

## MICCAI 2007 PROGRAM—OVERVIEW

Monday, October 29th	Tuesday, October 30th	Wednesday, October 31st	Thursday, November 1st	Friday, November 2nd
<b>Tutorials &amp; Workshops</b>	<b>Scientific Sessions</b>			<b>Tutorials &amp; Workshops</b>
9:00 Workshops W1; W2; W3 & Tutorials T1; T2	8:30 Introductory Session and Traditional Welcome 9:00 O1-1 Oral Session	9:15 Announcements 9:30 O2-1 Oral Session	9:15 Announcements 9:30 MICCAI 2008 & beyond 9:50 O3-1 Oral Session	9:00 Workshops W4; W5; W6
10:45 Break	10:30 Break	11:00 Break	11:00 Break	10:45 Break
11:15 Workshops W1; W2; W3 & Tutorials T1; T2	11:00 O1-2 Oral Session	11:30 Keynote: Peter Hunter	11:30 Keynote: Stuart Crozier	11:15 Workshops W4; W5; W6
13:00 Lunch	12:30 Lunch/Exhibition	12:30 Lunch/Exhibition	12:30 Lunch/Exhibition	13:00 Lunch
14:00 Workshops W1; W2 & Tutorials T1; T3	13:30 Poster Sessions P1-1; P1-2; P1-3; P1-4; P1-5	13:30 Poster Sessions P2-1; P2-2; P2-3; P2-4; P2-5; P2-6	13:30 Poster Sessions P3-1; P3-2; P3-3; P3-4; P3-5; P3-6; P3-7	14:00 Workshops W4; W5 & Tutorial T4
	15:30 O1-3 Oral Session	15:30 O2-2 Oral Session	15:30 O3-2 Oral Session	
15:45 Break	16:40 Short Break	16:40 Short Break	16:40 MICCAI Society	15:45 Break
16:00-18:00 Workshops W1; W2 & Tutorials T1; T3	16:50 O1-4 Oral Session	16:50 O2-3 Oral Session	17:00 MICCAI Awards 17:20 Closing Remarks	16:00-18:00 Workshops W4; W5 & Tutorial T4
18:30-20:00 Welcome Reception	18:30-19:30 Program Committee Reception	19:00 Banquet Dinner	17:30 Soccer Match	

### Oral Sessions

O1-1 Diffusion Tensor Imaging and Computing  
 O1-2 Cardiac Imaging and Robotics  
 O1-3 Image Segmentation and Classification  
 O1-4 Image Guided Intervention and Robotics  
 O2-1 Physiology and Physics-based Image  
 Computing  
 O2-2 Brain Atlas Computing  
 O2-3 Simulation of Therapy  
 O3-1 Spectroscopic and Cellular Imaging  
 O3-2 Spatio-Temporal Registration

### Poster Sessions

P1-1: General Medical Image Computing - I  
 P1-2: Computer Assisted Intervention and Robotics - I  
 P1-3: Computational Anatomy - I  
 P1-4: Computational Physiology - I  
 P1-5: Innovative Clinical and Biological Applications - I  
 P2-1: General Medical Image Computing - II  
 P2-2: Computer Assisted Intervention and Robotics - II  
 P2-3: Visualization and Interaction  
 P2-4: Neuroscience Image Computing - I  
 P2-5: Computational Anatomy - II  
 P2-6: Innovative Clinical and Biological Applications - II

### Poster Sessions (cont)

P3-1: General Medical Image Computing - III  
 P3-2: Computer Assisted Intervention and Robotics  
 - III  
 P3-3: General Biological Imaging Computing  
 P3-4: Neuroscience Image Computing - II  
 P3-5: Computational Anatomy - III  
 P3-6: Computational Physiology - II  
 P3-7: Innovative Clinical and Biological Applica-  
 tions - III

### Tutorials and Workshops

W1: Computational Biomechanics for Medicine II  
 W2: 3D Segmentation in the Clinic: a grand chal-  
 lenge  
 W3: Content-based Image Retrieval for Biomedical  
 Image Archives  
 W4: Open Source and Open Data for MICCAI  
 W5: Statistical Registration: Pair-wise and Group-  
 wise Alignment and Atlas Formation  
 W6: Interaction in Medical Image Analysis and  
 Visualization  
 T1: Image-Guided Interventions  
 T2: Advances in Diffusion MRI Analysis  
 T3: Multispectral Imaging in Medicine  
 T4: Medical Augmented Reality



## Tuesday, October 30th

7:30 Registration

8:20 Audience Seated

8:30 Introductory Session and Traditional Welcome

## 9:00 Oral Session O1-1: Diffusion Tensor Imaging and Computing

Chairs: Rachid Deriche (INRIA, Sophia Antipolis, France) &amp; Polina Golland (Massachusetts Institute of Technology, USA)

- O1 Geodesic-Loxodromes for Diffusion Tensor Interpolation and Difference Measurement I-1  
*Gordon Kindlmann, Raúl San José Estépar, Marc Niethammer, Steven Haker, Carl-Fredrik Westin*
- O2 Quantification of Measurement Error in DTI: Theoretical Predictions and Validation I-10  
*Casey Goodlett, P. Thomas Fletcher, Weili Lin, Guido Gerig*
- O3 In-utero Three Dimension High Resolution Fetal Brain Diffusion Tensor Imaging I-18  
*Shuzhou Jiang, Hui Xue, Serena Counsell, Mustafa Anjari, Joanna Allsop, Mary Rutherford, Daniel Rueckert, Joseph Hajnal*
- O4 Real-time MR Diffusion Tensor and Q-ball Imaging Using Kalman filtering I-27  
*Cyril Poupon, Fabrice Poupon, Alexis Roche, Yann Cointepas, Jessica Dubois, Jean-Francois Mangin*
- O5 Finsler Tractography for White Matter Connectivity Analysis of the Cingulum Bundle I-36  
*John Melonakos, Vandana Mohan, Marc Niethammer, Kate Smith, Marek Kubicki, Allen Tannenbaum*

10:30 Break

## 11:00 Oral Session O1-2: Cardiac Imaging and Robotics

Chairs: Gabor Fichtinger (Johns Hopkins University, USA) &amp; Alison Noble (University of Oxford, UK)

- O6 Segmentation of Myocardial Volumes From Real-time 3D Echocardiography Using An Incompressibility Constraint I-44  
*Yun Zhu, Xenophon Papademetris, Albert Simusas, James Duncan*
- O7 Localized Shape Variations for Classifying Wall Motion in Echocardiograms I-52  
*K. Y. Esther Leung, Johan G. Bosch*

- O8 Image Guidance of Intracardiac Ultrasound with Fusion of Pre-operative Images I-60  
*Yiyong Sun, Samuel Kadoury, Yong Li, Matthias John, Jeff Resnick, Gerry Plambeck, Rui Liao, Frank Sauer, Chenyang Xu*
- O9 3D Reconstruction of Internal Organ Surfaces for Minimal Invasive Surgery I-68  
*Mingxing Hu, Graeme Penney, Philip Edwards, Michael Figl, David Hawkes*
- O10 Cardiolock : An Active Cardiac Stabilizer - First in vivo Experiments Using A New Robotized Device I-78  
*Wael Bachta, Pierre Renaud, Edouard Laroche, Antonello Forgiione, Jacques Gangloff*

12:30 Lunch

## 13:30 Poster Session P1-1: General Medical Image Computing - I

Chairs: Leon Axel (University Medical Centre, USA) &amp; Wiro Niessen (Erasmus Medical School, Rotterdam, Netherlands)

- T1 Improving the Contrast of Breast Cancer Masses in Ultrasound using an Autoregressive Model Based Filter I-153  
*Etienne von Lavante, J. Alison Noble*
- T2 Outlier Rejection for Diffusion Weighted Images I-161  
*Marc Niethammer, Sylvain Bouix, Santiago Aja Fernandez, Carl-Fredrik Westin, Martha Shenton*
- T3 Generating Fiber Crossing Phantoms Out of Experimental DWIs I-169  
*Matthan Caan, Anne Willem de Vries, Ganesh Khedoe, Erik Akkerman, Lucas van Vliet, Kees Grimbergen, Frans Vos*
- T4 Quantifying Calcification in the Lumbar Aorta on X-Ray Images II-352  
*Lars Conrad-Hansen, Marleen de Bruijne, François Lauze, László Tankó, Paola Pettersen, Qing He, Jianghong Chen, Claus Christiansen, Mads Nielsen*
- T5 Cortical Hemisphere Registration via Large Deformation Diffeomorphic Metric Curve Mapping I-186  
*Anqi Qiu, Michael I. Miller*
- T6 Tagged Volume Rendering of the Heart I-194  
*Daniel Mueller, Anthony Maeder, Peter O'Shea*
- T7 One-Class Acoustic Characterization Applied to Blood Detection in IVUS I-202  
*Sean O'Malley, Morteza Naghavi, Ioannis Kakadiaris*
- T8 Phase sensitive reconstruction for water/fat separation in MR imaging using inverse gradient I-210  
*Joakim Rydell, Hans Knutsson, Johanna Pettersson, Andreas Johansson, Gunnar Farnebäck, Olof Dahlqvist, Peter Lundberg, Fredrik Nyström, Magnus Borga*



T9	LOCUS: Local Cooperative Unified Segmentation of MRI Brain Scans <i>Benoit Scherrer, Michel Dojat, Florence Forbes, Catherine Garbay</i>	I-219	T21	Mixtures of Gaussians on Tensor Fields for DT-MRI Segmentation <i>Rodrigo de Luis-Garcia, Carlos Alberola-Lopez</i>	I-319
T10	Spline Based Inhomogeneity Correction for [11]C-PIB PET Segmentation Using Expectation Maximization <i>Parnesh Raniga, Pierrick Bourgeat, Victor Villemagne, Graeme O'Keefe, Christopher Rowe, Sébastien Ourselin</i>	I-228	T22	Soft Level Set Coupling for LV Segmentation in Gated Perfusion SPECT <i>Timo Kohlberger, Gareth Funka-Lea, Vladimir Desch</i>	I-327
T11	Hyperspherical von Mises-Fisher (HvMF) Mixture Modelling of High Angular Resolution Diffusion MRI <i>Abhir Bhalerao, Carl-Fredrik Westin</i>	I-236	T23	Nonrigid Image Registration with Subdivision Lattices: Application to Cardiac MR Image Analysis <i>Raghavendra Chandrashekar, Raad Mohiaddin, Reza Razavi, Daniel Rueckert</i>	I-335
T12	Use of Varying Constraints in Optimal 3-D Graph Search for Segmentation of Macular Optical Coherence Tomography Images <i>Mona Haeker, Michael Abramoff, Xiaodong Wu, Randy Kardon, Milan Sonka</i>	I-244	T24	Spatio-Temporal Registration of Real Time 3D Ultrasound to Cardiovascular MR Sequences <i>Weiwei Zhang, J. Alison Noble, J. Michael Brady</i>	I-343
T13	Automatic Segmentation of Bladder and Prostate Using Coupled 3D Deformable Models <i>Jimena Costa, Herve Delingette, Sebastien Novellas, Nicholas Ayache</i>	I-252	T25	Nonlinear Registration of Diffusion MR Images Based on Fiber Bundles <i>Ulas Ziyen, Mert Rory Sabuncu, Lauren J. O'Donnell, Carl Fredrik Westin</i>	I-351
T14	Characterizing Spatio-temporal Patterns For Disease Similarity Detection in Cardiac Echo Videos <i>Tanveer Syeda-Mahmood, Fei Wang, David Beymer, Martin London, Rajshekar Reddy</i>	I-261	T26	Multivariate Normalization with Symmetric Diffeomorphisms for Multivariate Studies <i>Brian Avants, J. Duda, H. Zhang, J. Gee</i>	I-359
T15	Integrating Functional and Structural Images for Simultaneous Cardiac Segmentation and Deformation Recovery <i>Ken C. L. Wong, Linwei Wang, Heye Zhang, Huafeng Liu, Pengcheng Shi</i>	I-270	T27	Non-rigid Surface Registration Using Spherical Thin-plate Splines <i>Guangyu Zou, Jing Hua, Otto Muzik</i>	I-367
T16	Statistical Shape Modeling using MDL Incorporating Shape, Appearance, and Expert Knowledge <i>Aaron Ward, Ghassan Hamarneh</i>	I-278	T28	A Study of Hippocampal Shape Difference Between Genders by Efficient Hypothesis Test and Discriminative Deformation <i>Luping Zhou, Richard Hartley, Paulette Lieby, Nick Barnes, Kaarin Anstey, Nicolas Cherbuin, Perminder Sachdev</i>	I-375
T17	False Positive Reduction in Mammographic Mass Detection using Local Binary Patterns <i>Arnau Oliver Malagelada, Xavier Lladó Bardera, Jordi Freixenet Bosch, Joan Martí Bonmatí</i>	I-286	T29	Graph Cuts Framework for Kidney Segmentation with Prior Shape Constraints <i>Asem Ali, Aly Farag, Ayman El-Baz</i>	I-384
T18	Fuzzy Nonparametric DTI Segmentation for Robust Cingulum-Tract Extraction <i>Suyash Awate, Hui Zhang, James Gee</i>	I-294	T30	Attenuation Resilient AIF Estimation Based on Hierarchical Bayesian Modelling for First Pass Myocardial Perfusion MRI <i>Volker Schmid, Peter Gatehouse, Yang Guang-Zhong</i>	I-393
T19	3D Medical Image Segmentation Based on Adaptive Metamorph Model <i>Junzhou Huang, Xiaolei Huang, Dimitris Metaxas, Leon Axel</i>	I-302	T31	Real-time Synthesis of Image Slices in Deformed Tissue from Nominal Volume Images <i>Orcun Goksel, Septimiu E. Salcudean</i>	I-401
T20	Coronary Artery Segmentation and Skeletonization based on Competing Fuzzy Connectedness Tree <i>Chunliang Wang, Örjan Smedby</i>	I-311	T32	Quantitative Comparison of Two Cortical Surface Extraction Methods Using MRI Phantoms <i>Simon Eskildsen, Lasse Østergaard</i>	I-409
			<b>13:30 Poster Session P1-2: Computer Assisted Intervention and Robotics - I</b> Chair: Randy Ellis (Queens University, Canada)		
			T33	Stabilization of Image Motion for Robotic Assisted Beating Heart Surgery <i>Danail Stoyanov, Guang-Zhong Yang</i>	I-417



T34	Robotic Assistant for Transperineal Prostate Interventions in 3T Closed MRI <i>Gregory Fischer, Simon DiMaio, Iulian Iordachita, Gabor Fichtinger</i>	I-425
T35	Virtually Extended Surgical Drilling Device: Virtual Mirror for Navigated Spine Surgery <i>Christoph Bichlmeier, Sandro Michael Heining, Mohammad Rustae, Nassir Navab</i>	I-434
T36	Improved Statistical TRE Model when using a Reference Frame <i>Andrew Wiles, Terry Peters</i>	I-442
T37	3D/2D Image Registration: The Impact of X-Ray Views and Their Number <i>Dejan Tomazevic, Bostjan Likar, Franjo Pernus</i>	I-450
T38	Magneto-optic Tracking of a Flexible Laparoscopic Ultrasound Transducer for Laparoscope Augmentation <i>Marco Feuerstein, Tobias Reichl, Jakob Vogel, Armin Schneider, Hubertus Feussner, Nassir Navab</i>	I-458
T39	Evaluation of a novel calibration technique for optically tracked oblique laparoscopes <i>Stijn De Buck, Frederik Maes, Andre D'Hoore, Suetens Paul</i>	I-467
T40	Fiducial-Free Registration Procedure for Navigated Bronchoscopy <i>Tassilo Klein, Joerg Traub, Alireza Ahmadian, Hubert Hautmann, Nassir Navab</i>	I-475
T41	Automatic Target and Trajectory Identification for Deep Brain Stimulation (DBS) Procedures <i>Ting Guo, Andrew G. Parrent, Terry M. Peters</i>	I-483
T42	Application of Open Source Image Guided Therapy Software in MR-guided Therapies <i>Nobuhiko Hata, Steve Pieper, Ferenc Jolesz, Clare Tempany, Peter Black, Shigehiro Morikawa, Hiroshi Iseki, Makoto Hashizume, Ron Kikinis</i>	I-491

**13:30 Poster Session P1-3: Computational Anatomy - I**  
Chair: Xavier Pennec (INRIA, Sophia Antipolis, France)

T43	Statistical Atlases of Bone Anatomy: Construction, Iterative Improvement and Validation <i>Gouthami Chintalapani, Lotta Ellingsen, Ofri Sadowsky, Jerry Prince, Russell Tay-</i>	I-499
T44	A New Benchmark for Shape Correspondence Evaluation <i>Brent Munsell, Pahal Dalal, Song Wang</i>	I-507
T45	Automatic inference of sulcus patterns using 3D moment invariants <i>Zhong Yi Sun, Denis Riviere, Fabrice Poupon, Jean Regis, Jean-Francois Mangin</i>	I-515

T46	Classifier Selection Strategies for Label Fusion Using Large Atlas Databases <i>Paul Aljabar, Alexander Hammers, Rolf Heckemann, Joseph Hajnal, Daniel Rueckert</i>	I-523
T47	Groupwise Combined Segmentation and Registration for Atlas Construction <i>Kanwal Bhatta, Paul Aljabar, James Boardman, Latha Srinivasan, Maria Murgasova, Serena Counsell, Mary Rutherford, Jo Hajnal, David Edwards, Daniel Rueckert</i>	I-532

**13:30 Poster Session P1-4: Computational Physiology - I**  
Chair: Peter Hunter (The University of Auckland, New Zealand)

T48	Subject-Specific Biomechanical Simulation of Brain Indentation Using a Meshless Method <i>Ashley Horton, Adam Wittek, Karol Miller</i>	I-541
T49	Towards an Identification of Tumor Growth Parameters from Time Series of Images <i>Ender Konukoglu, Olivier Clatz, Maxime Sermesant, Pierre-Yves Bondiau, Herve Delingette, Nicholas Ayache</i>	I-549
T50	Real-time Modeling of Vascular Flow for Angiography Simulation <i>Xunlei Wu, Jeremie Allard, Stephane Cotin</i>	I-557
T51	A Training System for Ultrasound-Guided Needle Insertion Procedures <i>Yanong Zhu, Derek Magee, Rish Ratnalingam, David Kessel</i>	I-566
T52	Anisotropic Wave Propagation and Apparent Conductivity Estimation in a Fast Electrophysiological Model: Application to XMR Interventional Imaging <i>Phani Chinchapatnam, Kawal Rhode, Andrew King, Gang Gao, Yingliang Ma, Tobias Schaeffter, David Hawkes, Reza Razavi, Derek Hill, Simon Arridge, Maxime Sermesant</i>	I-575

**13:30 Poster Session P1-5: Innovative Clinical and Biological Applications - I**  
Chair: Albert Chung (Hong Kong University of Science and Technology, China)

T53	Automatic Trajectory Planning for Deep Brain Stimulation: A Feasibility Study <i>Ellen J.L. Brunenberg, Anna Vilanova, Veerle Visser-Vandewalle, Yasin Temel, Linda Ackermans, Bram Platel, Bart M. ter Haar Romeny</i>	I-584
T54	Automatic Segmentation of Blood Vessels from Dynamic MRI Datasets <i>Olga Kubassova</i>	I-593
T55	Automated Planning of Scan Geometries in Spine MRI Scans <i>Vladimir Pekar, Daniel Bystrov, Harald Heese, Sebastian Dries, Stefan Schmidt, Ruediger Grewer, Chiel den Harder, Rene Bergmans, Arjan Simonetti, Arianne van Muiswinkel</i>	I-601
T56	Cardiac-Motion Compensated MR Imaging and Strain Analysis of Ventricular Trabeculae <i>Andrew Dowsey, Jenny Keegan, Guang-Zhong Yang</i>	I-609



- T57 High Throughput Analysis of Breast Cancer Specimens on the Grid I-617  
*Lin Yang, Wenjin Chen, Peter Meer, Gratian Salaru, Michael Feldman, David J. Foran*

### 15:30 Oral Session O1-3: Image Segmentation and Classification

Chairs: Sandy Wells (Massachusetts Institute of Technology, USA) & Chenyang Xu (Siemens Corporate Research, USA)

- O11 Automated Segmentation of the Liver from 3D CT Images Using Probabilistic Atlas and Multi-level Statistical Shape Model I-86  
*Toshiyuki Okada, Ryuji Shimada, Yoshinobu Sato, Masatoshi Hori, Keita Yokota, Masahiko Nakamoto, Yen-Wei Chen, Hironobu Nakamura, Shinichi Tamura*
- O12 Statistical and Topological Atlas based Brain Image Segmentation I-94  
*Pierre-Louis Bazin, Dzung L. Pham*
- O13 A Boosted Segmentation Method for Surgical Workflow Analysis I-102  
*Nicolas Padoy, Tobias Blum, Irfan Essa, Hubertus Feussner, Marie-Odile Berger, Nassir Navab*
- O14 Detection of Spatial Activation Patterns As Unsupervised Segmentation of fMRI Data I-110  
*Polina Golland, Yulia Golland, Rafael Malach*

### 16:40 Short Break

### 16:50 Oral Session O1-4: Image Guided Intervention and Robotics

Chairs: David Hawkes (University College London, UK) & Achim Schweikard (Institute for Robotics and Cognitive Systems, Germany)

- O15 Robotic Assistance for Ultrasound Guided Prostate Brachytherapy I-119  
*Gabor Fichtinger, Jonathan Fiene, Christopher Kennedy, Gernot Kronreif, Iulian Iordachita, Danny Song, Clif Burdette, Peter Kazanzides*
- O16 Closed-loop control in fused MR-TRUS image-guided prostate biopsy I-128  
*Sheng Xu, Jochen Kruecker, Peter Guion, Neil Glossop, Ziv Neeman, Peter Choyke, Anurag Singh, Bradford Wood*
- O17 Simulation and Fully Automatic Multimodal Registration of Medical Ultrasound I-136  
*Wolfgang Wein, Ali Khamene, Dirk-Andre Clevert, Oliver Kutter, Nassir Navab*
- O18 Medical and Technical Protocols for Automatic Navigation of a Wireless Device in the Carotid Artery of a Living Swine Using a Standard Clinical MRI System I-144  
*Sylvain Martel, Jean-Baptiste Mathieu, Ouajdi Felfoul, Arnaud Chanu, Eric Abousouan, Samer Tamaz, Pierre Pouponneau, L'Hocine Yahia, Gilles Beaudoin, Gilles Soulez, Martin Mankiewicz*

### 18:30 Program Committee Reception

## Wednesday, October 31st

### 7:30 Registration

### 9.15 Announcements

### 9:30 Oral Session O2-1: Physiology and Physics-based Image Computing

Chairs: Guido Gerig (University of Utah, USA) & Cristian Lorenz (Philips, Hamburg, Germany)

- O19 Thoracic CT-PET Registration Using a 3D Breathing Model I-626  
*Antonio Moreno, Sylvie Chambon, Anand P. Santhanam, Roberta Brocardo, Patrick Kupelian, Jannick P. Rolland, Elsa Angelini, Isabelle Bloch*
- O20 Quantification of Blood Flow from Rotational Angiography I-634  
*Irina Waechter, Joerg Bredno, Dean Barratt, Juergen Weese, David Hawkes*
- O21 Modeling Glioma Growth and Mass Effect in 3D MR Images of the Brain I-642  
*Cosmina Hogeia, Christos Davatzikos, George Biros*
- O22 Towards Tracking Breast Cancer Across Medical Images Using Subject-Specific Biomechanical Models I-651  
*Vijay Rajagopal, Angela Lee, Jae-Hoon Chung, Ruth Warren, Ralph Highnam, Poul M.F. Nielsen, Martyn P. Nash*
- O23 Inter-Subject Modelling of Liver Deformation during Radiation Therapy I-659  
*Martin von Siebenthal, Gábor Székely, Antony Lomax, Philippe Cattin*

### 11:00 Break

### 11:30 Keynote Address: Peter Hunter,

Cardiac Modeling & the Physiome Project: From ion channels and protein pathways to integrative cell, tissue and organ function

Chair: Nicholas Ayache (INRIA, Sophia Antipolis, France)

### 12:30 Lunch

### 13:30 Poster Session P2-1: General Medical Image Computing - II

Chair: Rasmus Larsen (Technical University of Denmark, Denmark)

- W1 Registration of Cardiac SPECT/CT Data through Weighted Intensity Co-Occurrence Priors I-725  
*Christoph Guetter, Matthias Wacker, Chenyang Xu, Joachim Hornegger*
- W2 Prostate Implant Reconstruction with Discrete Tomography I-734  
*Xiaofeng Liu, Ameet Jain, Gabor Fichtinger*



W3	A New and General Method for Blind Shift-Variant Deconvolution of Biomedical Images <i>Moritz Blume, Darko Zikic, Wolfgang Wein, Nassir Navab</i>	I-743
W4	Registration of Lung Tissue between Fluoroscope and CT Images: Determination of Beam Gating Parameters in Radiotherapy <i>Sukmoon Chang, Jinghao Zhou, Qingshan Liu, Dimitris Metaxas, Bruce Haffty, Sung Kim, Salma Jabbour, Ning Yue</i>	I-751
W5	Null Point Imaging: A Joint Acquisition/Analysis Paradigm for MR Classification <i>Alain Pitiot, John Totman, Penny Gowland</i>	I-759
W6	Characterizing Task-Related Temporal Dynamics of Spatial Activation Distributions in fMRI BOLD Signals <i>Bernard Ng, Rafeef Abugharbieh, Samantha Palmer, Martin McKeown</i>	I-767
W7	Contraction Detection in Small Bowel from an Image Sequence of Wireless Capsule Endoscopy <i>Hai Vu, Tomio Echigo, Ryusuke Sagawa, Keiko Yagi, Masatsugu Shiba, Kazuhide Higuchi, Tetsuo Arakawa, Yasushi Yagi</i>	I-775
W8	Boundary-Specific Cost Functions for Quantitative Airway Analysis <i>Atilla Kiraly, Benjamin Odry, David Naidich, Carol Novak</i>	I-784
W9	Automatic Dry Eye Detection <i>Tamir Yedidya, Richard Hartley, Jean-Pierre Guillon, Yogesan Kanagasigam</i>	I-792
W10	Ultrasound Myocardial Elastography And Registered 3D Tagged MRI: Quantitative Strain Comparison <i>Zhen Qian, Wei-Ning Lee, Elisa Konofagou, Dimitris Metaxas, Leon Axel</i>	I-800
W11	Robust Kernel Methods for Sparse MR Image Reconstruction <i>Joshua Trzasko, Armando Manduca, Eric Borisch</i>	I-809
W12	How Do Registration Parameters Affect Quantitation of Lung Kinematics? <i>Tessa Sundaram, Nicholas Tustison, Jurgen Biederer, Ralf Tetzlaff, James Gee</i>	I-817
W13	Diffuse Parenchymal Lung Diseases: 3D Automated Detection in MDCT <i>Catalin Fetita, Kuang Che Chang Chien, Pierre-Yves Brillet, Françoise Prêteux, Philippe Grenier</i>	I-825
W14	Unsupervised Reconstruction of A Patient-specific Surface Model of A Proximal Femur from Calibrated Fluoroscopic Images <i>Guoyan Zheng, Xiao Dong, Miguel Angel Gonzalez Ballester</i>	I-834
W15	A New Method for Spherical Object Detection and Its Application to Computer Aided Detection of Pulmonary Nodules in CT Images <i>Xiangwei Zhang, Jonathan Stockel, Matthias Wolf, Pascal Cathier, Geoffrey McLennan, Eric Hoffman, Milan Sonka</i>	I-842

W16	Global Medical Shape Analysis Using the Laplace-Beltrami Spectrum <i>Marc Niethammer, Martin Reuter, Franz-Erich Wolter, Sylvain Bouix, Niklas Peinecke, Min-Seong Koo, Martha Shenton</i>	I-850
W17	Real-time Tracking of the Left Ventricle in 3D Echocardiography Using a State Estimation Approach <i>Fredrik Orderud, Jøger Hansgård, Stein Inge Rabben</i>	I-858
W18	Vessel and Intracranial Aneurysm Segmentation using Multi-Range Filters and Local Variances <i>Max W.K. Law, Albert C.S. Chung</i>	I-866
W19	Fully Automatic Segmentation of the Hippocampus and the Amygdala from MRI Using Hybrid Prior Knowledge <i>Marie Chupin, Alexander Hammers, Eric Bardinet, Olivier Colliot, Rebecca Liu, John Duncan, Line Garnero, Louis Lemieux</i>	I-875
W20	Clinical Neonatal Brain MRI Segmentation using Adaptive Nonparametric Data Models and Intensity-based Markov Priors <i>Zhuang Song, Suyash Awate, Daniel Licht, James Gee</i>	I-883
W21	Active-Contour-Based Image Segmentation using Machine Learning Techniques <i>Patrick Etyngier, Florent Ségonne, Renaud Keriven</i>	I-891
W22	Methods for Inverting Dense Displacement Fields: Evaluation in Brain Image Registration <i>William Crum, Oscar Camara, David Hawkes</i>	I-900
W23	Registration of High Angular Resolution Diffusion MRI Images using 4 <sup>th</sup> Order Tensors <i>Angelos Barmpoutis, Baba C. Vemuri, John R. Forder</i>	I-908
W24	Non-Rigid Image Registration using Graph-Cuts <i>Tommy W. H. Tang, Albert C. S. Chung</i>	I-916
W25	Probabilistic speckle decorrelation for 3D ultrasound <i>Catherine Laporte, Tal Arbel</i>	I-925
W26	De-enhancing the Dynamic Contrast-Enhanced Breast MRI for Robust Registration <i>Yuanjie Zheng, Jingyi Yu, Chandra Kambhmettu, Sarah Englander, Mitchell Schnall, Dinggang Shen</i>	I-933
W27	Deformable Density Matching for 3D Non-rigid Registration of Shapes <i>Arunabha Roy, Ajay Gopinath, Anand Rangarajan</i>	I-942
W28	Robust Computation of Mutual Information using Spatially Adaptive Meshes <i>Hari Sundar, Dinggang Shen, George Biros, Chenyang Xu, Christos Davatzikos</i>	I-950
W29	Shape Analysis Using a Point-Based Statistical Shape Model Built on Correspondence Probabilities <i>Heike Hufnagel, Xavier Pennec, Jan Ehrhardt, Heinz Handels, Nicholas Ayache</i>	I-959
W30	Robust Autonomous Model Learning from 2D and 3D Data Sets <i>Georg Langs, Rene Donner, Philipp Peloschek, Horst Bischof</i>	I-968



- W31 On Simulating Subjective Evaluation Using Combined Objective Metrics for Validation of 3D Tumor Segmentation I-977  
*Xiang Deng, Lei Zhu, Yiyong Sun, Chenyang Xu, Lan Song, JiuHong Chen, Reto Merges, Marie-Pierre Jolly, Michael Suehling, Xiaodong Xu*
- W32 Detection and Segmentation of Pathological Structures by the Extended Graph-Shifts Algorithm I-985  
*Jason Corso, Alan Yuille, Nancy Sicotte, Arthur Toga*

**13:30 Poster Session P2-2: Computer Assisted Intervention and Robotics - II**  
Chair: Gregoire Malandain (INRIA, Sophia Antipolis, France)

- W33 Cutting Tool System to Minimize Soft Tissue Damage for Robot-assisted Minimally Invasive Orthopedic Surgery I-994  
*Naohiko Sugita, Yoshikazu Nakajima, Mamoru Mitsuishi, Shosaku Kawata, Kazuo Fujiwara, Nobuhiro Abe, Toshifumi Ozaki, Masahiko Suzuki*
- W34 Real-time Tissue Tracking with B-Mode Ultrasound Using Speckle and Visual Servoing II-1  
*Alexandre Krupa, Gabor Fichtinger, Gregory D. Hager*
- W35 Intra-operative 3D Guidance in Prostate Brachytherapy using a non-isocentric C-arm II-9  
*Ameet Jain, Anton Deguet, Iulian Iordachita, Gouthami Chintalapani, Jack Blevins, Yi Le, Elwood Armour, Clif Burdette, Danny Song, Gabor Fichtinger*
- W36 A Multi-View Opto-Xray Imaging System II-18  
*Joerg Traub, Tim Hauke Heibel, Philipp Dressel, Sandro Michael Heining, Rainer Graumann, Nassir Navab*
- W37 Towards 3D Ultrasound Image Based Soft Tissue Tracking: a Transrectal Ultrasound Prostate Image Alignment System II-26  
*Michael Baumann, Pierre Mozer, Vincent Daanen, Jocelyne Troccaz*
- W38 A Probabilistic Framework for Tracking Deformable Soft Tissue in Minimally Invasive Surgery II-34  
*Peter Mountney, Benny Lo, Surapa Thiemjarus, Danail Stoyanov, Guang Zhong-Yang*
- W39 Precision targeting of liver lesions with a needle-based soft tissue navigation system II-42  
*Lena Maier-Hein, Frank Pianka, Alexander Seitel, Sascha A. Müller, Aysun Tekbas, Mathias Seitel, Ivo Wolf, Bruno M. Schmied, Hans-Peter Meinzer*
- W40 Dynamic MRI Scan Plane Control for Passive Tracking of Instruments and Devices II-50  
*Simon DiMaio, Eigil Samset, Gregory Fischer, Iulian Iordachita, Gabor Fichtinger, Ferenc Jolesz, Clare Tempary*

- W41 Design and Preliminary Accuracy Studies of an MRI-Guided Transrectal Prostate Intervention System II-59  
*Axel Krieger, Csaba Csoma, Iulian I. Iordachita, Peter Guion, Anurag K. Singh, Gabor Fichtinger, Louis L. Whitcomb*
- W42 Thoracoscopic Surgical Navigation System for Cancer Localization in Collapsed Lung Based on Estimation of Lung Deformation II-68  
*Masahiko Nakamoto, Naoki Aburaya, Kozo Konishi, Ichiro Yoshino, Makoto Hashizume, Yoshinobu Sato*

**13:30 Poster Session P2-3: Visualisation and Interaction**  
Chair: Pheng Ann Heng (The Chinese University of Hong Kong, China)

- W43 Clinical Evaluation of a Respiratory Gated Guidance System for Liver Punctures II-77  
*Stephane Nicolau, Xavier Pennec, Luc Soler, Nicholas Ayache*
- W44 Rapid Voxel Classification Methodology for Interactive 3D Medical Image Visualization II-86  
*Qi Zhang, Roy Eagleson, Terry Peters*
- W45 Towards Subject-Specific Models of the Dynamic Heart for Image-Guided Mitral Valve Surgery II-94  
*Cristian Linte, Marcin Wierzbicki, John Moore, Stephen Little, Gérard Guiraudon, Terry Peters*
- W46 pq-space Based Non-Photorealistic Rendering for Augmented Reality II-102  
*Mirna Lerotic, Adrian J. Chung, George P. Mylonas, Guang-Zhong Yang*
- W47 Eye-Gaze Driven Surgical Workflow Segmentation II-110  
*Adam James, Douglas Vieira, Benny Lo, Ara Darzi, Guang-Zhong Yang*

**13:30 Poster Session P2-4: Neuroscience Image Computing - I**  
Chair: Tianzi Jiang (The Chinese Academy of Sciences, China)

- W48 Prior Knowledge Driven Multiscale Segmentation of Brain MRI II-118  
*Ayelet Akselrod-Ballin, Meirav Galun, John Moshe Gomori, Achi Brandt, Ronen Basri*
- W49 Longitudinal Cortical Registration for Developing Neonates II-127  
*Hui Xue, Latha Srinivasan, Shuzhou Jiang, Mary Rutherford, A. David Edwards, Daniel Rueckert, Joseph V Hajnal*
- W50 Regional Homogeneity and Anatomical Parcellation for fMRI Image Classification: Application to Schizophrenia and Normal Controls II-136  
*Feng Shi, Yong Liu, Tianzi Jiang, Yuan Zhou, Wanlin Zhu, Jiefeng Jiang, Haihong Liu, Zhening Liu*
- W51 Probabilistic Fiber Tracking using Particle Filtering II-144  
*Fan Zhang, Casey Goodlett, Edwin Hancock, Guido Gerig*
- W52 SMT: Split & Merge Tractography for DT-MRI II-153  
*Ugur Bozkaya, Burak Acar*



W53 Tract-Based Morphometry II-161  
*Lauren J. O'Donnell, Carl-Fredrik Westin, Alexandra J. Golby*

W54 Towards Whole Brain Segmentation by a Hybrid Model II-169  
*Zhuowen Tu, Arthur Toga*

**13:30 Poster Session P2-5: Computational Anatomy - II**  
Chair: Bram van Ginneken (University Medical Center, Utrecht, Netherlands)

W55 A Family of Principal Component Analyses for Dealing with Outliers II-178  
*Juan Eugenio Iglesias, Marleen de Bruijne, Marco Loog, François Lauze, Mads Nielsen*

W56 Automatic Segmentation of Articular Cartilage in Magnetic Resonance Images of the Knee II-186  
*Jurgen Fripp, Stuart Crozier, Simon K. Warfield, Sébastien Ourselin*

W57 Automated Model-Based Rib Cage Segmentation and Labeling in CT Images II-195  
*Tobias Klinder, Cristian Lorenz, Jens von Berg, Sebastian Dries, Thomas Bülow, Jörn Ostermann*

W58 Efficient Selection of the Most Similar Image in a Database for Critical Structures Segmentation II-203  
*Olivier Commowick, Grégoire Malandain*

W59 Unbiased White Matter Atlas Construction Using Diffusion Tensor Images II-211  
*Hui Zhang, Paul Yushkevich, Daniel Rueckert, James Gee*

**13:30 Poster Session P2-6: Innovative Clinical and Biological Applications - II**  
Chair: Christian Barillot (IRISA, Rennes, France)

W60 Real-Time SPECT and 2D Ultrasound Image Registration II-219  
*Marek Bucki, Fabrice Chassat, Francisco Galdames, Takeshi Asahi, Daniel Pizarro, Gabriel Lobo*

W61 A Multiphysics Simulation of a Healthy and a Diseased Abdominal Aorta II-227  
*Robert H.P. McGregor, Dominik Szczerba, Gábor Székely*

W62 New Motion Correction Models for Automatic Identification of Renal Transplant Rejection II-235  
*Ayman El-Baz, Georgy Gimel'farb, Mohamed A. El-Ghar*

W63 Detecting Mechanical Abnormalities in Prostate Tissue using FE-Based Image Registration II-244  
*Patrick Curtis, Abbas Samani*

W64 Real-time fusion of ultrasound and gamma probe for navigated localization of liver metastases II-252

*Thomas Wendler, Marco Feuerstein, Joerg Traub, Tobias Lasser, Jakob Vogel, Farhad Daghighian, Sibylle I. Ziegler, Nassir Navab*

W65 Fast and Robust Analysis of Dynamic Contrast Enhanced MRI Datasets II-261  
*Olga Kubassova, Mikael Boesen, Roger Boyle, Karl Erik Jensen, Henning Bliddal, Marco Cimmino, Alexandra Radjenovic*

**15:30 Oral Session O2-2: Brain Atlas Computing**  
Chairs: Jean-François Mangin (CEA, SHFJ, Orsay, France) & Simon Warfield (Harvard University, USA)

O24 Contributions to 3D Diffeomorphic Atlas Estimation: Application to Brain Images I-667  
*Matias Nicolas Bossa, Monica Hernandez, Salvador Olmos*

O25 Measuring Brain Variability via Sulcal Lines Registration: A Diffeomorphic Approach I-675  
*Stanley Durrleman, Xavier Pennec, Alain Trounev, Nicholas Ayache*

O26 Effects of Registration Regularization and Atlas Sharpness on Segmentation Accuracy I-683  
*Boon Thye Yeo, Mert Sabuncu, Rahul Desikan, Bruce Fischl, Polina Golland*

O27 Generalized Surface Flows for Deformable Registration and Cortical Matching I-692  
*Ilya Eckstein, Anand Joshi, Richard Leahy, C.-C. Jay Kuo, Mathieu Desbrun*

**16:40 Short Break**

**16:50 Oral Session O2-3: Simulation of Therapy**  
Chairs: Kensaku Mori (Nagoya University, Japan) & Nassir Navab (TUM, Munich, Germany)

O28 Real-Time Nonlinear Finite Element Analysis for Surgical Simulation Using Graphics Processing Units I-701  
*Zeike Taylor, Mario Cheng, Sébastien Ourselin*

O29 Modeling of Needle-Tissue Interaction using Ultrasound-based Motion Estimation I-709  
*Ehsan Dehghan, Xu Wen, Reza Zahiri-Azar, Maud Marchal, Septimiu E. Salcudean*

O30 Modelling Intravasation of Liquid Distension Media in Surgical Simulators I-717  
*Stefan Tuchschnid, Michael Bajka, Dominik Szczerba, Bryn Lloyd, Gabor Székely, Matthias Harders*

**19:00 Banquet Dinner**



**Thursday, November 1st****7:30 Registration****9:15 Announcements****9:30 MICCAI 2008 & Future Conferences****9:50 Oral Session O3-1: Spectroscopic and Cellular Imaging**

Chairs: James Duncan (Yale University, New Haven, USA) &amp; Dimitris Metaxas (Rutgers University, New Jersey, USA)

- O31 Functional Near Infrared Spectroscopy in Novice and Expert Surgeons – a Manifold Embedding Approach II-270  
*Daniel Leff, Felipe Orihuela-Espina, Louis Atallah, Ara Darzi, Guang-Zhong Yang*
- O32 A Hierarchical Unsupervised Clustering Scheme for Detection of Prostate Cancer from Magnetic Resonance Spectroscopy (MRS) II-278  
*Pallavi Tiwari, Anant Madabhushi, Mark Rosen*
- O33 A Clinically Motivated 2-Fold Framework for Quantifying and Classifying Immunohistochemically Stained Specimens II-287  
*Bonnie Hall, Wenjin Chen, Michael Reiss, David Foran*
- O34 Cell Population Tracking and Lineage Construction with Spatiotemporal Context II-295  
*Kang Li, Mei Chen, Takeo Kanade*

**11:00 Break****11:30 Keynote Address: Stuart Crozier,**

High Field MRI - potential and pitfalls for new tissue contrast

Chair: Sébastien Ourselin (CSIRO, Australia)

**12:30 Lunch****13:30 Poster Session P3-1: General Medical Image Computing - III**

Chairs: Richard Hartley (Australian National University, Canberra, Australia) &amp; Pengcheng Shi (Hong Kong University of Science and Technology, China)

- H1 Automated Extraction of Lymph Nodes from 3-D Abdominal CT Images Using 3-D minimum directional difference filter II-336  
*Takayuki Kitasaka, Yoshihiko Nakamura, Yukihiko Tsujimura, Kensaku Mori, Yasuhito Suenaga, Masaaki Ito, Shigeru Nawano*

- H2 Non-Local Means Variants for Denoising of Diffusion-Weighted and Diffusion Tensor MRI II-344  
*Nicolas Wiest-Daesslé, Sylvain Prima, Pierrick Coupé, Sean Patrick Morrissey, Christian Barillot*
- H3 Motion and Positional Error Correction for Cone Beam 3D-Reconstruction with Mobile C-Arms I-177  
*Christoph Bodensteiner, Cristina Darolti, Hanno Schumacher, Lars Matthäus, Achim Schweikard*
- H4 Physically Motivated Enhancement of Color Images for Fiber Endoscopy II-360  
*Christian Winter, Thorsten Zerfass, Matthias Elter, Stephan Rupp, Thomas Wittenberg*
- H5 Signal LMMSE Estimation From Multiple Samples in MRI and DT-MRI II-368  
*Santiago Aja-Fernández, Carlos Alberola-López, Carl-Fredrik Westin*
- H6 Quantifying Heterogeneity in Dynamic Contrast-Enhanced MRI Parameter Maps II-376  
*Chris Rose, Sam Mills, James O'Connor, Gio Buonaccorsi, Caleb Roberts, Yvon Watson, Brandon Whitcher, Gordon Jayson, Alan Jackson, Geoff Parker*
- H7 Improving Temporal Fidelity in  $k$ - $t$  BLAST MRI Reconstruction II-385  
*Andreas Sigfridsson, Mats Andersson, Lars Wigström, John-Peder Escobar Kvitting, Hans Knutsson*
- H8 Segmentation and Classification of Breast Tumor Using Dynamic Contrast-Enhanced MR Images II-393  
*Yuanjie Zheng, Sajjad Baloch, Sarah Englander, Mitchell Schnall, Dinggang Shen*
- H9 Automatic Whole Heart Segmentation in Static Magnetic Resonance Image Volumes II-402  
*Jochen Peters, Olivier Ecabert, Carsten Meyer, Hauke Schramm, Reinhard Kneser, Alexandra Groth, Jürgen Weese*
- H10 PCA-Based Magnetic Field Modeling : Application For On-Line Temperature Monitoring II-411  
*Gregory Maclair, Baudouin Denis de Senneville, Mario Ries, Bruno Quesson, Pascal Desbarats, Jenny Benois-Pineau, Chrit Moonen*
- H11 A Probabilistic Model for Hausral Curvatures with Applications to Colon CAD II-420  
*John Melonakos, Paulo Mendonça, Rahul Bhotika, Saad Sirohey*
- H12 LV Motion Tracking from 3D Echocardiography Using Textural and Structural Information II-428  
*Andriy Myronenko, Xubo Song, David Sahn*
- H13 A Novel 3D Multi-Scale Lineness Filter for Vessel Detection II-436  
*Edwin H.E. Bennink, Hans C. van Assen, Geert J. Streekstra, Rene ter Wee, Jos A.E. Spaan, Bart M. ter Haar Romeny, Bart M. ter Haar Romeny*
- H14 Live-Vessel: Extending Livewire for Simultaneous Extraction of Optimal Medial and Boundary Paths in Vascular Images II-444  
*Kelvin Poon, Ghassan Hamarneh, Rafeef Abugharbieh*



H15	A Point-Wise Quantification of Asymmetry Using Deformation Fields: Application to the Study of the Crouzon Mouse Model <i>Hildur Olafsdottir, Stephanie Lanche, Tron A. Darvann, Nuno V. Hermann, Rasmus Larsen, Bjarne K. Ersboell, Estanislao Oubel, Alejandro F. Frangi, Per Larsen, Chad A. Perlyn, Gillian M. Morriss-Kay, Sven Kreiborg</i>	II-452
H16	Object Localization based on Markov Random Fields and Symmetry Interest Points <i>René Donner, Branislav Micusik, Georg Langs, Lech Szumilas, Philipp Peloschek, Klaus Friedrich, Horst Bischof</i>	II-460
H17	2D Motion Analysis of Long Axis Cardiac Tagged MRI <i>Ting Chen, Sohae Chung, Leon Axel</i>	II-469
H18	MCMC Curve Sampling for Image Segmentation <i>Ayres Fan, John Fisher, William Wells, James Levitt, Alan Willsky</i>	II-477
H19	Automatic Centerline Extraction of Irregular Tubular Structures Using Probability Volumes From Confocal Imaging <i>Alberto Santamaria-Pang, Costa M. Colbert, Peter Saggau, Ioannis A. Kakadiaris</i>	II-486
H20	$\Gamma$ -Convergence Approximation to Piecewise Smooth Medical Image Segmentation <i>Jungha An, Mikael Rousson, Chenyang Xu</i>	II-495
H21	Is a Single Energy Functional Sufficient? Adaptive Energy Functionals and Automatic Initialization <i>Chris McIntosh, Ghassan Hamarneh</i>	II-503
H22	A Duality Based Algorithm for TV- $L^1$ -Optical-Flow Image Registration <i>Thomas Pock, Martin Urschler, Christopher Zach, Reinhard Beichel, Horst Bischof</i>	II-511
H23	Deformable 2D-3D Registration of the Pelvis with a Limited Field of View, Using Shape Statistics <i>Ofri Sadovsky, Gouthami Chintalapani, Russell Taylor</i>	II-519
H24	Segmentation-driven 2D-3D Registration for Abdominal Catheter Interventions <i>Martin Groher, Frederik Bender, Ralf-Thorsten Hoffmann, Nassir Navab</i>	II-527
H25	Primal/Dual Linear Programming and Statistical Atlases for Cartilage Segmentation <i>Ben Glocker, Nikos Komodakis, Nikos Paragios, Christian Glaser, Georgios Tziritas, Nassir Navab</i>	II-536
H26	Similarity Metrics for Groupwise Non-rigid Registration <i>Kanwal Bhatia, Jo Hajnal, Alexander Hammers, Daniel Rueckert</i>	II-544
H27	A Comprehensive System for Intraoperative 3D Brain Deformation Recovery <i>Christine DeLorenzo, Xenophon Papademetris, Kenneth Vives, Dennis Spencer, James Duncan</i>	II-553

H28	Bayesian Tracking of Tubular Structures and its Application to Carotid Arteries in CT Angiography <i>Michiel Schaap, Rashindra Manniesing, Ihor Smal, Theo van Walsum, Aad van der Lugt, Wiros Niessen</i>	II-562
H29	Automatic Fetal Measurements in Ultrasound Using Constrained Probabilistic Boosting Tree <i>Gustavo Carneiro, Georgescu Bogdan, Good Sara, Comaniciu Dorin</i>	II-571
H30	Quantifying Effect-Specific Mammographic Density <i>Jakob Raundahl, Marco Loog, Paola Pettersen, Mads Nielsen</i>	II-580
H31	Revisiting the Evaluation of Segmentation Results: Introducing Confidence Maps <i>Christophe Restif</i>	II-588
H32	Error Analysis of Calibration Materials on Dual-energy Mammography <i>Xuanqin Mou, Xi Chen</i>	II-596

**13:30 Poster Session P3-2: Computer Assisted Intervention and Robotics - III**  
Chair: Yoshinobu Sato (Osaka University, Japan)

H33	A MR Compatible Mechatronic System to Facilitate Magic Angle Experiments <i>in Vivo</i> <i>Haytham Elhawary, Aleksandar Zivanovic, Marc Rea, Zion Tsz Ho Tse, Donald McRobbie, Ian Young, Michael Lampérth</i>	II-604
H34	Variational Guidewire Tracking Using Phase Congruency <i>Greg Slabaugh, Koon Kong, Gozde Unal, Tong Fang</i>	II-612
H35	Endoscopic Navigation for Minimally Invasive Suturing <i>Christian Wengert, Lukas Bossard, Armin Häberling, Charles Baur, Gábor Székely, Philippe Cattin</i>	II-620
H36	On Fiducial Target Registration Error in the Presence of Anisotropic Noise <i>Burton Ma, Mehdi Moghari, Randy Ellis, Purang Abolmaesumi</i>	II-628
H37	Rotational Roadmapping: A New Image-based Navigation Technique for the Interventional Room <i>Markus Kukuk, Sandy Napel</i>	II-636
H38	Bronchoscope tracking without fiducial markers using ultra-tiny electromagnetic tracking system and its evaluation in different environment <i>Kensaku Mori, Daisuke Deguchi, Kazuyoshi Ishitani, Takayuki Kitasaka, Yasuhiro Suenaga, Yoshinori Hasegawa, Kazuyoshi Imaizumi, Hirotsugu Takabatake</i>	II-644
H39	Online Estimation of the Target Registration Error for $n$ -ocular Optical Tracking Systems <i>Tobias Sielhorst, Martin Bauer, Oliver Wenisch, Gudrun Klinker, Nassir Navab</i>	II-652
H40	Assessment of Perceptual Quality for Gaze-Contingent Motion Stabilization in Robotic Assisted Minimally Invasive Surgery <i>George P. Mylonas, Ara Darzi, Guang-Zhong Yang</i>	II-660
H41	Prediction of Respiratory Motion with Wavelet-based Multiscale Autoregression <i>Floris Ernst, Alexander Schlaefer, Achim Schweikard</i>	II-668



H42 Multi-Criteria Trajectory Planning for Hepatic Radiofrequency Ablation II-676  
*Claire Baegert, Caroline Villard, Pascal Schreck, Luc Soler*

**13:30 Poster Session P3-3: General Biological Imaging Computing**  
 Chair: Ela Claridge (The University of Birmingham, UK)

H43 A Bayesian 3D Volume Reconstruction for Confocal Micro-rotation Cell Imaging II-685  
*Yong Yu, Alain Trouvé, Bernard Chalmoud*

H44 Bias Image Correction via Stationarity Maximization II-693  
*Thierry Dorval, Arnaud Ogier, Auguste Genovesio*

H45 Toward Optimal Matching for 3D Reconstruction of Brachytherapy Seeds II-701  
*Christian Labat, Ameet Jain, Gabor Fichtinger, Jerry Prince*

H46 Alignment of Large Image Series using Cubic B-splines Tessellation: Application II-710  
 to Transmission Electron Microscopy Data  
*Julien Dauguet, Davi Bock, R. Clay Reid, Simon K. Warfield*

H47 Quality-based Registration and Reconstruction of Optical Tomography Volumes II-718  
*Wolfgang Wein, Moritz Blume, Ulrich Leischner, Hans-Ulrich Dodt, Nassir Navab*

H48 Simultaneous Segmentation, Kinetic Parameter Estimation, and Uncertainty Visu- II-726  
 alization of Dynamic PET Images  
*Ahmed Saad, Ben Smith, Ghassan Hamarneh, Torsten Möller*

**13:30 Poster Session P3-4: Neuroscience Image Computing - II**  
 Chair: Carl-Fredrik Westin (Harvard University, USA)

H49 Nonlinear Analysis of BOLD Signal: Biophysical Modeling, Physiological States, II-734  
 and Functional Activation  
*Zhengkui Hu, Pengcheng Shi*

H50 Effectiveness of the Finite Impulse Response Model in Content-based fMRI Image II-742  
 Retrieval  
*Bing Bai, Paul Kantor, Ali Shokoufandeh*

H51 Sources of Variability in MEG Data II-751  
*Wanmei Ou, Polina Golland, Matti Hämäläinen*

H52 Customised Cytoarchitectonic Probability Maps Using Deformable Registration: II-760  
 Primary Auditory Cortex  
*Lara Bailey, Purang Abolmaesumi, Julian Tam, Patricia Morosan, Rhodri Cusack, Katrin Amunts, Ingrid Johnsrude*

H53 Segmentation of Q-Ball Images Using Statistical Surface Evolution II-769  
*Maxime Descoteaux, Rachid Deriche*

H54 Evaluation of Shape-Based Normalization in the Corpus Callosum for White Matter II-777  
 Connectivity Analysis  
*Hui Sun, Paul Yushkevich, Hui Zhang, Philip Cook, Jeffrey Duda, Tony Simon, James Gee*

H55 Accuracy Assessment of Global and Local Atrophy Measurement Techniques with II-785  
 Realistic Longitudinal Data  
*Oscar Camara, Rachael Scahill, Julia Schnabel, William Crum, Gerard Ridgway, Derek Hill, Nick Fox*

H56 Combinatorial Optimization for Electrode Labeling of EEG Caps II-793  
*Mickaël Péchaud, Renaud Keriven, Théodore Papadopoulou, Badier Jean-Michel*

**13:30 Poster Session P3-5: Computational Anatomy - III**

Chair: Stuart Crozier (University of Queensland, Australia)

H57 Analysis of Deformation of the Human Ear and Canal Caused by Mandibular Move- II-801  
 ment  
*Sune Darkner, Rasmus Larsen, Rasmus R. Paulsen*

H58 Shape Registration by Simultaneously Optimizing Representation and Transforma- II-809  
 tion  
*Yifeng Jiang, Jun Xie, Deqing Sun, Hung-tat Tsui*

H59 Landmark Correspondence Optimization for Coupled Surfaces II-818  
*Lin Shi, Defeng Wang, Pheng Ann Heng, Tien-Tsin Wong, Winnie C.W. Chu, Benson H.Y. Yeung, Jack C.Y. Cheng*

H60 Mean Template for Tensor-Based Morphometry using Deformation Tensors II-826  
*Natasha Leporé, Caroline Brun, Xavier Pennec, Yi-Yu Chou, Oscar L. Lopez, Howard J. Aizenstein, James T. Becker, Arthur W. Toga, Paul M. Thompson*

H61 Shape-Based Myocardial Contractility Analysis using Multivariate Outlier Detection II-834  
*Karim Lekadir, Niall Keenan, Dudley Pennell, Guang-Zhong Yang*

**13:30 Poster Session P3-6: Computational Physiology - II**

Chair: Poul Nielsen (The University of Auckland, New Zealand)

H62 Orthopedics Surgery Trainer with PPU-Accelerated Blood and Tissue Simulation II-842  
*Wai-Man Pang, Jing Qin, Yim-Pan Chui, Tien-Tsin Wong, Kwok-Sui Leung, Pheng-Ann Heng*

H63 Interactive Contacts Resolution Using Smooth Surface Representation II-850  
*Jérémie Dequidt, Julien Lenoir, Stéphane Cotin*

H64 Using Statistical Shape Analysis for the Determination of Uterine Deformation II-858  
 States during Hydrometra  
*Matthias Harders, Gábor Székely*

H65 Predictive K-PLSR Myocardial Contractility Modeling with Phase Contrast MR II-866  
 Velocity Mapping  
*Su-Lin Lee, Qian Wu, Andrew Huntbatch, Guang-Zhong Yang*



H66 A Coupled Finite Element Model of Tumor Growth and Vascularization II-874  
*Bryn Lloyd, Dominik Szczerba, Gábor Székely*

**13:30 Poster Session P3-7: Innovative Clinical and Biological Applications - III**  
 Chair: Colin Studholme (University of California, San Francisco, USA)

H67 Autism Diagnostics by 3D Texture Analysis of Cerebral White Matter Gyrfications II-882  
*Ayman El-Baz, Manuel Casanova, Georgy Gimel'farb, Meghan Mott, Andrew Switala*

H68 3-D Analysis of Cortical Morphometry in Differential Diagnosis of Parkinson's II-891  
 Plus Syndromes: Mapping Frontal Lobe Cortical Atrophy in Progressive Supranuclear Palsy Patients  
*Duygu Tosun, Simon Duchesne, Yan Rolland, Arthur Toga, Marc Vérin, Christian Barillot*

H69 Tissue Characterization Using Fractal Dimension of High Frequency Ultrasound II-900  
 RF Time Series  
*Mehdi Moradi, Parvin Mousavi, Purang Abolmaesumi*

H70 Towards Intra-Operative 3D Nuclear Imaging: Reconstruction of 3D Radioactive II-909  
 Distributions Using Tracked Gamma Probes  
*Thomas Wendler, Alexander Hartl, Tobias Lasser, Joerg Traub, Farhad Daghighian, Sibylle I. Ziegler, Nassir Navab*

H71 Instrumentation for Epidural Anesthesia II-918  
*King-wei Hor, Denis Tran, Allaudin Kamani, Vickie Lessoway, Robert Rohling*

H72 Small Animal Radiation Research Platform: Imaging, Mechanics, Control and Cali- II-926  
 bration  
*Mohammad Matinfar, Owen Gray, Iulian Iordachita, Chris Kennedy, Erik Ford, John Wong, Russel Taylor, Peter Kazanzides*

H73 Proof of Concept of a Simple Computer-Assisted Technique for Correcting Bone II-935  
 Deformities  
*Burton Ma, Amber Simpson, Randy Ellis*

H74 Global Registration of Multiple Point Sets: Feasibility and Applications in Multi- II-943  
 fragment Fracture Fixation  
*Medhi Hedjazi Moghari, Purang Abolmaesumi*

H75 Precise Estimation of Postoperative Cup Alignment from Single Standard X-ray II-951  
 Radiograph with Gonadal Shielding  
*Guoyan Zheng, Simon Steppacher, Xuan Zhang, Moritz Tannast*

H76 Fully Automated and Adaptive Detection of Amyloid Plaques in Stained Brain Sec- II-960  
 tions of Alzheimer Transgenic Mice  
*Abdelmonem Feki, Olivier Teboul, Albertine Dubois, Bruno Bozon, Alexis Faure, Philippe Hantraye, Marc Dhenain, Benoit Delatour, Thierry Delzescaux*

H77 Non-rigid Registration of Pre-procedural MR Images with Intra-procedural Unen- II-969  
 hanced CT Images for Improved Targeting of Tumors During Liver Radiofrequency Ablations  
*Neculai Archip, Servet Tatli, Paul Morrison, Ferenc Jolesz, Simon Warfield, Stuart Silverman*

**15:30 Oral Session O3-2: Spatio-Temporal Registration**  
 Chairs: Terry Peters (Robarts Research Institute, Canada) & Guang Zhong Yang (Imperial College, London, UK)

O35 Spatiotemporal Normalization for Longitudinal Analysis of Gray Matter Atrophy in II-303  
 Frontotemporal Dementia  
*Brian Avants, Chivon Anderson, Murray Grossman, James C. Gee*

O36 Population Based Analysis of Directional Information in Serial Deformation Tensor II-311  
 Morphometry  
*Colin Studholme, Valerie Cardenas*

O37 Non-parametric Diffeomorphic Image Registration with the Demons Algorithm II-319  
*Tom Vercauteren, Xavier Pennec, Aymeric Perchant, Nicholas Ayache*

O38 Three-dimensional Ultrasound Mosaicing II-327  
*Christian Wachinger, Wolfgang Wein, Nassir Navab*

**16:40 MICCAI Society**

**17:00 MICCAI Awards**

**17:20 Closing Remarks**

**17:30 Soccer Match**

## 2. TUTORIALS

### Monday, October 29th

**Morning** (9.00 am—1:00 pm), coffee break 10:45 am—11:15 am.

- T1 Image-Guided Interventions: Technology (Room P3)  
*Organisers: Kevin Cleary, Gabor Fichtinger, Terry Peters*
- T2 Advances in Diffusion MRI Analysis: Fundamental computational research driven by relevant biological questions (Room P4)  
*Organisers: Carl-Fredrik Westin, Guido Gerig, Ragini Verma*

**Afternoon** (2.00 pm—6:00 pm), coffee break 3:45 pm—4:15 pm.

- T1 Image-Guided Interventions: Applications (Room P3)  
*Organisers: Kevin Cleary, Gabor Fichtinger, Terry Peters*
- T3 Multispectral Imaging in Medicine (Room P4)  
*Organiser: Ela Claridge*

### Friday, November 2nd

**Afternoon** (2.00 pm—6:00 pm), coffee break 3:45 pm—4:15 pm.

- T4 Medical Augmented Reality: state of art, basic technologies and future challenges (Room P3)  
*Organisers: Nassir Navab, Tobias Sielhorst, Joerg Traub, Marco Feuerstein, Sandro Heining*

## 3. WORKSHOPS

### Monday, October 29th

**Morning** (9.00 am—1:00 pm), coffee break 10:45 am—11:15 am.

**Afternoon** (2.00 pm—6:00 pm), coffee break 3:45 pm—4:15 pm.

- W1 Computational Biomechanics for Medicine II (Room P1)  
*Organisers: Karol Miller, Keith D. Paulsen, Alistair A. Young, Poul M. F. Nielsen*
- W2 3D Segmentation in the Clinic: a grand challenge (Room P2)  
*Organisers: Tobias Heimann, Martin Styner, Bram van Ginneken*
- W3 Content-based Image Retrieval for Biomedical Image Archives: achievements, problems and prospects (9am - 1pm) (Room P5)  
*Organisers: Hayit Greenspan, Thomas Lehmann*

### Friday, November 2nd

**Morning** (9.00 am—1:00 pm), coffee break 10:45 am—11:15 am.

**Afternoon** (2.00 pm—6:00 pm), coffee break 3:45 pm—4:15 pm.

- W4 Open Source and Open Data for MICCAI (Room P1)  
*Organisers: Stephen Aylward, Tina Kapur, Luis Ibanez, Kevin Cleary*
- W5 Statistical Registration: Pair-wise and Group-wise Alignment and Atlas Formation (Room P2)  
*Organisers: Lilla Zollei, William Wells, Mark Jenkinson*
- W6 Interaction in Medical Image Analysis and Visualization (9am - 1pm) (Room P3)  
*Organisers: Hayit Greenspan, Thomas Lehmann*