
 Time: Sunday, April 15, 09:30 - 10:50
 Place: Salon A
 Chair: Til Aach, RWTH Aachen University, Germany
- SU-AM-PS1.1 REGISTRATION OF THREE-DIMENSIONAL HIGH-FREQUENCY ULTRASOUND IMAGES TO A ROBOTIC NEEDLE-POSITIONING SYSTEM FOR PRE-CLINICAL RESEARCH**
 Adam C. Waspe, James C. Lacefield, University of Western Ontario, Canada; Aaron Fenster, Robarts Research Institute, Canada
- SU-AM-PS1.2 NOVEL GRAPH THEORETIC ENHANCEMENTS TO ICP-BASED VIRTUAL CRANIOFACIAL RECONSTRUCTION**
 Ananda Chowdhury, Suchendra Bhandarkar, Robert Robinson, University of Georgia, United States; Jack Yu, Medical College of Georgia, United States
- SU-AM-PS1.3 HEAD AND NECK CANCER PATIENT SIMILARITY BASED ON ANATOMICAL STRUCTURAL GEOMETRY**
 Chia-Chi Teng, Linda Shapiro, Ira Kalet, Carolyn Rutter, Rizwan Nurani, University of Washington, United States
- SU-AM-PS1.4 REGISTERING MOLECULAR IMAGING INFORMATION INTO ANATOMIC IMAGES WITH IMPROVED SPATIAL ACCURACY**
 Guang Li, Huchen Xie, Holly Ning, Deborah Citrin, Jacek Capala, National Cancer Institute, NIH, United States; Roberto Maass-Moreno, Clinical Center, NIH, United States; Barbara Arora, Norman Coleman, Kevin Camphausen, Robert Miller, National Cancer Institute, NIH, United States
- SU-AM-PS1.5 MULTI-VIEW STEREO RECONSTRUCTION OF TOTAL KNEE REPLACEMENT FROM X-RAYS**
 Kush R. Varshney, Massachusetts Institute of Technology, United States; Nikos Paragios, Ecole Centrale Paris, France; Alain Kulski, Remy Raymond, Phillipe Hernigou, Alain Rahmouni, Hopital Henri Mondor, France
- SU-AM-PS1.6 AUTOMATED BRACHYTHERAPY SEED LOCALIZATION USING INTENSITY-WEIGHTED FEATURE EXTRACTION TECHNIQUES**
 Gregory Whitehead, Texas A&M University, United States; Zheng Chang, The Don and Sybil Harrington Cancer Center, United States; Jim Ji, Texas A&M University, United States
- SU-AM-PS1.7 PRECISE POSE RECOVERY OF DISTAL LOCKING HOLES FROM SINGLE CALIBRATED FLUOROSCOPIC IMAGE VIA A NOVEL VARIABLE DECOMPOSITION APPROACH**
 Xuan Zhang, Guoyan Zheng, University of Bern, Switzerland

- SU-AM-PS1.8 APPLICATION-DRIVEN QUANTITATIVE ASSESSMENT OF APPROACHES TO MESH GENERATION**
 Bhautik Joshi, BioMedIA Lab, CSIRO ICT Centre, Australia; Andriy Fedorov, Nikos Chrisochoides, College of William and Mary, United States; Simon K. Warfield, Brigham and Women's Hospital, United States; Sebastien Ourselin, BioMedIA Lab, CSIRO ICT Centre, Australia
- SU-AM-PS1.9 DYNAMIC REGISTRATION USING ULTRASOUND FOR ANATOMICAL REFERENCING**
 Haydar Talib, MEM Research Center, Switzerland; Martin Styner, Departments of Computer Science and Psychiatry, University of North Carolina at Chapel Hill, United States; Tobias Rudolph, Miguel Ángel González Ballester, MEM Research Center, Switzerland
- SU-AM-PS1.10 GPU-BASED IMAGE MANIPULATION AND ENHANCEMENT TECHNIQUES FOR DYNAMIC VOLUMETRIC MEDICAL IMAGE VISUALIZATION**
 Qi Zhang, Roy Eagleson, Terry Peters, Robarts Research Institute, Canada
- SU-AM-PS1.11 PRE-PROCESSING AND VECTOR QUANTIZATION BASED APPROACH FOR CFA DATA COMPRESSION IN WIRELESS ENDOSCOPY CAPSULE**
 Xiaowen Li, Xinkai Chen, Xiang Xie, Guolin Li, Li Zhang, Zhihua Wang, Tsinghua University, China
- SU-AM-PS1.12 CAMERA CALIBRATION FOR FISH-EYE LENSES IN ENDOSCOPY WITH AN APPLICATION TO 3D RECONSTRUCTION**
 Thomas Stehle, Daniel Truhn, Til Aach, RWTH Aachen University, Germany; Christian Trautwein, Jens Tischendorf, University Hospital Aachen, Germany
- SU-AM-PS1.13 C-ARM DISTORTION CORRECTION USING PATIENT CT AS A FIDUCIAL**
 Gouthami Chintalapani, Russell Taylor, The Johns Hopkins University, United States
- SU-AM-PS1.14 EVALUATION OF TARGETING FRAMES FOR DEEP-BRAIN STIMULATION USING VIRTUAL TARGETS**
 Ramya Balachandran, Jason Mitchell, Benoit Dawant, Michael Fitzpatrick, Vanderbilt University, United States

- SU-AM-PS2 Image Segmentation** (Poster)
Time: Sunday, April 15, 09:30 - 10:50
Place: Salon K
Chair: Sebastian Ourselin, CSIRO ICT Centre, Australia
- SU-AM-PS2.1 RELATING INTRA-TUMOR HETEROGENEITY TO MORPHOLOGY AND ITS IMPLICATIONS FOR ASSESSING RESPONSE TO THERAPY**
Matthew Kelly, Olivier Noterdaeme, Michael Brady, University of Oxford, United Kingdom
- SU-AM-PS2.2 CORRESPONDENCE EVALUATION IN LOCAL SHAPE ANALYSIS AND STRUCTURAL SUBDIVISION**
Martin Styner, Shun Xu, University of North Carolina at Chapel Hill, United States; Mohammed El-Sayed, Mansoura University, Egypt; Guido Gerig, University of North Carolina at Chapel Hill, United States
- SU-AM-PS2.3 LOCALLY ADAPTIVE AUTOREGRESSIVE ACTIVE MODELS FOR SEGMENTATION OF 3D ANATOMICAL STRUCTURES**
Charles Florin, Siemens Corporate Research, United States; Nikos Paragios, Ecole Centrale de Paris, France; Gareth Funka-Lea, Siemens Corporate Research, United States; James Williams, Siemens Medical Systems, Germany
- SU-AM-PS2.4 NONPARAMETRIC ENTROPY-BASED COUPLED MULTI-SHAPE MEDICAL IMAGE SEGMENTATION**
Alireza Akhoundi-Asl, Hamid Soltanian-Zadeh, Tehran University, Iran
- SU-AM-PS2.5 MULTI-OBJECT STATISTICAL POSE+SHAPE MODELS**
Matias Bossa, Salvador Olmos, Zaragoza University, Spain
- SU-AM-PS2.6 GROUP-WISE CORRESPONDENCE OF SURFACES USING NON-PARAMETRIC REGULARISATION AND SHAPE IMAGES**
Rhodri Davies, Carole Twining, Tomos Williams, Chris Taylor, University of Manchester, United Kingdom
- SU-AM-PS2.7 ROI CONSTRAINED STATISTICAL SURFACE MORPHOMETRY**
Chunxiao Zhou, Denise Park, University of Illinois at Urbana-Champaign, United States; Martin Styner, University of North Carolina at Chapel Hill, United States; Yongmei Michelle Wang, University of Illinois at Urbana-Champaign, United States

- SU-AM-PS2.8 STATISTICAL SHAPE ANALYSIS VIA PRINCIPAL FACTOR ANALYSIS**
Mauricio Reyes, Institute for Surgical Technology and Biomechanics, MEM Research Center, University of Bern, Switzerland; Marius George Linguraru, Harvard University, United States; Kostas Marias, Institute for Computer Science, Foundation for Research and Technology, Greece; Nicholas Ayache, INRIA, Sophia Antipolis, France; Lutz-Peter Nolte, Miguel Ángel González Ballester, Institute for Surgical Technology and Biomechanics, MEM Research Center, University of Bern, Switzerland
- SU-AM-PS2.9 SHAPE ANALYSIS USING CURVATURE-BASED DESCRIPTORS AND PROFILE HIDDEN MARKOV MODELS**
Rui Huang, Vladimir Pavlovic, Dimitris Metaxas, Rutgers University, United States
- SU-AM-PS2.10 IDENTIFYING FLUORESCENCE MICROSCOPE IMAGES IN ONLINE JOURNAL ARTICLES USING BOTH IMAGE AND TEXT FEATURES**
Juchang Hua, Orhan Ayasli, William Cohen, Robert F. Murphy, Carnegie Mellon University, United States
- SU-AM-PS2.11 PARAMETRIZATION OF LEVEL-SETS WITH B-SPLINES**
Olivier Salvado, University Hospitals of Cleveland, United States
- SU-AM-PS2.12 QUANTIFICATION AND VISUALIZATION OF LOCALIZED AND INTUITIVE SHAPE VARIABILITY USING A NOVEL MEDIAL-BASED SHAPE REPRESENTATION**
Ghassan Hamarneh, Aaron Ward, Richard Frank, Simon Fraser University, Canada
- SU-AM-PS2.13 TUMOR SEGMENTATION FROM A MULTISPECTRAL MRI IMAGES BY USING SUPPORT VECTOR MACHINE CLASSIFICATION**
Su Ruan, Stéphane Lebonvallet, Abderrahim Merabet, CReSTIC, France; Jean-Marc Constans, Unité de Résonance Magnétique, France
- SU-AM-PS2.14 AUTOMATED TRACKING OF MULTIPLE C. ELEGANS WITH ARTICULATED MODELS**
Kuang-Man Huang, Pamela Cosman, UCSD Department of Electrical and Computer Engineering, United States; William Schafer, Division of Biological Sciences, University of California, San Diego, United States

- SU-AM-PS3 Computer-Aided Diagnosis (Poster)**
 Time: Sunday, April 15, 09:30 - 10:50
 Place: Salon D/E
 Chair: Aly Farag, University of Louisville, USA
- SU-AM-PS3.1 COMPUTER-AIDED DETECTION OF COLONIC DIVERTICULAR DISEASE**
 Robert Van Uitert, Jiang Li, Ronald Summers, NIH, United States
- SU-AM-PS3.2 PULMONARY NODULE CLASSIFICATION: SIZE DISTRIBUTION ISSUES**
 Artit Jirapatnakul, Anthony Reeves, Tatiyana Apanasovich, Alberto Biancardi, Cornell University, United States; David Yankelevitz, Claudia Henschke, Weill Cornell Medical College, United States
- SU-AM-PS3.3 PROVIDING CONTEXT FOR TUMOR RECOGNITION USING THE WRAPPER FRAMEWORK**
 Hosein Rabiei, Ali Mahloojifar, Tarbiat Modares University, Iran; Michael Farmer, University of Michigan-Flint, United States
- SU-AM-PS3.4 DETECTING OSTEOPOROSIS FROM DENTAL RADIOGRAPHS USING ACTIVE SHAPE MODELS**
 Philip Allen, James Graham, Damian Farnell, Elizabeth Marjanovic, Judith Adams, University of Manchester, United Kingdom; Reinhilde Jacobs, Katholieke Universiteit Leuven, Belgium; Kety Karayianni, University of Athens, Greece; Christina Lindh, Malmö University, Sweden; Paul van der Stelt, Academic Centre for Dentistry, Netherlands; Keith Horner, Hugh Devlin, University of Manchester, United Kingdom
- SU-AM-PS3.5 RETRIEVAL-DRIVEN MICROCALCIFICATION CLASSIFICATION FOR BREAST CANCER DIAGNOSIS**
 Liyang Wei, Yongyi Yang, Illinois Institute of Technology, United States; Robert M Nishikawa, University of Chicago, United States
- SU-AM-PS3.6 METHODS FOR MRMC ROC ANALYSIS AND COMPONENTS-OF-VARIANCE MODELING USING COLPOSCOPY IMAGES**
 Elizabeth Hsu, Brandon Gallas, U.S. Food and Drug Administration, United States; Jose Jeronimo, National Cancer Institute, National Institutes of Health, United States

- SU-AM-PS3.7 A BREAST MRI BIOMARKER FOR CYSTS AND INFILTRATING DUCTAL CARCINOMAS**
 Georgios Ketsetzis, Michael Brady, University of Oxford, United Kingdom
- SU-AM-PS3.8 SIMULATION OF HEPATOCELLULAR CARCINOMA IN MRI BY COMBINED MACROVASCULAR AND PHARMACOKINETIC MODELS**
 Johanne Bézy-Wendling, Université de Rennes 1, France; Marek Kretowski, Białystok Technical University, Poland; Muriel Mescam, Université de Rennes 1, France; Krzysztof Jurczuk, Białystok Technical University, Poland; Pierre-Antoine Eliat, Université de Rennes 1, France
- SU-AM-PS3.9 REAL-TIME BLADDER-LAYER RECOGNITION: AN APPROACH TO OPTICAL BIOPSY**
 Colleen Lingley-Papadopoulos, Murray Loew, Jason Zara, The George Washington University, United States
- SU-AM-PS3.10 AN INTEGRATED IMAGE QUANTIFICATION SYSTEM FOR COLORECTAL CANCER RISK ASSESSMENT USING QUANTUM DOTS AND MOLECULAR PROFILING**
 Qaiser Chaudry, Koon Kong, Georgia Institute of Technology, United States; Thomas Ahearn, Vaunita Cohen, Robert Bostick, Emory University, United States; May Wang, Georgia Institute of Technology and Emory University, United States
- SU-AM-PS3.11 AUTOMATED GRADING OF PROSTATE CANCER USING ARCHITECTURAL AND TEXTURAL IMAGE FEATURES**
 Scott Doyle, Mark Hwang, Kinsuk Shah, Anant Madabhushi, Rutgers University, United States; Michael Feldman, John Tomaszewski, University of Pennsylvania, United States

- SU-AM-PS4 Atlas-Based Methods** (Poster)
 Time: Sunday, April 15, 09:30 - 10:50
 Place: Salon F/G
 Chair: Christian Barillot, IRISA/INRIA Rennes, France
- SU-AM-PS4.1 AUTOMATED 3D MAPPING & SHAPE ANALYSIS OF THE LATERAL VENTRICLES VIA FLUID REGISTRATION OF MULTIPLE SURFACE-BASED ATLASES**
 Yi-Yu Chou, Natasha Lepore, UCLA, United States; Greig Zubicaray, Stephen Rose, Univ. of Queensland, Australia; Owen Carmichael, James Becker, UC Davis, United States; Arthur Toga, Paul Thompson, UCLA, United States
- SU-AM-PS4.2 AUTOMATED EDGE-DRIVEN MARKOV RANDOM FIELD SEGMENTATION OF EX VIVO MOUSE BRAIN MRM IMAGES**
 Alize Scheenstra, Jouke Dijkstra, Rob van de Ven, Louise van der Weerd, Johan Reiber, Leiden University Medical Center, Netherlands
- SU-AM-PS4.3 ESTIMATION OF INDEPENDENT NON-LINEAR DEFORMATION MODES FOR ANALYSIS OF CRANIOFACIAL MALFORMATIONS IN CROUZON MICE**
 Michael Sass Hansen, Hildur Olafsdóttir, Technical University of Denmark, Denmark; Tron A. Darvann, Nuno V. Hermann, University of Copenhagen, Denmark; Estanislao Oubel, Pompeu Fabra University, Spain; Rasmus Larsen, Bjarne K. Ersbøll, Technical University of Denmark, Denmark; Alejandro F. Frangi, Pompeu Fabra University, Spain; Per Larsen, University of Copenhagen, Denmark; Chad A. Perlyn, Washington University School of Medicine, United States; Gillian M. Morriss-Kay, Oxford University, United Kingdom; Sven Kreiborg, University of Copenhagen, Denmark
- SU-AM-PS4.4 SEGMENTATION OF THE PROSTATE IN MR IMAGES BY ATLAS MATCHING**
 Stefan Klein, Uulke van der Heide, Bas Raaymakers, Alexis Kotte, Marius Staring, Josien Pluim, University Medical Center Utrecht, Netherlands

- SU-AM-PS4.5 PROPAGATING DISTRIBUTIONS FOR SEGMENTATION OF BRAIN ATLAS**
 Tammy Riklin-Raviv, Nir Sochen, Nahum Kiryati, Nir Ben-Zadok, Tel Aviv University, Israel; Smadar Gefen, Louise Bertrand, Jonathan Nissanov, Drexel University College of Medicine, United States
- SU-AM-PS4.6 TOPOLOGICAL CORRECTION OF VOLUMETRIC BINARY BRAIN SEGMENTATION USING A MULTISCALE ALGORITHM**
 Lin Chen, Gudrun Wagenknecht, Central Institute for Electronics, Research Center Juelich, Germany
- SU-AM-PS4.7 BRAIN SURFACE CONFORMAL PARAMETERIZATION WITH THE RICCI FLOW**
 Yalin Wang, UCLA, Mathematics Department, United States; Xianfeng Gu, Stony Brook University, United States; Tony Chan, UCLA, Mathematics Department, United States; Paul Thompson, Lab. of Neuro Imaging and Brain Research Institute, United States; Shing-Tung Yau, Harvard University, United States
- SU-AM-PS4.8 HIPPOCAMPAL SURFACE DISCRIMINATION VIA INVARIANT DESCRIPTORS OF SPHERICAL CONFORMAL MAPS**
 Boris Gutman, Yalin Wang, Lok Ming Lui, UCLA Mathematics Department, United States; Tony Chan, UCLA, Mathematics Department, United States; Paul Thompson, UCLA, Neurology Department, United States

SU-AM-OS1 Image Registration (Oral)
 Time: Sunday, April 15, 11:00 - 12:20
 Place: Salon B
 Chair: Til Aach, RWTH Aachen University, Germany

11:00 - 11:20

SU-AM-OS1.1 A PROBABILISTIC OBJECTIVE FUNCTION FOR 3D RIGID REGISTRATION OF INTRAOPERATIVE US AND PREOPERATIVE MR BRAIN IMAGES
 Pierrick Coupé, Pierre Hellier, INRIA - CNRS - INSERM - University of Rennes 1, France; Xavier Morandi, CHU of Rennes - INRIA - CNRS - INSERM - University of Rennes 1, France; Christian Barillot, INRIA - CNRS - INSERM - University of Rennes 1, France

11:20 - 11:40

SU-AM-OS1.2 A NEW VARIATIONAL APPROACH FOR 3D SHAPE REGISTRATION
 Hossam E Abd El Munim, Aly A. Farag, Allan G. Farman, CVIP Lab, University of Louisville, United States

11:40 - 12:00

SU-AM-OS1.3 NON-RIGID TEMPORAL REGISTRATION OF 2D AND 3D MULTI-CHANNEL MICROSCOPY IMAGE SEQUENCES OF HUMAN CELLS
 Il-Han Kim, Siwei Yang, University of Heidelberg and DKFZ Heidelberg, Germany; Patricia Le Baccon, Edith Heard, Curie Institute, France; Yi-Chun Chen, David Spector, Cold Harbor Spring Laboratory, United States; Constantin Kappel, Roland Eils, Karl Rohr, University of Heidelberg and DKFZ Heidelberg, Germany

12:00 - 12:20

SU-AM-OS1.4 3D MORPHOMETRIC CHANGES 1 YEAR AFTER JAW SURGERY
 Lucia Cevidanes, Martin Styner, Ceib Phillips, Ana Oliveira, JF Camilla Tulloch, Univ. of North Carolina, United States

SU-AM-OS2 Computer-Aided Diagnosis (Oral)
 Time: Sunday, April 15, 11:00 - 12:20
 Place: Salon C
 Chair: Wiro Niessen, Erasmus MC, The Netherlands

11:00 - 11:20

SU-AM-OS2.1 ALZHEIMER'S DISEASE AND FRONTOTEMPORAL DEMENTIA DIFFERENTIAL AUTOMATIC DIAGNOSIS BASED ON SPECT IMAGES
 Jean-Francois Horn, Marie-Odile Habert, Alain Giron, Bernard Fertil, INSERM U678, France

11:20 - 11:40

SU-AM-OS2.2 PRUNING DATASETS IN DISCRIMINANT ANALYSIS: A DTI STUDY TO SCHIZOPHRENIA
 Matthan Caan, Koen Vermeer, Lucas van Vliet, Delft University of Technology, Netherlands; Kees Grimbergen, Frans Vos, Academic Medical Center Amsterdam, Netherlands

11:40 - 12:00

SU-AM-OS2.3 DISCOVERY OF "BIOMARKERS" FOR ALZHEIMER'S DISEASE PREDICTION FROM STRUCTURAL MR IMAGES
 Yanxi Liu, Penn State University and Carnegie Mellon University, United States; Leonid Teverovskiy, Carnegie Mellon University, United States; Oscar Lopez, Howard Aizenstein, University of Pittsburgh, United States; Carolyn Meltzer, Emory University, United States; James Becker, University of Pittsburgh, United States

12:00 - 12:20

SU-AM-OS2.4 CLASSIFICATION TECHNIQUES FOR AUTISTIC VS. TYPICALLY DEVELOPING BRAIN USING MRI DATA
 Rachid Fahmi, CVIP Lab, University of Louisville, United States; Ayman Elbaz, Univ. Of Louisville, United States; Hossam Hassan, Aly A. Farag, Manual F. Casanova, CVIP Lab, University of Louisville, United States

SU-AM-OS3 MR Spectroscopy (Oral)

Time: Sunday, April 15, 11:00 - 12:20

Place: Salon J

Chair: Jim Ji, Texas A&M University, USA

11:00 - 11:20

SU-AM-OS3.1 A NOVEL 1-D BLOCK PROCESSING APPROACH TO 2-D NMR SPECTROSCOPYKrishna Naishadham, Draper Laboratory, United States;
Jean Piou, MIT Lincoln Laboratory, United States

11:20 - 11:40

SU-AM-OS3.2 NON-ITERATIVE DIXON DECOMPOSITION OF FAT AND WATERMathews Jacob, Bradley Sutton, Beckman Institute,
United States

11:40 - 12:00

SU-AM-OS3.3 REMOVAL OF LIPID SIGNAL IN MRSI USING SPATIAL-SPECTRAL CONSTRAINTSDiego Hernando, Justin Haldar, Bradley Sutton, Zhi-Pei Liang, University of Illinois at Urbana-Champaign,
United States

12:00 - 12:20

SU-AM-OS3.4 SHAPING SPATIAL RESPONSE FUNCTIONS FOR OPTIMAL ESTIMATION OF COMPARTMENTAL SIGNALS FROM LIMITED FOURIER DATA

Justin Haldar, Diego Hernando, Zhi-Pei Liang, University of Illinois at Urbana-Champaign, United States

SU-AM-SS1 Adaptive Mesh Refinement Techniques in Biomedical Imaging (Special Session)

Time: Sunday, April 15, 11:00 - 12:20

Place: Salon H

Chair: Amit Joshi and Evan Sevick-Muraca, Baylor College of Medicine, USA

11:00 - 11:20

SU-AM-SS1.1 INVERSE BIOMEDICAL IMAGING USING SEPARATELY ADAPTED MESHES FOR PARAMETERS AND FORWARD MODEL VARIABLES

Wolfgang Bangerth, Texas A&M University, United States; Amit Joshi, Eva M. Sevick-Muraca, Baylor College of Medicine, United States

11:20 - 11:40

SU-AM-SS1.2 A POSTERIORI ERROR ESTIMATION IN BIOMEDICAL IMAGING

Larisa Beilina, NTNU, Norway

11:40 - 12:00

SU-AM-SS1.3 ADAPTIVE TECHNIQUE FOR FLUORESCENCE ENHANCED OPTICAL TOMOGRAPHY USING TETRAHEDRAL DUAL-MESH

Jae Hoon Lee, Amit Joshi, Eva M. Sevick-Muraca, Baylor College of Medicine, United States

12:00 - 12:20

SU-AM-SS1.4 ADAPTIVE MESH GENERATION FOR DIFFUSE OPTICAL TOMOGRAPHY

Murat Guven, Birsen Yazici, Rensselaer Polytechnic Institute, United States; Eldar Giladi, Helicos BioSciences Corporation, United States; Xavier Intes, Rensselaer Polytechnic Institute, United States

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Thursday, April 12

07:00 - 18:00	Registration						(Grand Ballroom Foyer)
08:00 - 10:00	TH-AM-TS1 Part I Biomedical Optical Imaging	(Salon B)	TH-AM-TS2 Part I The Colored Revolution of Bio-imaging: New Opportunities for Signal Processing	(Salon C)	TH-AM-TS3 Part I Source Localisation with EEG/MEG and EEG/fMRI	(Salon J)	TH-AM-TS4 Part I Feature Extraction and Classification (Salon H)
10:00 - 10:30	Break						
10:30 - 12:30	TH-AM-TS1 Part II Biomedical Optical Imaging	(Salon B)	TH-AM-TS2 Part II The Colored Revolution of Bio-imaging: New Opportunities for Signal Processing	(Salon C)	TH-AM-TS3 Part II Source Localisation with EEG/MEG and EEG/fMRI	(Salon J)	TH-AM-TS4 Part II Feature Extraction and Classification (Salon H)
12:30 - 13:30	Lunch (Not Provided)						
13:30 - 13:50	Opening Remarks						(Salon B/C)
13:50 - 14:50	Plenary Talk: Elias Zerhouni Biomedical Imaging and the Future of Medicine						(Salon B/C)
14:50 - 15:20	Break						
15:20 - 16:40	TH-PM-PS1 Image Registration	(Salon A)	TH-PM-PS2 Image Segmentation	(Salon K)	TH-PM-PS3 MR Image Reconstruction	(Salon D/E)	TH-PM-PS4 PET and SPECT Image Reconstruction (Salon F/G)
16:40 - 18:00	TH-PM-OS1 Cardiovascular Image Analysis	(Salon B)	TH-PM-OS2 Shape Analysis	(Salon C)	TH-PM-OS3 Iterative Tomographic Image Reconstruction	(Salon J)	TH-PM-SS1 Image Analysis for 3D Cryo Microscopy (Salon H)
18:15 - 19:15	Workshop: Creating and Disseminating Large, Open Access, Annotated Biological Image Collections						(Salon H)
19:15 - 21:15	Reception						(Salon V/VI)

Friday, April 13

07:00 - 18:00	Registration						(Grand Ballroom Foyer)
08:00 - 09:00	Plenary Talk: Mark Henkelman Imaging the Mouse						(Salon B/C)
09:00 - 09:30	Break						
09:30 - 10:50	FR-AM-PS1 Cellular and Molecular Image Analysis	(Salon A)	FR-AM-PS2 Image Segmentation	(Salon K)	FR-AM-PS3 Cardiovascular Image Analysis I	(Salon D/E)	FR-AM-PS4 fMRI Analysis (Salon F/G)
10:50 - 11:10	Break						
11:10 - 12:30	FR-AM-OS1 Dynamic and Parametric Imaging	(Salon B)	FR-AM-OS2 fMRI Analysis	(Salon C)	FR-AM-OS3 Optical and Fluorescence Microscopy	(Salon J)	FR-AM-SS1a Computer-Aided Detection in Radiology: Current Status and Future Directions (Part I) (Salon H)
12:30 - 13:30	Lunch (Not Provided)						
13:30 - 14:50	FR-PM-OS1 Image Segmentation	(Salon B)	FR-PM-OS2 X-Ray, CT, PET, and SPECT Imaging	(Salon C)	FR-PM-OS3 Multimodality and Novel Imaging Methods	(Salon J)	FR-AM-SS1b Computer-Aided Detection in Radiology: Current Status and Future Directions (Part II) (Salon H)
14:50 - 15:00	Break						
15:00 - 16:20	FR-PM-OS4a Image Registration (Part I)	(Salon B)	FR-PM-OS5a Image Segmentation (Part I)	(Salon C)	FR-PM-OS6a Image Restoration and Enhancement (Part I)	(Salon J)	FR-PM-SS1a Cardiac Imaging and Analysis (Part I) (Salon H)
16:20 - 16:40	Break						
16:40 - 18:00	FR-PM-OS4b Image Registration (Part II)	(Salon B)	FR-PM-OS5b Image Segmentation (Part II)	(Salon C)	FR-PM-OS6b Image Restoration and Enhancement (Part II)	(Salon J)	FR-PM-SS1b Cardiac Imaging and Analysis (Part II) (Salon H)

Saturday, April 14

07:00 - 18:00	Registration						(Grand Ballroom Foyer)	
08:00 - 09:00	Plenary Talk: Katherine Ferrara Ultrasonically-enhanced drug and gene delivery						(Salon B/C)	
09:00 - 09:30	Break							
09:30 - 10:50	SA-AM-PS1 Image Registration	(Salon A)	SA-AM-PS2 Diffusion Tensor Imaging	(Salon K)	SA-AM-PS3 Tomography and Image Reconstruction	(Salon D/E)	SA-AM-PS4 Cardiovascular Image Segmentation	(Salon F/G)
10:50 - 11:10	Break							
11:10 - 12:30	SA-AM-OS1a Ultrasound Imaging (Part I)	(Salon B)	SA-AM-OS2a Image Segmentation (Part I)	(Salon C)	SA-AM-SS1a Model-Based Imaging (Part I)	(Salon J)	SA-AM-SS2 Resolution and Localization: Challenges in Single Molecule Microscopy	(Salon H)
12:30 - 13:30	Lunch (Not Provided)							
13:30 - 14:50	SA-AM-OS1b Ultrasound Imaging (Part II)	(Salon B)	SA-AM-OS2b Image Segmentation (Part II)	(Salon C)	SA-AM-SS1b Model-Based Imaging (Part II)	(Salon J)	SA-PM-SS2a Image Guidance in Interventions (Part I)	(Salon H)
14:50 - 15:00	Break							
15:00 - 16:20	SA-PM-OS1a MR Image Acquisition (Part I)	(Salon B)	SA-PM-OS2a MEG and EEG Imaging (Part I)	(Salon C)	SA-PM-SS1a High-throughput Microscopy and the Bioinformatics of Cell Organization (Part I)	(Salon J)	SA-PM-SS2b Image Guidance in Interventions (Part II)	(Salon H)
16:20 - 16:40	Break							
16:40 - 18:00	SA-PM-OS1b MR Image Acquisition (Part II)	(Salon B)	SA-PM-OS2b MEG and EEG Imaging (Part II)	(Salon C)	SA-PM-SS1b High-throughput Microscopy and the Bioinformatics of Cell Organization (Part II)	(Salon J)	SA-PM-SS2c Image Guidance in Interventions (Part III)	(Salon H)

Sunday, April 15

07:00 - 18:00	Registration						(Grand Ballroom Foyer)	
08:00 - 09:00	Plenary Talk: Ron Kikinis Medical Image Computing: From Data to Information						(Salon B/C)	
09:00 - 09:30	Break							
09:30 - 10:50	SU-AM-PS1 Image-Guided Surgery and Therapy	(Salon A)	SU-AM-PS2 Image Segmentation	(Salon K)	SU-AM-PS3 Computer-Aided Diagnosis	(Salon D/E)	SU-AM-PS4 Atlas-Based Methods	(Salon F/G)
10:50 - 11:00	Break							
11:00 - 12:20	SU-AM-OS1 Image Registration	(Salon B)	SU-AM-OS2 Computer-Aided Diagnosis	(Salon C)	SU-AM-OS3 MPR Spectroscopy	(Salon J)	SU-AM-SS1 Adaptive Mesh Refinement Techniques in Biomedical Imaging	(Salon H)
12:20 - 12:30	Closing Remarks						(Salon B)	

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